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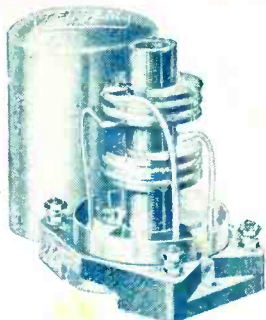
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THE PRACTICAL RADIO JOURNAL

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Friday, September 15th, 1933.

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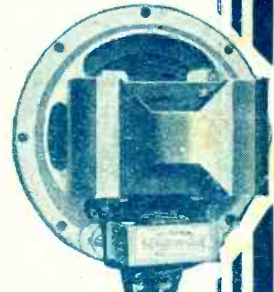
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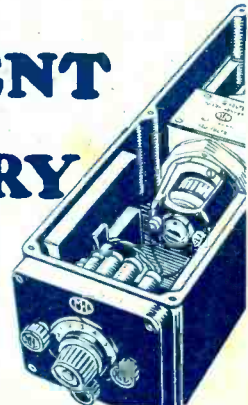
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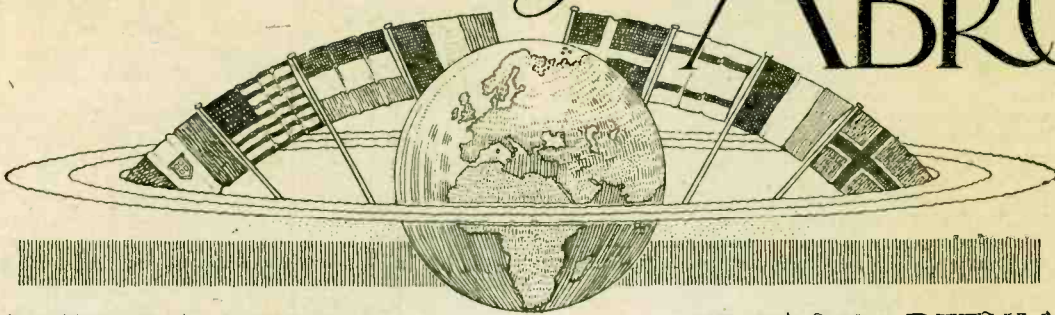
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The Wireless World PROGRAMMES from A BROAD



BROADCASTING STATIONS
ARRANGED IN ORDER
OF WAVELENGTH

TIMES AND DETAILS OF
FULL WEEK'S FOREIGN
TRANSMISSIONS

Metres.	kc s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)		453.2	662	0.25	Agen (France)	
1875	160	8.5	Hilversum (Holland) (<i>Kootwyk, 50kW., after 3.10 p.m. (V.A.R.A., A.V.R.O. and V.P.R.O. programmes.)</i>)		453.2	662	4	Milan (Vigentino) (Italy). (<i>Relays Rome</i>)	
1796	167	40	Lahti (Finland)		450.3	666	20	Madona (Latvia). (<i>Relays Riga</i>)	
1725	174	75	Radio Paris, C.F.R.		447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.); Notodden (0.08 kW.); Alesund (0.35 kW.) (Norway) (<i>relays Oslo</i>).	
1635	183.5	60	Berlin. (Deutschlandsender) (Germany). (<i>S.-W. Stn. DJA on 31.38 m., DJB on 19.73 m., DJC on 49.83 m., DJD on 25.51 m., DJE on 16.86 m.</i>)		441.2	680	50	Rome, I.R.O. (<i>S.-W. Station. 2RO on 25.4 m.</i>)	
1554.4	193	30	Daventry National		435.4	689	55	Stockholm, SASA (Sweden)	
1538	195	7	Ankara (Angora) (Turkey)		430.4	697	2.5	Belgrade (Yugoslavia)	
1481	202.5	500	Moscow, RVI (Old Komintern) (Russia)		424.3	707	2	Madrid, EAJ7 (Union Radio)	
1446	207.5	13	Eiffel Tower, P.L. Paris		424.3	707	100	Moscow, Imini Stalina (Russia)	
1412	212.5	120	Warsaw I (Poland)		419.5	715	1.5	Berlin, Funkstunde (Germany)	
1380	217.5	100	Novosibirsk, RV76 I (Russia)		416.4	720.5	5	Rabat (Morocco)	
1354.4	221.5	30	Motala (Sweden). (<i>Relays Stockholm</i>)		413	725	60	Athlone (Irish Free State)	
1350	222	0.5	Tunis-Kashah (Tunisia)		408.7	734	16	Katowitz (Poland)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)		403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland)	
1230	244	0.6	Boden (Sweden). (<i>Relays Stockholm</i>)		398.9	752	25	Midland Regional (Daventry)	
1200	250	5	Stamboul (Turkey)		394.2	761	12	Bucharest (Roumania)	
1200	250	21	Reykjavik (Iceland)		389.6	770	120	Leipzig (Germany)	
1190	252	200	Luxembourg		385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
1170	256	25	Tashkent, RV11 (Russia)		385.1	779	10	Stalino, RV26 (Russia)	
1154	260	75	Kalundborg (Denmark). (<i>Relays Copenhagen</i>)		381	788	16	Lwow (Lemberg) (Poland)	
1154	260	20	Monte Ceneri (Switzerland). (<i>Temporarily Closed</i>)		376.4	797	50	Scottish Regional (Falkirk)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)		372.2	806	1.5	Hamburg (Germany)	
1083	277	60	Oslo (Norway)		370.1	810.5	0.8	Radio, L.L. Paris	
1071	280	35	Tiflis, RV7 (Russia)		368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ1 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (<i>relays Lahti</i>); Khar'kov, RV20 (10kW.) (Russia)	
1035	290	36	Kiev, RV9 (Russia)		368.1	815	0.7	Fredriksstad (Norway). (<i>Relays Oslo</i>)	
1000	300	100	Moscow RV30 (Russia) (<i>S.-W. Stn. on 50 m.</i>)		364.1	824	1	Bergen (Norway)	
938	320	20	Khar'kov, RV4 (Russia)		363.6	825	13	Algiers (Algeria)	
857	350	100	Leningrad (Russia)		360.6	832	60	Mühlacker (Stuttgart) (Germany)	
840	357	18.5	Budapest (Hungary)		355.9	843	50	London Regional (Brookmans Park)	
825	363.6	50	Sverdlovsk, RV5 (Russia)		352.1	852	7	Graz (Austria). (<i>Relays Vienna</i>)	
760	395	1.3	Geneva (Switzerland). (<i>Relays Sottens</i>)		348.8	860	7.6	Barcelona, EAJ1 (Spain)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)		348.8	860	10	Leningrad, RV70 (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)		345.2	869	11.5	Strasbourg, PTT (France)	
680	441.2	0.6	Lausanne (Switzerland). (<i>Relays Sottens</i>)		341.7	878	35	Brno (Brunn) (Czechoslovakia)	
574.7	522	7	Ljubljana (Yugoslavia)		338.2	887	15	Brussels II, Velthem (Belgium). (<i>In Flemish</i>)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (<i>Relay Stn.</i>)		335	896	5	Cadix (Spain)	
568.1	528	2	Grenoble (France)		334.4	897	1.9	Poznan (Poland)	
563	533	16	Wilno (Poland). (<i>Relay Station</i>)		331.5	905	50	Milan (Italy). (<i>Relays Turin</i>)	
560	536	0.25	Augsburg (Germany). (<i>Relays Munich</i>)		328.2	914	60	Poste Parisien (France)	
560	536	1.5	Kaiserslautern (Germany). (<i>Relays Munich</i>)		325	923	60	Breslau (Germany)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)		321.9	932	10	Göteborg (Sweden). (<i>Relays Stockholm</i>)	
542	554	10	Sundsvall (Sweden). (<i>Relays Stockholm</i>)		318.8	941	0.25	Dresden (Germany). (<i>Relays Leipzig</i>)	
537.6	558	3	Palermo (Italy)		318.8	941	1.5	Naples, INA (Italy). (<i>Relays Rome</i>)	
533	563	60	Munich (Germany)		315.8	950	1.6	Marseilles, PTT (France)	
525	571	15	Riga (Latvia)		312.8	959	0.7	Radio Vitus (Paris). (<i>S.-W. Stn. on 43.75 m.</i>)	
517.2	580	100	Vienna (Bisanberg) (Austria)		312.8	959	1.7	Cracow (Poland)	
509	589	15	Brussels No. 1, Velthem (Belgium). (<i>In French</i>)		312.8	959	10	Genoa, IGE (Italy). (<i>Relays Turin</i>)	
500.8	599	20	Florence, IF1 (Italy). (<i>Relays Turin</i>)		309.9	968	50	West Regional (Washford Cross)	
495.8	605	1.2	Tröndelag (Norway)		307	977	0.75	Zagreb (Yugoslavia)	
488.6	614	120	Prague (Czechoslovakia)		304	986	13	Bordeaux Lafayette, PTT (France)	
480	625	50	North Regional (Manchester)		301.5	995	50	North National (Manchester)	
472.4	635	60	Langenberg (Germany)		298.8	1004	11	Tallinn (Esthonia)	
465.8	644	1.5	Lyons la Doua, PTT (France)		296.1	1013	20	Huizen (Holland). (<i>7 kW. before 4.40 p.m.</i>) (<i>K.R.O. and N.C.R.V. programmes.</i>)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland)		293.5	1022	0.7	Limoges, PTT (France)	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (<i>relays Heilsberg</i>); Klagenfurt (0.5 kW.) (Austria) (<i>relays Vienna</i>); Porsgrunn (0.7 kW.) (<i>relays Oslo</i>); Tronsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Uppsala (0.15 kW.) (Sweden) (<i>relays Stockholm</i>).		293.5	1022	2.6	Kosice (Czechoslovakia)	
					291	1031	13.2	Viipuri (Viborg) (Finland). (<i>Relays Helsinki</i>)	
					288.3	1040	50	Scottish National (Falkirk)	
					288.3	1040	1	Bournemouth. (<i>Relay Station</i>)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength)

Table with columns: Metres, kc/s, 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 B.S.T.)

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

FOREIGN SUNDAY PROGRAMMES

SEPTEMBER THE SEVENTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL** Carolare on the Christian Year, from Swansea.
- LONDON REGIONAL** Brass Band concert.
- MIDLAND REGIONAL** Light orchestral concert from Leamington Spa.
- NORTH REGIONAL** Harvest Festival service from Lancaster Priory.
- WEST REGIONAL** Harvest Festival service from Box Parish Church.
- SCOTTISH REGIONAL** Service from the Church of the Holy Rude (E), Stirling.
- BELFAST** Evensong from St. James' Parish Church, Belfast.
- ABROAD**
- BRUSSELS (No. 1)** 5.0 p.m. The Station Symphony Orchestra, conducted by Kumps.
- BRUSSELS (No. 2)** 9.0 p.m. Saint Saëns concert by the Station Symphony Orchestra.
- BUDAPEST** 10.10 p.m. Cigány concert from the Café Ostend.
- HAMBURG** 12.0 noon. The Philharmonic Orchestra.
- HEILSBURG** 12.0 noon. The Königsberg Opera House Orchestra.
- HILVERSUM** 7.55 p.m. The K.R.O. Orchestra, conducted by Gerritsen.
- HUIZEN** 7.55 p.m. The Station Orchestra.
- LANGENBERG** 5.45 p.m. Extracts from "Cavalleria Rusticana" (on gramophone records).
- VIENNA** 12.0 noon. The Wiener Symphoniker. 8.10 p.m., "A Flight Round the World": radio potpourri.

Opera Music. In the interval at 6.0, Hans Weigl reads his Story "Der Tod des Bauern." 7.10, Anecdotes about Paul Ernst. 7.30, Weather, Topical Talk and Sports Notes. 8.0, Concert by the Silesian Philharmonic Orchestra. In an interval at 8.0, News. 10.0, Time and News. 10.20, Report from Paris of the International Light Athletic Championship—Germany v. France (on Gramophone Records). 10.45, Dance Music from Berlin (Funkstunde). 12 Midnight, Close Down.

Poem, Stenka Razin (Glazunov), on Gramophone Records. 7.15, Religious Address. 7.30, Talk on Music. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Gwendoline (Chabrier); Prelude à l'après-midi d'un faune (Debussy); Symphonic Variations for Cello (Boëlymann); Ballet Music from Marouf (Rabaud). 8.40, Sang de Navet—One-Act Comedy (Miguel Zamboï). 9.0, Concert by the Radio Orchestra, conducted by Franz André: Soloist: De Kock (Baritone); Overture, Le roi l'a dit (Delibes); Four Pieces (d'Ambrosio); Spanish Caprice (Granados); Baritone Solos: Oriental Fantasia (Wiener-vsky); Valse à la viennoise (Gédaige); Suite, English Scenes (Bantock); Jazz Novelties. 10.0, Le Journal Parlé. 10-10 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—11.30 a.m., Report of the Motor Races from the Masaryk Speedway. 11.40, See Prague. 12.15 p.m., See Moravska-Ostrava. 12.30, Report of the Motor Races (contd.). 12.40, See Moravska-Ostrava. 1.30 to 1.45, Agricultural Talk. 2.15, Report of the Motor Races (contd.). 4.0, See Prague. 5.30, Vocal Concert. 6.0, German Transmission: Songs (Schubert-Holländer). 7.0, See Prague. 7.25, Sketch (Lunge). 8.0, See Bratislava. 10.0, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—10.0 a.m., Concert by the Small Station Orchestra, conducted by Leemans: Overture, Fierabras (Schubert); Petite suite (Debussy); Cavatina (Raff); Selection from La Favorita (Donizetti); Cello Solo: Berceuse (Leemans); Suite, En Bretagne (Rheué-Baton). 11.0, Gramophone Concert. 12 Noon, Concert, conducted by André Felleman, relayed from the Grand Hotel, Antwerp; Overture, Poet and Peasant (Suppé); Flotow Fantasia (Urbach); Serenade, Lolita (Bucci); Potpourri of Hungarian Melodies (Geiger-Huber); Vibraphone Solo: Campana a Sera (Billi); Fantasia in the Form of a Rhapsody, Exploisifs (Dolliez). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by Franz André: Soloists: Géodel (Baritone) and Steurs (Accordion); Czardas (Barel); Slav Caprice (Bayer); A Summer's Day (Horne); Polka, A deux (Desormes); Waltz, Donauveller (Ivanovici); Songs and Accordion Music; Three Airs (Turina); Potpourri of Hungarian Music (Mantred); Hungarian Dances (Brahms). In an interval at 1.30, Recitations. 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Nocturne and Scherzo, from A Midsummer Night's Dream (Mendelssohn); Pavane pour une Infante défunte (Ravel); Vals triste (Sibelius); Symphony No. 1 (Beethoven). 5.30, Football Results. 6.0, Gramophone Concert of Variety Music. 6.45, Programme for Children. 7.0, Symphonic

BRUSSELS (No. 2)

N.I.R., 887 kc/s 338.2 metres; 15 kW. Programme in Flemish.—10.0 a.m., Gramophone Concert. 11.0, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Fra Diavolo (Auber); Waltz from Sleeping Beauty (Tchaikovsky); Piece (Armandola); Selection from I Pagliacci (Leoncavallo); Gramophone Records: (a) A Vucchella (Tosti), (b) O Sole mio (di Capua); Selection from Sylvia (Delibes); L'elfe dans la plaine (Brusselmans); Dances from Tango at Midnight (Komjati). 12.0 Noon, Concert by the Radio Orchestra, conducted by Franz André: Soloists: Géodel (Baritone) and Steurs (Accordion). 1.0 p.m., Le Journal Parlé. 1.10, Concert conducted by Felleman, relayed from the Grand Hotel, Antwerp. 5.0, Dance Music relayed from the St. Sauveur Palais de Danse. 5.30, Football Results. 6.0, Finale of Act II of Tannhäuser (Wagner) on Gramophone Records. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Comic Opera (Kéler-Bela); Weber Potpourri (Tavan); Aubade à Kiki (De Boeck); Selection from The Grand Duchess of Gerolstein (Offenbach); Eternelle Cantilène (Gollin); Potpourri, Radio Budapest (Pecsi-Priehystal). 7.15, Religious Address. 7.30, Review of Music. 8.0, Concert by the Radio Orchestra, conducted by André: Soloists: De Kock (Baritone); Overture, Morning, Noon and Night (Suppé); España (Chabrier); Selection from Rose Marie (Friml); Songs; Norwegian Rhapsody (Svendsen); Guildford Supite (Dunhill). 8.45, Recitation: Maria Lecina (Buning). 9.0, Saint-Saëns Concert by the Station Symphony Orchestra, conducted by Kumps: Le rouet d'Omphale; La Jennesse d'Ihercule; Cello Concerto; Phaëton. 10.0, Le Journal Parlé. 10.30 (approx.), Close Down.

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Cork, 1,337 kc/s, 224.4 metres.—8.30 p.m., Time Signal. 8.31, Music by the Aeolian Instrumental Quartet. 9.0, Baritone Solos by John F. West. 9.15, The Adventures of Ellis Palmer—Play, by I. P. Mitchell and his Company. 10.0, Soprano Solos by Chrissie Manning. 10.15, Violin Solos by Alice Feeley. 10.30, Music by the Aeolian String Quartet. 11.0, Time Signal, News, Weather Report and Close Down.

BARCELONA

E.A.J.I., 860 kc/s, 348.8 metres; 8 kW.—12 Noon, Chimes from the Cathedral and Weather Forecast. 2.0 p.m., Gramophone Music. In the interval at 2.30, Theatre Notes. 3.0, Sextet Concert. 4.0, Programme for Hospitals and other Benevolent Institutions, with Gramophone Records. 5.0 to 6.30, Interval. 6.30, Agricultural Talk in Catalan. 7.0, Concert by the Station Orchestra. 7.30, Song Recital by Maria Teresa González (Soprano). 8.0, Concert by the Station Orchestra and Carmen Gombau (Soprano). 9.0, Dance Music, relayed from Hollywood Bar. 10.0, Extracts from Musical Comedies on Gramophone Records. 11.45, Chess Lesson. 12 Midnight (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—See Rome. BASLE.—See Schweizerischer Landessender.

BERLIN

DEUTSCHLANDSENDER (Reichssender), 183.5 kc/s, 1,635 metres; 60 kW.—9.0, Divine Service, relayed from Langenberg. 10.5, Weather, relayed from Berlin (Funkstunde). 11.0, Albert Sergel reads from his own Works. 11.15, Weather. 11.30, See Leipzig. 12 Noon, See Hamburg. In the interval at 12.55 p.m., Time Signal. 2.0, Programme for Children. 2.20, Short Stories. 3.0, Bach Organ Recital by Hans Georg Görner, relayed from St. Mary's Church. 3.30, Wilhelm von Scholz reads from his own Works. 4.30, See Langenberg. 5.0, In the Village Inn. 5.30, Concert Version of The Merry Wives of Windsor—Opera (Nicolaï), on Gramophone Records. 6.5, Discussion on the Beauties of the Southern Tyrol. 6.35, Märchenbilder (Schumann), by Irmgard Veidt (Viola). 7.6, Talk: How Nuremberg lost Dürer's most Beautiful Pictures. 7.20, Talk: The Light Athletic Championship—Germany v. France. 7.45, Songs of the Puszta (on Gramophone Records). 8.30, The Rape of the Sabine Women—Farce (Franz and Paul Schönthan), arranged for Radio by Hans Brenner. 10.0, News. 10.45, Weather. 11.0, Dance Music from Langenberg. 12.30 a.m. (Monday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—11.30 a.m., See Leipzig. 12 Noon, See Hamburg. 2.0 p.m., Talks for Garden City Dwellers. 3.0, See Berlin (Deutschlandsender). 3.30, Concert by an Orchestra of Unemployed Musicians. In the interval at 5.0 (approx.), Radio Report of the Light Athletic Championship Germany v. France, relayed from Paris. 6.0, Dialogue: True Wonder Tales for Children. 6.30, From the Austrian Alps—A Song Sequence for Tenor, Zither, Pianoforte and Harmonium. 7.0, Talk with Gramophone Illustrations: Insect Music. 7.20, A Family Excursion. 7.50, Sports Notes. 8.5, Das verwunschene Schloss—Operetta in Five Acts (Müllbacher). 10.0, News. 10.15 (approx.), Dance Music relayed from the Moka Efti. In the interval at 11.0 (approx.), Talk: The German Revolution as seen from Abroad. 1.0 a.m. (Monday), Close Down.

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

BODEN.—See Stockholm.

BODO.—See Oslo.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—5.40 p.m., Recital of Romanian Songs by Maria Balaceanu. 6.0, Pianoforte Recital by Rudolf Schubert. 6.40, Technical Talk. 6.55, Talk for Housewives. 7.0, See Prague. 7.5, Reading. 7.25, See Brno. 8.0, Mother of the Regiment—Play in Three Acts (J. K. Tyl.). 10.0, See Prague. 11.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,184 kc/s, 253 metres.—10.30 a.m., Pianoforte Trio Recital. 11.0, Th. Elbertzhagen reads from his own Works. 11.30, Talk on Chess. 11.45, Talk on Photography. 12 Noon, Concert from Schweidnitz. 2.0 p.m., Agricultural Talk. 2.15, Talk: The Motor-Railway Service. 2.35, Talk: Brunnbild and Gudrun. 3.0, Mouth Organ Recital. 3.30, Programme for Children. 4.0, Concert of

BUCHAREST

761 kc/s, 394 metres; 12 kW.—9.0 a.m., Divine Service. 10.30, Religious Address. 10.45, Sacred Music on Gramophone Records. 11.0, Light Music and Romanian Music by the Jean Dumitresco Orchestra. 12.0 Noon, Symphony Music on Gramophone Records. 12.45 p.m., Radio Journal. 1.0, Romanian Music on Gramophone Records. 4.0, Programme for Peasants. 5.0, Light Music and Romanian Music by the Jean Marco Orchestra. In the interval at 6.0, Radio Journal. 7.0, Educational Programme. 7.20, Dance Music on Gramophone Records. 7.40, Educational Programme (contd.). 8.0, Song Recital by Niculesco-Bassu. 8.20, Concert by the Station Orchestra. In the interval at 9.0, Talk. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.30 p.m. till Close Down.—11.15 a.m., Protestant Service, followed by Concert by the Opera House Orchestra, conducted by Otto Berg. In the interval, Radio Chronicle. 2.0 p.m., Gramophone Music. 3.0, Agricultural Programme. 4.55, News. 5.0, A Hungarian Comedy in Four Acts. 7.30, Military Band Concert. 8.40, Recital by Stefan Zagon. 9.10, Cello Recital by Arnold Földessy. 9.55, News. 10.10, (approx.), Cigány Concert from the Café Ostend. In the interval, Hungarian Folk Songs.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 280 kc/s, 1,153.8 metres.—8.0, Morning Gymnastics. 9.0, Agricultural Talk. 10.0, Divine Service, relayed from the Cathedral, Odense. 11.30, Weather. 11.40, News. 12 Noon, Time Signal and Chimes from the Town Hall. 12.2 p.m., Concert by the Mogens Hansen Instrumental Ensemble. 1.0, Talk in English: The Grand Tour of Scotland. 1.20, Talk in German: The German Novel of the Pre-War Period. 1.40, Talk in French: Among the Ragpickers—a Picture of the Paris Slums. 2.0, Concert. 3.0, Gramophone Concert. 3.30, Programme for Children. 4.0, Orchestral Concert, conducted by Teddy Petersen, relayed from the Wivex Restaurant. 5.0, Divine Service Relay. 6.20, Talk on Napoleon. 6.50, Weather. 7.0, News. 7.15, Time Signal. 7.30, Talk: The Economic Situation in the United States. 8.0, Time Signal from the Town Hall. 8.1, Concert by the Station Orchestra, conducted by Launy Gröndahl. Overture (Nielsen). Waltz (Gungl); Festival Prelude (Andersen); Finale from Die Musikanten (Flotow); Salut Galop (Lumbye). 8.30, Danish Poets roam the World—Programme of Songs and Recitations. 9.10, Orchestral Concert (contd.). Overture, Haermaendene paa Helgeland (Hartmann); Mester Erik Polka (Lumbye); Prelude to Act II of Thyrfing (Gröndahl); Festival Waltz (Möller). 9.35, The Hansen Family—Comic Sketch (Jens Locher). 9.50, Orchestral Concert (contd.). The Phantom Brigade (Mydleton); Polonaise from Et Folkesagn (Gade); Mazurka from His Life for the Czar (Glinka); Turkish March (Eilenberg). 9.10, Cello Recital of French Music by Karl Bjarnhof. 10.25, News. 10.35, Orchestral Concert (contd.): Overture, Masaniello (Auber); Waltz (Waldteufel); Mazurka (Gade); Anisea Galop (Möller). 11.0, Dance Music, conducted by Ottó Lington, relayed from the Ritz Restaurant. In an interval at 12 Midnight, Time Signal and Chimes from the Town Hall. 12.30 a.m. (Monday), Close Down.

CORK.—See Athlone.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 to 12 Noon, Programme in English by the I.B.C. 11.0 a.m., Happy Hour. Part I. Orchestral Concert: Signature Tune: French Comedy Overture (Kéler-Bela); Love in Cloverland (Peter); Selection from The Mikado (Sullivan); Pianoforte Solo: Minuet (Paderewski); Sérénade (Pierne); Gavotte from Mignon (Thomas); Life in the Wiener Prater (Translator). Part II. Organ Recital: Three-Four Waltz Suite, No. 3 (Coleridge-Taylor); Who is Sylvia? (Schubert); Le Cygne (Saint-Saëns); Two Pieces from the Gothic Suite (Boelli); (a) Prière à Notre Dame, (b) Toccata; Menuet antique (Waltzing); The Storm (Shaw); Signature Tune. 12 Noon, French Programme. 2.0 to 7.30 p.m., Programme in English by the I.B.C. 2.0, Concert: M'appari tut' amor (Flotow); O Sole mio (di Capua); Vesti la Giubba (Leoncavallo). 2.15, Light Music: Amlia (Lincke); The Valley of the Poppies (Ancliffe); Animal Antics (Wark); A Birthday Serenade (Lincke). 2.30, Special Request Programme: Swiss Fairytale (Stolz); Will Evans loses his Umbrella; If I had a Girl like you; Caravan; The Blue Train (Gorney); Will Evans unveils a Statue; Stumbling; Bye, Bye, Blues. 3.0, Light Orches-

SEPT. 17th

SUNDAY

continued

tral Concert: Selection from Näila (Delibes); The Skaters' Waltz (Waldteufel); Xylophone Solo: Dance (Abbey); Evolution of Dixie (Lake); Selection from "Sari" (Kálmán); Violin Solo: Valse Bluettes (Brigo); Pulcinello (Aletter); March, from Sylvia (Delibes). 3.30, Military Band Concert: Washington Post March (Souza); Amorettenanz (Gungl); The Mill in the Black Forest (Eilenberg); Song: O Mistress Mine (Quilter); L'Entente Cordiale (Allier); Selection from Rigolotto (Verdi); Song: Wayside Rose (Leliár); Turkish Patrol (Michaels). 4.0, Judge Rutlerford's Address. 4.15, The Nursery Corner. 4.30, Descriptive Adventure Story. 5.0, Orchestral Concert: Overture, Die Fledermaus (Joh. Strauss); Selection from The Merry Widow (Lehár); The Night was made for Love (Kern); My Hero (O. Straus); Selection from No. No. Nanette (Youmans); Violin Solo: Indian Love Call (Friml); Love will find a way (Fraser Simson); Selection from The Dubarry (Millbeker-Mackeben). 5.30, Concert: Signature Tune; Jolly Good Company; Parade of the Tin Soldiers (Jessel); When day is done; Coal Black Mammy; Valencia; The Sheik of Araby; The Bells of St. Mary; Sleepy Valley; Happy Dorkies; Signature Tune. 6.0, Brighton-Bristol Alliance Concert: Hands across the Sea; Announcement by Councillor J. Talbot (Chairman of the Brighton Corporation Publicity Committee); Selection from The Merry Wives of Windsor (Nicolaï); Announcement by Mr. Frank Evans (Chairman of the Brighton and Hove Hotels Association); Brighton Camp; The Bee's Wedding (Mendelssohn); Twilight on the Waters (Squire); Devonshire Cream and Cider (Sanderson); Selection from The Pirates of Penzance (Sullivan); Green Hills of Somerset (Coates); Brightonia (Binding); Bells of Somerset; Drake's Drum (Stanford); Until (Sanderson); The Old Superb (Stanford); Sussex by the Sea (Ward Holks). 7.0, Instrumental Solos: The Old Folks at Home; The Return of Johnnie; Flapperette (Greer); What aloha means (Alphini); I can't write the Words; The Wedding of the Painted Doll; Tango de Paques; Dream Girl of Yesterday. 7.30, French Programme. 9.0 till Close Down, Programme in English by the I.B.C. 9.0, Ballito Concert of Dance Music: Signature Tune; Happy Feet; I've got to sing a Torch Song; You're mine, you; Somebody stole my Gal; Sweep; Dancing Buttery; In a Second-hand Store; Stay out of my Dreams; Adorable; Signature Tune. 9.30, Talkie Time: Signature Tune; Sittin' in the Dark; Smilin' Through; The moment I saw you; But for you; Sweetheart Darlin'; Heaven will protect an Honest Girl; There's Magic in the Air; The Whip; Talking to you about me; Signature Tune. 10.0, I.B.C. Members' Request Half-Hour: The Blue Danube (Strauss); Tommy Lad (Marzelson); My Heart stood still (Rodgers); The Porter's Love Song (Razaf); Serenata (Toselli); The Birth of the Blues (Henderson); After the Ball (Harris); Colonel Bogey (Alford). 10.30, Concert of Dance Music: My Love Song; In the Valley of the Moon; There's a Cabin in the Pines; Love Songs of the Nile; From me to you; The Shadow Waltz; Stay out of my Dreams; It's Sunday down in Caroline; A Night in June. 11.0, Dance Music by Tommy Kinsman and his Cros Club Band: Signature Tune; Cuban Love Song; Tom Thumb's Drum; What's going to happen to me?; My Sunshine is you; To-day I feel so happy; It's a Girl; Rio de Janeiro; Manie; When I dance with you; Signature Tune. 11.30, Concert arranged by the International Broadcasting Company (Ireland). Ltd., on behalf of Hospitals Trust. Ltd.: Signature Tune; Come back to Erin; Serenade; Farewell my Native Irish Home; Bacchanals from The Seasons (Glazunov); Cello Solo: Ay (Freiere); Poor Butterfly (de Philipp); Eileen Alannah; Charming Episode (Ormandy); Signature Tune. 12.5 a.m. (Monday), News Bulletin in English. 12.10, Club Concert for Mansfield Listeners: Signature Tune; The Chum Song; Rockin' Chair; Rocky Road; I wanna count Sheep; Bugle Call Blues; Crying and Sighing; Sweetness; Put on your Old Grey Bonnet; You've got me; Whispering; My Favourite Band; Nine little Miles from Ten-Ten-Ten-see; Music hath Charms; It's a Glory; Signature Tune. 1.0, Dance Music: Signature Tune; The Bells of Normandy; It's the Band; That's my Home; Out in the Open; I cover the Waterfront; When Gimble hits the Cymbal; Learn to Croon; Chewing Gum; Lover; I'm getting sentimental over you; Hello; My gal Sal; I raised my Hat; At the Old Pig and Whistle; Seven Years with the Wrong Woman; Rosa Mia; All over Italy; Signature Tune. 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—11.30 a.m., See Leipzig. 12 Noon, See Hamburg. 2.0 p.m., Gramophone Concert. 2.30, Two Agricultural Talks. 2.40, Agricultural Programme. 3.30, See Stuttgart. 4.30, Concert, relayed from the Kurhaus, Wiesbaden. 6.0, Talk. 6.30, A Merry Interlude. 7.0, Sports Notes. 7.15, Germany's Lost Colonies in Africa—Radio Sequence (Paul Laven). 8.0, Concert of Opera Music by the Station Orchestra, conducted by Hans Ros-

band. 10.20, Time and News. 10.45, Dance Music from Langenberg. 12 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.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—11.30 a.m., See Leipzig. 12 Noon, Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker: Overture, Rosamund (Schubert); Polonaise in E (Liszt); Selection from La Traviata (Verdi); Humoresque in E (Humperdinck); Dance from Czar and Carpenter (Lortzing); Overture, Der Bettelstudent (Millbeker); Spanish Caprice (Rinsky-Korsakov); Selection from Tielland (d'Albert); Norwegian Dances Nos. 1 and 2 (Grieg); Waltz, Roses from the South (Joh. Strauss). In an interval at 12.55 p.m., Time and Weather. 2.0, Programme for Children. 3.0, Song Recital by Bertha Hultgren (Contralto) and Otto Albrecht (Tenor). 3.30, Two Towns Meldorf-Heide—Radio Sequence (Werner Perry). 4.30 (from Bremen) Concert by a Nazi Band. 5.30, A Pleasant Sail—Radio Sequence. 6.30 (from Flensburg), Concert by the Flensburg Choir, conducted by Ilse Struck; Soloist: Ilse Struck (Organ). 7.0 (from Hanover), Orchestral Concert, conducted by Otto Ebel von Sosen: Soloists: Harry Moss, Recitations, Karl-Heinz Schulz (Tenor), and Willi Lanteme (Bass). 7.40, Sports Notes and Weather. 8.0, Concert by the Philharmonic Orchestra, conducted by Richard Richter; Soloist: Paul Kötter (Songs): Overture, Der Freischütz (Weber); Durch die Wälder, durch die Auen from Der Freischütz (Weber); Variations on a Theme of Haydn (Brahms); Overture, The Flying Dutchman (Wagner); Walter's Prize Song from The Mastersingers (Wagner); Symphonic Poem, Don Juan (R. Strauss). In the interval at 9.0, Announcements. 10.0 Time and Announcements. 10.10, Hamburg, Bremen and Lübeck—A Weekly Review from the Hanseatic Free Cities. 10.40, Light Music and Dance Music from Langenberg.

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—11.30 a.m., Choral Concert from Königsberg. 12 Noon, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner. Soloist: Joachim Ansoerg (Pianoforte). 2.0 p.m., Talk on Chess. 2.30, Programme for Young People. 3.0, East Prussian Songs and Fairy Tales. 3.30, Diex schöne Müllerin—Song Cycle (Schubert) by Joachim Stein (Tenor). 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the interval at 5.0, Sports Notes. 6.0, Talk: Protestant Women's Social Work in East Prussia. 6.25, Reading. 6.50, Chamber Music of the Pre-Classical Period. 7.30, Reading from the Works of Wilhelm Raabe. 8.0, Sports Notes. 8.5, An Operetta, from Berlin (Funkstunde). 10.0, News. 10.15 (approx.), Dance Music from Berlin (Funkstunde). 12 Midnight, Close Down.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW (until 5.40 p.m.) and 20 kW from 5.40 p.m.—8.10 to 9.10 a.m., Programme of the Christian Radio Society (N.C.R.V.). 8.10, Religious Programme. 9.10 to 4.40, Programme of the Catholic Radio Society (K.R.O.). 9.10, Gramophone Music. 9.55, High Mass, relayed from the Church of St. Dominicus, Amsterdam. 11.25, Gramophone Music. 11.55, Concert by the K.R.O. Boys, conducted by Lustenhouwer. 12.40 p.m., Talk. 1.0, Concert (cont.). 1.40, Religious Address. 2.10, Extracts from Madame Butterfly—Opera (Puccini), by the K.R.O. Orchestra, conducted by Geritsen. 2.25, Radio Report of the Opening of the Sports Ground at Harlem. In the interval, Gramophone Music. 4.10, Programme for Invalids. 4.40 to 7.25, N.C.R.V. Programme. 4.40, Religious Programme with Choral Music. 5.20, Divine Service, relayed from a Church in Utrecht. 7.10, Sacred Music on Gramophone Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Football Results. 7.30, Meteorological Talk. 7.55, Concert by the K.R.O. Orchestra, conducted by Geritsen. Soloist: Boshart (Pianoforte). In the intervals at 8.40, News; at 8.45, Recitations; at 9.35, Recitations, and at 9.55, News. 10.20, Epilogue. 10.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW (until 3.40 p.m.). Transmitted from Kootwijk on 50 kW from 3.40 p.m.—8.10 to 9.40 a.m., Programme of the Workers' Radio Society (V.A.R.A.). 8.10, Announcements. 8.12, Horticultural Talk. 8.40, Organ Recital. 9.0, Talk. 9.20, Organ and Violin Recital by Jong and Wiggelaar. 10.10, Programme of the Liberal Protestant Radio Society (V.P.R.O.): Divine Service relayed from Amersfoort. 11.40 to 4.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Time Signal. 11.41, Talk. 12.10 p.m., Orchestral Concert conducted by Nico Treep. 1.40, Weekly Book Talk. 2.10, Baritone Song Recital by Hans Merx. 2.40, Gramophone Music. 3.40, Talk: Galsworthy's Novel, Escape. 4.0, Gramophone Music Recital by Hans Merx. 4.40 to 7.40, Programme of the V.A.R.A. 4.40, Orchestral Concert, conducted by de Groot. In the intervals at 5.20, Recitation, and at 6.30, The Adventures of Wakker and Tropenduit. 7.40 till Close Down, Programme of the A.V.R.O. 7.40, Time Signal. 7.41, News. 7.55, Concert by the Station Orchestra, conducted by Nico Treep, a Choir and Soloists: Nicolas Roth (Violin), Grethe Weijnschenk-Hogenbirk (Soprano), and Han Heydenrijk (Contralto). 9.10, Escape—Radio Play (after the Novel by Galsworthy). 9.40, The Singing Babies Sing. 10.0, Orchestral Concert. In the intervals at 10.15, The Singing Babies, and at 10.55, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusement Guide and Sports Notes. 8.15, Radio Concert. 9.0, News. 9.15, Recital by Suzanne Quitte. 10.0, The Listeners' Half Hour. 10.30 till Close Down, Programme in English by the I.B.C. 10.30, Light Orchestral Concert: Jollity on the Mountains (Fetras); Gipsy Moon (Boragnov); Musical Comedy Switch (arr. Hall); Hungarian Melodies (Korby); Live, love and laugh (Heymann); Liebesfreud (Kreiser); Wiener Bonbons (Strauss). 11.0, Vocal Concert. Times of not so long ago (1921-1922): The Old Spinning Wheel (Hill); Landlord, fill the fowling Bowl; Spring Song (Wagner); My Darling (Heymann); Orchestra: Selection from The Maid of the Mountains (Fraser Simson). 11.30, Instrumental Concert. Organ Solo: Love's Old Sweet Song (Molloy); Pianoforte and Organ: Marigold (Mayer); Violin Solo: Waltz, Estudiantina (Waldteufel); Hawaiian Guitars: I wonder how the Old Folks are To-night (Yellen); Pianoforte with Celesta Accompaniment: Serenade (Heykens); Accordion Solo: Accordion Nights; Xylophone Solo: The Skaters' Waltz (Waldteufel); Bandion Solo: Blaze away (Holzmann). 12 Midnight, Dance Music. Moon Song (Johnston): In the Valley of the Moon (Burke); Hold me (Schuster); I'll see you in the Morning (Marks); I can't remember (Berlin); Picaninies' Heaven (Johnston); Maybe I love you too much (Berlin); The Lady I Love (Young). 12.30 a.m. (Monday), Dance Music. Let's all dance the Polka; I'm one of the Lads of Valencia; It's within your Power; When my little Pomeranian; Drifting under a Summer Moon; Sweetheart: One little word led to another; My Heart's to let. 1.0, I.B.C. Good-night Melody and Close Down.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—11.30 a.m., See Leipzig. 12 Noon, See Hamburg. 2.0 p.m., Reading of a Tale in Crefeld Dialect. 2.20, Dance Music on Gramophone Records. 3.0, Autobiographical Talk by Kathie Kruse on her Fiftieth Birthday. 3.20, Ballet Music from Les petits riens (Mozart) on Gramophone Records. 3.30, Reading. 4.5, Talk on Greenland and the Wegener Expedition. 4.30, Concert of Light Music with Songs. 5.20, Political Talk. 5.30, Radio Report of the Rudolf Oettker and the Rhine Province Races, from the Race Course, Crefeld. 5.45, Selection from Cavalleria rusticana—Opera (Mascagni), by the Soloists, Choir and Orchestra of the Scala, Milan (on Gramophone Records). 6.30, Three Tales of the War (Robert). 7.0, Concert of Light Music. 7.20, Festival Programme, relayed from the Church of Saint Lambert, Münster. 8.0, Sports Notes. 8.15, Dances through the Centuries—Radio Sequence. 10.15, News. 10.40, Light Music and Dance Music, conducted by Eysoldt. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—11.30 a.m., Jesu, der du meine Seele—Cantata (Bach), by the Municipal and Gewandhaus

Orchestra, the Choir of St. Thomas and Soloists. 12 Noon (from Dresden), Concert by the Dresden Philharmonic Orchestra. 2.0 p.m., Weather and Time. 2.5, Programme Announcements. 2.25, Agricultural Notes. 2.35, Programme to be announced. 3.0, Walter Niemann in a Recital of his Own Pianoforte Compositions. 3.30, Programme to be announced. 4.15, Talk with Readings: Carl von Clausewitz, Prussian Poet and Thinker. 4.30, Concert. 5.50, Topical Sports Reports. 6.25 (from Dresden), Quartet in F Op. 96 (Dvorák), by the Dresden String Quartet. 6.50, Frisch auf, gewandert!—Radio Sequence (Dietsch) with Incidental Music. 7.50, Talk: Friedrich Kind, der Librettist of Der Freischütz. 8.0, Der Freischütz—Opera (Weber). 10.15, News. 10.30 (approx.), Dance Music. 12 Midnight, Close Down.

LINZ.—See Vienna.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—9.0 to 10.0 a.m., Topical Review. 3.0, Chimes, Time, Theatre Notes, and Popular Concert. 5.0 to 8.0, Interval. 8.0, Chimes, Radio Journal, and Dance Music. 9.30 to 11.0, Interval. 11.0, Chimes, Time Signal, and Science Talk. 11.30, Municipal Band Concert, conducted by Villa, relayed from Rosales. After the Concert, Dance Music. 1.30 a.m. (Monday), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—12.15 p.m., Orchestral Concert, conducted by Pielita. 12.30, See Brno. 12.40, Concert (cont.). 1.30 to 1.50, See Prague. 2.15, See Brno. 4.0, See Prague. 5.30, Gramophone Music. 6.0, See Prague. 7.5, Song Recital. 7.25, See Brno. 8.0, See Bratislava. 10.0, See Prague. 11.0 (approx.), Close Down.

MOTALA.—See Stockholm.

MÜHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—10.0 a.m., Catholic Service. 10.45, Chimes from Our Lady's Church. 10.55, Orfeo-Opera (Monteverdi) and Lo sposo deluso—Opera (Mozart) (Concert Versions), followed by the Symphony in G Minor (Mozart). 12 Noon, Military Band Concert relayed from the Feldherrnhalle. 1.0 p.m., Time, Weather and Programme Announcements. 1.10, Agricultural Talk. 1.30, Gramophone Concert. 2.30, Talk on Lotteries. 2.40, Political Talk. 3.0, Orchestral Concert, conducted by Erich Kloss. 4.0, Programme for Children. 4.30, Concert. 5.15, Allgäu—Radio Sequence of the Land and the People. 6.0, Johann August Sixt, a Forgotten Contemporary of Mozart—Song Recital by Ingeborg Res. 6.25, Dunes, Amber and Migratory Birds—a Word-Picture of the Baltic Coast. 6.45, Pianoforte Recital by Dr. W. Georgii. 7.15, Weather and Sports Report. 7.30, The Mittenwalder—a Radio Sequence (Josef Bauer—Peissenberg). 8.20, Military Band Concert, relayed from Neustadt. 9.25, Concert by the Station Orchestra and Soloists: Arias from Carmen (Bizet) with Orchestral Accompaniment; Selection from The Bird Fancier (Zeller). 10.20, News. 11.0, Talk, followed by Dance Music from Berlin (Funkstunde). 12 Midnight, Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Forsgund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—10.15 a.m., Weather and Roads Report. 10.45, Divine Service, relayed from the Tjølling Church. 5.0 p.m., Orchestral Concert conducted by Trygve Christiansen, relayed from the Lyche Restaurant. Russian March (Ganne). 6.0, Talk. 6.30, Sacred Song Recital by Røvlve. 7.0, Agricultural Notes. 7.15, Weather and News. 7.30, Recitations. 8.0, Time. 8.1, Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, Don Giovanni (Mozart); Symphony in G—The Oxford (Haydn); Spanish Rhapsody (Liszt); Gjøstegutt (Grieg); La fille aux cheveux de lin (Debussy); Pêcheurs neapolitains (Ruhnstein); Overture, 1812 (Tchaikovsky). 9.20, Programme to be announced. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Sports Notes. 10.20, Balalaika Recital by Boris Borisov. 10.50, Dance Music on Gramophone Records.

ÖSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—10.25 a.m., Bible Reading. 10.40, Sacred Music. 11.5, Agricultural Talk. 12.45, p.m., Giornale Radio. 1.0 to 2.0, Light Music. In the interval at 1.30, Time, Announcements and Weather. 5.30 to 6.30, Gramophone Music. 8.0, Dopplavoro Notes and Giornale Radio. 8.20, Gramophone Music. 8.25, Sports Notes. In the interval at 8.30, Time and Announcements. 8.45, Symphony Concert, conducted

by La Rosa Parodi. In the interval, Talk. After the Concert, Gramophone Music. 10.55, News.

SEPT. 17th

SUNDAY

continued

Opera in Two Acts (Vincenzo Bellini). In the intervals, Talks. Giornale Radio after the Opera.

SALZBURG.—See Vienna.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals)—1.0 p.m., News. 1.15, Weather. 1.30 to 2.30, Concert by the Ilios Orchestra. 6.45, Le Journal Parlé. 8.30, Gramophone Concert. Part I: Classical Music. Part II: Variety Music. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10.0 a.m., Gramophone Music. 10.20, Press Review. 10.30, Sponsored Concert. 11.0, Concert by the Station Quintet. 12.15 p.m., Sponsored Concert of Sound Film Songs. 12.45, Sponsored Programme. 12.50, Half-an-hour of Fantasy by Paul Weill. 1.30, Sponsored Programme. 2.0, Interval. 7.0, Le Journal Parlé. 7.5, Sports Notes. 7.15, Gramophone Music. 7.30, Catholic Review. 8.0, Gramophone Music. 8.30, Reading of Poems (Paul Bourget and Trispart). 8.45, Liszt Song Recital by Edouard Gendron: Dans les bois; Loreley; Ronde des lutins. 9.15, Les uns chez les autres—One-Act Comedy (Paul Giaferi). 9.45, Song and Pianoforte Recital by Resnik (Bass) and Edouard Gendron: Serenade from Faust (Gounod); Capulet's Aria from Romeo and Juliet (Gounod); Aria from A Life for the Czar (Glinka); Ballad (Mussorgsky); Comme la nuit (Bohn); Aria from Faust (Gounod). Pianoforte Solos: (a) Prelude (Boutnikov), (b) Waltz (Arensky). 10.15, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.45 a.m., Gramophone Records: Bambola d'amour (Petrucci); Dans ma peniche (Borel-Clerc); Adeline (Gilbert); Ginetta (Mignone). 8.0, News. 8.30, Physical Culture. 12 Noon, Religious Address by the Reverend Father Padé. 12.20 p.m., Sacred Music: Choral in A Minor (César Franck); Improvisation (Vidor); Toccata (Gigout). 12.30, Gramophone Concert: Overture, The Thieving Magpie (Rossini); Cavatina from Norma (Bellini); Marionnettes (Glazunov); Si j'étais Jardinier (Chaminade); Valse poudrée (Popy); Aria from André Chenier (Giordano); Le Cygne (Saint-Saëns); Eglogue (Rahaud); Ariette (Lully); Liebesleid (Kreisler); Les Roses d'Ispahan (Faure); Sons bois (Staub); Ton sourire (Catherine); Havanaise (Saint-Saëns); Suite from Les Erynnies (Massenet).

2.0 to 2.30, Programme in English by the I.B.C. Dance Music: Signature Tune, Happy Feet; Have you had a good Day to-day?; Black Knights; One Tiny Tear; My Serenade is You; Down in the Valley; The Old Spinning Wheel; Jack and Jill's Crash; Hold me; Signature Tune. 3.0 to 3.30, Programme in English by the I.B.C. Orchestral Concert: March, The B'hoys of Tipperary (Amers); Love's Old Sweet Song (Molloy); The Warbler's Serenade (Perry); In a Monastery Garden (Kettelber); Selection from The Quaker Girl (Monckton); Waltz, I love the Moon (Rubens). 5.30, Gramophone Concert: Dance from Le Roi malgré lui (Chabrier); Waltz (Lelihar); The Mill in the Black Forest (Eilenberg); O cara mia (Brodsky); Arlequin et Colombine (Lacôme); Selection from Bouton d'or (Pierne); Amour discret (Pesch); Myrto (Petit); Algerian March (Bosc). 6.0, Popular Concert. 7.0, Variety Concert. 8.0, Gramophone Concert: Day by Day; Mi Madre (Cazes); Selection from Il est charmant (Moretti); O Sole mio (di Capua); Fascination (Marchetti); Reminiscences (Kock); Lizzy, rêve d'un soir (Marino); Parade of the Tin Soldiers (Jessel). 8.30, News. 8.45, Gramophone Concert. In the interval at 9.15, Press Review and News.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.15 to 9.0 p.m., New York Relay. 7.15, Summer Idyll. 7.30, Variety Programme. 8.0, National Opera Concert. 9.0, Programme to be announced. 9.30, Organ Recital from New York. 10.0, Vesper Services. 11.0, News and Among Masters. 11.15, Weather and Sports Notes. 11.30, Huston Ray's Orchestra. 12 Midnight, Pathé News of the Air. 12.15 a.m. (Monday), Jules Lande, Violinist. 12.30-2.30, New York Relay. 12.30, Desert Guns. 1.0, Light Opera. 2.0, Gulf Headliners. 2.30, Programme to be announced. 2.45-3.15, New York Relay. 2.45, The Novelists Quartet. 3.0, Mountain Music.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—11.0 a.m., Military Band Concert, relayed from Podbrady. 11.30, See Brno. 11.40, Military Band Concert (cont'd). 12 Noon, Chimes. 12.5 p.m., News. 12.15, See Moravska-Ostrava.

12.50, See Brno. 12.40, See Moravska-Ostrava. 1.30, Agricultural Programme. 1.50, Talk: The Protection of Children from Tuberculosis. 2.0, Interval. 2.15, See Brno. 4.0, Military Band Concert, relayed from the Kralovska Oboza. 5.30, Gramophone Music. 6.0, German Transmission: Programme Announcements, Dramatic Programme, and News. 7.0, News. 7.5, Harpsichord and Viola da Gamba Recital: Sonata in E Minor (Abel); Suite in A (d'Hervelois); Sonata in D (Hammer). 7.25, See Brno. 8.0, See Bratislava. 10.0, Time Signal, News, and Sports Report. 10.20, Gramophone Music. 11.0, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—9.55 a.m. (from Geneva), Chimes. 10.0 (from Geneva), Protestant Service, relayed from the Victoria Hall. 11.0 (from Geneva), Gramophone Concert. 12.30 p.m., News and Weather. 12.40 (from Geneva), Gramophone Concert. 2.0 to 3.30, Interval. 3.30, Concert by the Radio-Suisse-Romande Orchestra, conducted by Robert Echenard. 5.0 to 7.0, Interval. 7.0 (from Geneva), Talk: Is Wireless a Benefit to Mankind? 7.30 (from Geneva), Sports Notes, News and Announcements. 8.0 (from Geneva), Trumpet Solos. 8.20 (from Geneva), Dramatic Programme. 8.50 (from Geneva), Hallelu! Paris. Geneva Calling—A Revue in Nine Scenes, relayed from the Kursaal, Geneva. 10.15 (approx.), News and Weather. 10.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1R0, 660 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; 2R0, 14,810 kc/s, 25.4 metres, from 5.15 p.m.; and Milan (Vigentino), 662 kc/s, 453.2 metres, from 8.45 p.m.—10.0 a.m., News, Sports Notes and Amusement Guide. 10.30, Agricultural Notes. 10.45, Bible Reading. 11.0 to 12 Noon and 12.30 to 1.45 p.m., See Turin. 1.45, Gramophone Music. 2.0, Time and Announcements. 5.0 (Naples), Programme for Children, Weather and Sports Notes. 5.15 to 6.30, Vocal and Instrumental Concert. Sports Notes in the interval. 6.30, Weather. 7.30, Sports Notes, Dopolavoro Report and News. 8.0, Time and Announcements. 8.30, Sports Notes. 8.40, Introductory Talk to the following transmission. 8.45, "Il Pireta"—

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—8.0 p.m. to 10.0 (approx.), New York Relay. 8.0, Wayne King's Orchestra. 8.30, Radio Pulpit. 9.0, Fiddlers Three. 9.15, Wild-root Institute. 9.30, Temple of Song. 12.45 a.m. (Monday) to 3.45, New York Relay. 12.45 a.m., Russian Symphonic Choir. 1.0, Popular Programme. 2.0, Merry-Go-Round. 2.20, American Album of Familiar Music. 3.0, Musical Programme. 3.15, Impressions of Italy. 3.45, Sunday at Seth Parkers, from New York, followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

653 kc/s, 459 metres; 60 kW. Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—10.45 (from Berns), Concert of Sacred Music. 11.30 (from Berne), Readings from the Works of Swiss Authors. 12 Noon (from Berne), Songs in German, French, Italian and French-Swiss, on Gramophone Records. 12.50 p.m., Time, Weather and News. 12.40 (from Zurich), Concert by the Radio Orchestra, conducted by Neppach. 1.30 (from Berne), Agricultural Programme. 2.30 to 5.0, Interval. 5.0 (from Berne), Protestant Service. 5.45 (from Berne), Adagio from Symphony No. 7 in E (Bruckner), on Gramophone Records. 6.0 (from Berne), Talk on Chess. 6.30 (from Berne), Talk: The Jura Mountains. 7.0 (from Berne), Time and Sports Notes. 7.10 (from Berne), Mass (Rheinberger). 8.10 (from Berne), A Musical Play (Schubert). 9.5, News. 9.15 (from Berne), Swiss Programme. 10.15 (from Berne), Sports Notes.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres; and Sundsvall 554 kc/s, 542 metres.—9.0 a.m., Talk. 9.30, Gramophone Music. 10.10, Agricultural Talk. 10.30, Talk. 11.0, Divine Service Relay. 12.45 p.m., Weather. 3.0, Talk. 3.20, Song Recital by Joseph Hislop. 3.50, Temperance Talk. 4.15, Gramophone Music. 5.5, Programme for Children. 5.50, Song and Piano.



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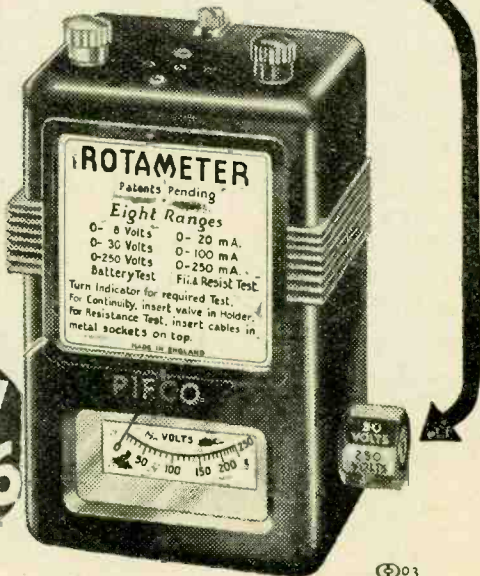
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SEPT. 17th

SUNDAY

continued

forte Recital by Lisa Tunell and Märta af Klitberg. 6.0, Evensong, relayed from Eskilstuna, 1,220 kc/s, 245.9 metres. 7.35, Reading (Sten Baistad). 8.0, Orchestral Concert. 9.15, One-Act Play (Paul Morand). 9.45, Weather and News. 10.0, Concert by the Station Orchestra; Soloist, Set Svanholm (Songs). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.30 a.m., Orchestral Concert, conducted by Maurice de Villers. 10.45, Protestant Service. 11.30, Catholic Service in German. 12 Noon, Variety Music on Gramophone Records. 12.45 p.m., News. 1.0, Time. 1.1, Light Music on Gramophone Records. 2.0, Interval. 3.0, Classical Music on Gramophone Records. 4.0, Popular Music on Gramophone Records. 5.0, Orchestral Concert, conducted by Roskam: Two-step (Erwin); Waltz, Roses from the South (Joh. Strauss); Serenade (Toselli); Marcietta (Sudesi); Here's to the Next Time (Hall); By a rippling Stream (Petkere); Boston, I wake up Smiling (Leslie and Albert); Saxophone Solo: Simple avenu (Thomé); Tango, Pour toi; Waltz, Potpourri No. 1 (Robrecht); Violin Solo: Czardas (Monti); Fox-trot, Wouldn't it be Wonderful?; Tango, Dans mon rêve bien (Bazant); One-step, Carambolina, Carambolletta (Kálmán). 6.0, Medical Talk. 6.15, Sports Talk. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Zampa (Hérold); Selection from Faust (Gounod); Waltz, Myosotis (Waltheffel); Japanese Suite (Mouton); Pieces (Chaminade): (a) Idylle Arabe. (b) La chaise à porteurs; Czardas (Grossmann). 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, In's Kopiers Apothek—Alsatian Dialect Play in Three Acts (Stoskopf). In an interval at 9.30, Press Review. 10.30, Dance Music, relayed from the Savoy. 12 Midnight (approx.), Close Down.

STUTTART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayd by Freiburg, 527 kc/s, 570 metres.—11.30 a.m., See Leipzig. 12 Noon, See Hamburg. 1.0 p.m., Topical Talk. 1.15, Der liebe Augustin, after the Novel by Horst Geissler, with Musical Setting by Wilhelm Locks, relayed from the Ufa Palast. 2.0, Classical Music on Gramophone Records. 2.30, Agricultural Talk. 3.0, Pianoforte Recital by Paul Schotte. 3.30, Programme for Children. 4.30, See Frankfurt. 6.0, Richard Arnold Concert by the Ludwigsburg Male Voice Choir. 6.30, Gramophone Music. 6.45, Sports Notes. 7.0, Wie man Rennfahrer wird! (How to become a Racing Motorist)—Radio Play (Manfred von Branceltzsch). 8.0, See Frankfurt. 10.20, Time and News. 10.45, Dance Music from Berlin (Funkstunde). 12 Midnight (approx.), Close Down.

SEUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—11.0 a.m., Dance Music. 11.30, Light Music. 11.45, Opera Music: Arias from (a) Herodiade (Massenet). (b) The Prophet (Meyerbeer). (c) William Tell (Rossini). (d) Hamlet (Thomas). 12 Noon, Organ Recital. 12.15 p.m., Military Music and Melodies from Operetta. 12.30, Music by a Viennese Orchestra. 1.0, Amusement Guide and Market Prices. 1.5, Light Music. 1.15, Orchestral Concert: Selection from The Chocolate Soldier (O. Strauss); Two Symphonic Movements (Meyrick); Selection from Im Reiche des Indra (Lincke); Capriol (Warlock); Humoresque (Dvořák). 1.45, Opera Music. 2.0, Trumpet Music. 2.15, Chansonnettes. 2.30, Accordion Music. 2.45, Agricultural Report. 3.0, Concert Version of Carmen—Opera (Bizet). 4.0, Orchestral Music. 4.15, Music from Sound Films. 4.30, Military Music. 4.45, Chansonnettes. 5.0, Thé dansant. 5.45, Opera Music: Overture, Der Freischütz (Weber); Ballet Music from Herodiade (Massenet); Selection from Faust (Gounod). 6.0, News. 6.15, Operetta Music. 6.30, Music by a Viennese Orchestra. 6.45, Songs by a Basque Choir. 7.0, Two-Steps. 7.15, News and Racing Results. 7.30, Operetta Music. 7.45, Light Music. 8.0, Opera Music: Entracte from Carmen (Bizet); Selection from Madame Butterfly (Puccini); Prelude to Cavalleria rusticana (Mascagni). 8.15, Music from Sound Films. 8.30, Military Music. 8.45, Opera Music. 9.0, Scheherazade—Symphonic Poem (Rimsky-Korsakov) by the Symphony Orchestra. 9.30, Accordion Music. 9.45, Arias from Opera. 10.0, Music by an Argentine Orchestra. 10.15, News. 10.30, Concert for Listeners in Morocco. 11.0, Dance Music. 11.30, Light Music. 11.45, Orchestral Concert: Bourrée fantasque (Chabrier); Selection from The Golden Cockerel (Rimsky-Korsakov); Scherbert Potpourri (Berthé). 12 Midnight, News. 12.5 a.m. (Monday), Music by a Viennese Orchestra. 12.30, Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—9.40 to 9.55 a.m., See Turin. 9.55, Mass from the Cathedral of San Giusto. 11.0, Religious

Address. 11.20 Agricultural Talk. 12 Noon, till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayd by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 599 kc/s, 500.8 metres.—9.40 to 9.55 a.m., News. 10.40, Agricultural Talk. 11.0, Mass from the Church of the Annunciation, Florence. 12 Noon, Bible Reading. 12.15 p.m., Interval. 12.30, Orchestral Concert. In the interval at 1.0, Time and Announcements. 1.30, Sponsored Music. 1.45, Gramophone Music. 4.30, Orchestral Concert. In the intervals, Sports Notes and Football Results. 6.15, Weather and Gramophone Music. 6.30, Announcements and Sports Notes. 6.45, Interval. 7.10, Gramophone Music. 8.0, Announcements. News, Sports Notes, and Gramophone Records. 8.45, Variety Programme. 9.45, Talk. 10.0, Orchestral Concert, conducted by Ugo Tansini. 11.0, Giornale Radio.

VIENNA

581 kc/s, 517 metres; 100 kW. Relayd by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—10.0 a.m. and 10.40 a.m., Report on the Austrian Marathon Races, 1933. 10.30, Schubert Pianoforte Recital: Wanderer-Fantasia; Impromptu in B flat, Op. 142. 11.20, Recitations. 11.40, Religious Programme. 12.40 to 2.20 p.m., concert by the Wiener Symphoniker, conducted by Anton Konrath. Soloist: Wilhelm Winkler (Cello): Symphony in D (Christian Wagenseil); Concerto in G minor for Cello and Orchestra (Bach); German Dances (Schubert-Weber); Nocturne, Intermezzo and Scherzo from A Midsummer Night's Dream (Mendelssohn); Adagio and Allegro (Schumann). Cello Solo, Minuet (Valsein); Music to Molière's Le Bourgeois Gentilhomme (Richard Strauss). 2.25, Time, Programme Announcements and News. 2.45, Centenary Celebrations of the Pilgrimage Church of St. Leonhard, relayed from Tamsweg. 3.30, Agricultural Talk. 3.50, Old Italian Chamber Music: Quartet in A minor for Violin, Viola, Cello (Paganini); Duetto concertante in A for Flute and Guitar (Mauro Giuliani); Concerto in E minor for Guitar and String Quartet (Carulli). 4.50, A Pleasant Interlude—Radio Competition. 5.20, Concert by the Wiener Symphoniker, conducted by Josef Holzer. 6.20, Book Review. 6.45, Talk, with Pianoforte Illustrations: The Evolution of Musical Impressionism. 7.35, Time, Sports Notes and Programme Announcements. 7.45, Sports Notes: I. on the International Football Match—Austria v. Czechoslovakia at Prague; II. on the Vienna-Prague Match at Vienna. 7.50, Reading for Boys. 8.20, A Flight round the World—Radio Potpourri (Viktor Hrubý) by the Wiener Symphoniker, the Volksoper Choir, a Wind Instrument Orchestra and a Jazz Band. 9.45, News. 10.0, Concert of Light Music from the Oase.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from Torun, for the 700th Anniversary of the Town. 12.5 p.m., Programme Announcements. 12.10, Weather. 12.15, Concert by the Station Symphony Orchestra, conducted by Oziminski. Soloist: Prymian-Kiszyczer (Mezzo-Soprano): Andante and Scherzo, from the Symphony, Renaissance (Karłowicz). Songs: (a) Aria from The Countess (Moniusko). (b) Aria from The Snow Maiden (Rimsky-Korsakov). (c) Spanish Adios (Alvarez); Andante from the String Quartet (Tchaikovsky). Songs: (a) (Wieniawski), (b) Petit Jean me disais (Wieniawski), (c) Bolero (Niewiadomski); Norwegian Rhapsody (Svendens). 1.0, Choral Concert, relayed from Poznan University for the 40th Anniversary of the Polish Association of Choral Societies. 2.0, Agricultural Talk. 2.15, Agricultural Notes and Weather. 2.20, Choral Music, relayed from Bochen. 2.45, Talk: Veterinary Advice. 3.5, Gramophone Music. In the interval, News. 4.0, Weekly Review for Children. 4.15, Reading for Children, relayed from Lwow, 788 kc/s, 381 metres. 4.30, Gramophone Records. 5.0, Talk: Children's Health. 5.15, Podolia in Music and in Song—Concert by the Station Orchestra. Soloists: Norka and Izzyrym (Songs); Podolian Suite (Mierczyński); Suite of Podolian Songs and Folk Tunes (arr. Mierczyński); String Trio, Danse montagnard (Mierczyński). 6.0, Gramophone Records. 6.35, Programme Announcements. 6.40, Miscellaneous Items. 7.0, Reading, relayed from Lwow. 7.40, Wireless Notes. 8.0, Concert by the Station Orchestra, conducted by Nawrot. Soloist: Kuczyzka (Songs): Egyptian March (Strauss); Overture, Orpheus in the Underworld (Offenbach). Songs: Cracoviennes (Rajczak); Oberkis (Namysłowski). 8.50, Radio Journal. 9.0, Humorous Programme, relayed from Lwow. 10.0, Dance Music, relayed from Ciechocinek. In the intervals at 10.25, Sports Notes, and at 10.40, News, Weather and Police Notes.

ZURICH.—See Schweizerischer Landessender.

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Cork, 337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather and Stock Report, followed by Gramophone Music. 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, Pianoforte Solos by May Johnson. 7.30, Official Opening of the Irish Wireless and Gramophone Exhibition at the Mansion House, Dublin. 8.0, Music by a String Orchestra. 8.15, Scandinavian Ballads by G. O'Lochlainn. 8.30, Uilleann Pipe Solos by Leo Rowsome. 8.45, Tenor Solos by P. Kirwan. 9.0, Compromising Martha—Play by the Leven Players. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Dance Music. Peter, Peter; There's a Light in Your Window; Till Tomorrow; Round the Bend of the Road; Always in my Heart; Stormy Weather; I shall still keep smiling along; My Wishing Song; You did everything for me. 10.0, Concert arranged by the International Broadcasting Company (Ireland) Ltd. on behalf of Hospitals' Trust Ltd. Signature Tune, Come Back to Erin; The Tiger's Tale and When Melody Sings, from the Suite Americana (Thurbin); Serenade (Heykens); Fan and the Wood Goblins (Rathke); Pianoforte Solo, Rangoon Rice Carriers (Hobrooke); The Skaters' Waltz (Waldtaffel); Violin Solo. Le balcon (St. Denis); Waltz, Tales from the Vienna Woods (Strauss); Signature Tune. 10.29, I.B.C. Good-night Melody. 10.45, News and Weather.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trio Concert: Selection from Parsifal (Wagner); Idyll (Bayer); Minuet (Ganne); Selection from Martha (Plotow); Melody (Colin); Serenade (Rachmaninov); Hungarian Dance No. 5 (Brahms). 8.0, Request Gramophone Records. 8.20, Sports Notes. 8.30, Exchange and Gramophone Records (cont'd.). 9.0, Gramophone Music and News. 10.0, Chimes from the Cathedral, Weather, Exchange and Market Prices. 10.5, Humorous Review of the Week in Verse. 10.15, Concert of Sardanas. 11.0, Concert by the Station Orchestra. 11.30, Light Orchestral Concert, relayed from the San Sebastian Casino. In the interval at 12.0 Midnight, News. 1.0 a.m. (Tuesday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—See Roma. BASLE.—See Schweizerischer Landessender.

BERLIN

DEUTSCHLANDSENDER (Reichssender), 183.5 kc/s, 1,635 metres; 60 kW.—12.5 p.m. (approx.), Gramophone Concert. 12.55, Time Signal. 1.45, News. 2.0, Gramophone Concert. 3.0, Talk for Women. 3.30, Weather and Exchange. 3.45, Review of Books. 4.0, See Breslau. 5.0, Talk: Schiller's Plays produced by Peasants. 5.20, Violin and Song Recital by Anita Lemmertz (Violin) and Rudolf Watzke (Bass-Baritone): Violin Solos: (a) Romance (Svendsen), (b) Norwegian Dances (Grieg). Songs: (a) Prinz Eugen, (b) Der Nöck, (c) Mädchen sind wie der Wind (Loewe), (d) Jung Dietrich (Pflüdemann), (e) Siegfrieds Schwert (Pflüdemann). 6.0, Poems. 6.5, Talk on Sport. 6.25, Gramophone Music: Overture, Preciosa (Weber); Gavotte caprice (Bortkiewicz); Delirium-Walzer (Jos. Strauss); Meine Giannina (Hamerbach); Stern von Valencia (Stachel); Kleiner Mann, was nun? (Böhmlert); Moonlight on the Alster (Petras); Waltz, Wiener Extrahälter (Translatour); Waltz, Wiener Zugvögel (Translatour). 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, To-day's Motto. 8.5, Austrian Evening. 10.0, News, followed by Report on the International Tennis Championship (on Gramophone Records). 10.45, Weather. 11.0, Programme from Hamburg. 12 Midnight, Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.33 p.m., Orchestral Concert relayed from the Moka Efti: Am Lago maggiore (Heusser); Waltz-Intermezzo, Nachtfalter (Siede); Selection from Faust (Gounod); Erinnerung (Lubbe); Ein Liebeslied (Kick-Schmidt); Waltz (Brahms); Die launische Spieluhr (Kark); Liebesserenade (Löh); Serenata nostalgica (Marziti); Moment musical (Schubert); Humoresque (Meyer-Marco). 5.30, Lulu von Strauss und Torney discusses her books. 5.50, The Week's Short Story. 6.10, Sonata in A minor for Violin and Pianoforte (Pizzetti), by Vittorio Brevo and Walther Kaempfer. 6.49, The Funkstunde informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Breslau. 8.5, St. Martin's Summer—a Variety Programme. 9.0, Trio in C Op. 87 (Brahms) for Pianoforte, Violin and Cello. 9.30, The Battle of Grossbeeren—Battle Songs of 1813, with Commentary (on Gramophone Records). 10.0, News. 10.40, See Hamburg. In the interval at 11.0 (approx.), Topical Talk. 12 Midnight, Close Down.

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

MONDAY
SEPTEMBER THE EIGHTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Charlot's Hour
LONDON Promenade concert from Queen's Hall.
REGIONAL
MIDLAND Orchestral concert.
REGIONAL
NORTH Orchestral concert.
REGIONAL
WEST Post-Prandial Polemics on various aspects of Modern Wales.
REGIONAL
SCOTTISH "Counter Clockwise, Three Revolutions for Renegades," feature programme.
REGIONAL
BELFAST Orchestral concert.

ABROAD

ATHLONE 10.0 p.m. Concert on behalf of Hospitals' Trust, Ltd.
BRUSSELS 3.0 p.m. Viennese music, by the Radio Orchestra.
(No. 1)
BUDAPEST 9.30 p.m. The Opera House Orchestra, conducted by Ernst Dohnanyi.
COPENHAGEN 8.30 p.m. "Music from Old Vienna," by the Station Orchestra.
HAMBURG 8.10 p.m. Concert of Russian music, by the Philharmonic Orchestra.
HILVERSUM 9.50 p.m. Organ recital.
STOCKHOLM 8.0 p.m. Folk songs of Iceland, Germany, America, Palestine, France, Denmark, and Sweden.
STRASBOURG 6.30 p.m. Pianoforte recital by Alphons Foehr.
WARSAW 8.0 p.m. Operetta: "Frederica," by Lehár (concert version).

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.45, Talk: Bordeaux, a Century ago. 8.0, News and Market Prices. 8.15, Gramophone Music. 8.30, Concert of Classical and Modern Music.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—6.5 p.m., Concert by the Station Wind Instrument Quintet: Quintet, Op. 23 (Erwin Lendvai); A Quintet on a Haydn Trio (Fritz Muth). 6.55, Talk for Housewives. 7.0, See Prague. 7.10, See Moravská-Ostrava. 7.50, Talk: Slovak Poetry from 1918. 8.5, See Brno. 9.5, See Moravská-Ostrava. 9.25, See Prague. 10.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gliwicz, 1,184 kc/s, 253 metres.—1.0 p.m., Weather. 1.5 (approx.), Gramophone Concert of Orchestral Music. 1.45, Time and News. 2.5, Recital of Songs by Hedwig Zoczek-Fuhrmann (Soprano). 2.35, Gramophone Concert: Military March, Op. 51. No. 1 (Schubert); Selection from I Pagliacci (Leoncavallo); Melodies from Mexico (Köhler); Selection from Eva (Lehar); Waltz, Gold and Silver (Lehar); Mein Vaterland—Potpourri of National Songs and Dances; Selection from Lilac Time (Schubert-Berté); March, Hoch Heidecksburg (Herzer). 3.9, Market Prices. 3.15, Review of Books. 3.35, Talk: Saturn. 4.0, Concert by the Station Orchestra, conducted by Ernst Topitz. Soloist: Friedrich Wagner (Oboe and English Horn). Rakoczy-Overture (Keler-Bela); Suite. In a Fairy Realm (Kotelbey); Waltz, Wiener Spatzen (Weterschek); Aria: Selmsucht (Herzog); Tarantella (Meyer-Helmund); Der Gondelfahrer (Schubert); The Musical Box (Lindor); Romance (Michaelis); The Swan of Tuonela (Sibelius); Sicilienne (Schmalstiel); Overture, Martha (Plotow). 5.30, Weather. 5.35 (approx.), Talk: German Cultural Work. 5.50, Programme to be announced. 6.10, Talk, with Gramophone Illustrations: Orchestral Instruments. 6.30, Talk: The Organisation of the German Freedom Movement. 6.50, Meat Market Prices. 7.0, Transmission for all German Stations: Working Men's Wives in the Daily Struggle (Rudolf Mirlit and Fritz Wenzel). 8.0, News. 8.10, Concert by the Breslau Teachers' Choral Society. Soloist: Elisabeth Lauber (Soprano). 9.0, News. 9.10, Le Colonel Chabert—Radio Play (arr. Alfred Mühl). 10.10, Time and News. 10.45, Wireless Technical Talk. 10.55, Talk by an Englishman on Fascism in Britain. 11.15 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.25, German Transmission—News and Talk on Sociology. 7.0, See Prague. 7.10, See Moravská-Ostrava. 7.50, See Bratislava. 8.5, Variety Programme. 9.5, See Moravská-Ostrava. 9.25, See Prague. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 500 kc/s, 569 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by Leemans. Overture, Paragraph 3 (Suppé); Introduction and Humoresque (d'Ambrosio); Selection from La Bohème (Puccini); Violin Solo: Désir (Kalkman); In the Mystic Land of Egypt (Kotelbey); Milonga (Huguet); Waltz (Heymann); Soldatini in parata (Limentani); Selection from Pas sur la bouche (Yvain). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert: Overture, Maximilian Robespierre (Litolf); Selection from The Yeomen of the Guard (Sullivan); Elegue (Golestan); Selection from Shulamith (Goldstein); Trümmerei (Schumann-Weiner); Selection from Lilac Time (Schubert-Berté); O sole mio (Di Capua); Selection from Peter Pan (Crook). 5.0, Concert by the Station Symphony Orchestra, conducted by Meulemans. Overture, The Merry-makers (Coates); Suite, Summer Days (Coates); Dances from Nell Gwynn (German); Serenade (Elgar); Old English Suite (Ettinger); Petit Suite de concert (Coleridge-Taylor). 6.3, Talk. 6.15, Gramophone Records. 6.45, Violin Recital by Mathieu Crikboom. 7.15, Talk. 7.30, Amusement Guide. 8.0, Concert of Viennese Music by the Radio Orchestra, conducted by André. Soloists: Mme. Farrère (Songs) and Géodel (Baritone). Overture, Die Fledermans (Joh. Strauss); Waltz, Tales from the Vienna Woods (Joh. Strauss); Songs from A Waltz Dream (O. Straus); Waltz, The Blue Danube (Joh. Strauss); Selection from Frühling im Wienerwald (Ascher). 8.45, Recitations—Poems to Silence (Albert Samain, Marie Gevers, Noel Ruet, Yvonne Devetter-Schoenfeld, Claude Bernières and Berthe Boisée). 9.0, Concert (cont'd.): Four Viennese Pieces (Kreisler); Wiener Operetten-Revue (Rohrecht); Songs from The Merry Widow (Lehar); Selection from Countess Maritza (Kálmán); Old Songs and Old Viennese Dances (Pachernegg); March, Wien bleibt Wien (Schrammel). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

I.N.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Gramophone Music. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans. 5.0, Concert by the Radio Orchestra, conducted by André: Die kleine Kompanie (Ganglberger); Potpourri

of National Dances (Manfred); Wedding of the Dragon Flies (Barrow); Viennese Song (Fall); Humorous Piece (Caludi); Andante from the Violin Concerto (Saint-Saëns); Anvil Chorus from Il Trovatore (Verdi); Serenade burlesque (Brusselmans). 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by Leemans. 7.15, Talk: Sports Champions. 7.30, Le Journal Parlé. 8.0, Concert by the Station Symphony Orchestra, conducted by Meulemans: Soloist, Hellinck (Baritone); Allegro molto from the Second Symphony (Borodin); Introduction and Persian Dance from Kovanstehina (Mussorgsky); Gopak (Mussorgsky); Tarantella (Cui); Andante and Scherzo (Tchaikovsky); Cossack Dance (Tchaikovsky); Festival in Bagdad from Scheherazade (Rimsky-Korsakov); Funeral March (De Boeck); Minuet (De Vleeschhouwer); Two Songs; Ballet Music from Kassia (Delibes); Serenade (Glazunov); Two Songs; Waltz, Wienerburger (Ziehrer); Scherzo (Lalo). In the interval at 8.45, Talk. 10.0, Le Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra: March (Blunkenburg); Waltz, The Blue Danube (Joh. Strauss); Overture, Peter Schmolli (Weber); Selection from La Traviata (Verdi); Selection from Clo-Clo (Lehar); Potpourri (Postal); Two Hungarian Dances, Nos. 19 and 20 (Brahms); Humoresque and Mazurka (Dvorak). In the interval at 6.0, Radio Journal. 7.0, Educational Programme. In the interval from 7.20 to 7.40, Songs on Gramophone Records. 8.0, Harp Duets. 8.30, Talk. 8.45, Talk. 9.5, Quartet in C Minor, Op. 35 (Chausson), by the Metzner Quartet. 9.35, Radio Journal. 10.0, Jazz Music relayed from the Lido.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.30 p.m. till Close Down.—5.30 p.m., Gramophone Music. 6.15, German Lesson. 6.45, Pianoforte Recital. 7.30, Reading. 8.0, Concert conducted by Stefan Bertia. 9.15, News. 9.30, Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi: Soloist: Zathureczky (Violin); Symphony in C (Schubert); Violin Concerto in A Minor (Glazunov). 10.20 (in an interval), Weather. 11.0 (approx.), Dance Music from the Royal Hotel.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time Signal and Chimes from the Town Hall. 12.2 p.m., Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. 2.0, Interval. 3.20, Talk for Housewives. 3.30, Concert by Carl Rydahl's Instrumental Ensemble: Overture, Athalia (Mendelssohn); Waltz (Waldteufel); Melody from The Seasons (Tchaikovsky); Selection from La Favorita (Donizetti); Après l'été (Florent Schmitt); Intermezzo. Pizzicato (Pierrot); Dance of the Insects (Svendsen); Selection from Der Obersteiger (Zeller); Foxtrot (Nelson); Dance of the Bashibazouks (Gabriel-Marie); Prelude and Humoresque (Jörgensen); Dein gedenk' ich Margeretha (Meyer-Helmund); March, The Last Stand (Myddleton). In the interval at 4.15, Reading. 5.20, Exchange and Fish Market Prices. 5.45, Talk. 6.15, Elementary English Lesson. 6.45, Weather. 6.54, Announcements. 7.0, News. 7.15, Time Signal. 7.30, Discussion. 8.20, Music from Old Vienna—Concert by the Station Orchestra, conducted by Fritz Mahler; Soloist, Marius Jacobsen (Songs): Cassation in B Flat (Mozart); Aria from Così fan tutte (Mozart); Overture, Pierrabras (Schubert); Waltz, Die Schönbauerer (Lanner); Barcarolle from Eine Nacht in Venedig (Joh. Strauss); Overture, The Queen's Kerchief (Joh. Strauss). 9.30, Radio Pictures of Daily Life. 10.0, Song recital by Gustav Fonander. 10.20, News. 10.35, Chamber Music by the Station Chamber Orchestra, conducted by Fritz Mahler: Violin Concerto in E (Bach); Glee Mnsio (Telemann). 11.15 (approx.), Close Down.

CORK.—See Athlone.

DANZIG.—See Hirschberg.

DRESDEN.—See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme arranged by the I.B.C. Ltd. 11.0, Happy Hour. Part 1, Orchestral Concert: Waltz, Wienerblut (Strauss); Memories of Paris (Moretti); Banjo Solo: Viva la liberta; Selection from The Desert Song (Romberg); Pale Volga Moon (O'Hagan); Banjo Quartet: Darktown Dandies (Morley); The Song of the Nightingale (Alhout); Waltz Favourites (arr. Ancliffe). Part 2—Dance Music: At the Old Pig and Whistle; Learn to Croon; A Woman should stick to her Man; Sweetheart Darlin'; Down the Old Ox Road; I Cover the Waterfront; I Raised my Hat; When Gimble hits the Cymbal; Signature Tune. 12 Noon, French Programme. 4.20 to 6.0, Programme arranged by the

SEPT. 18th

MONDAY

continued

I.B.C., Ltd. 4.30, Programme for Children. 5.0, Concert for Chichester and Bognor Listeners. Orchestral Concert: Signature Tune, The Night by the Sea; Danse Bagatelle (Bourdon); Crazy Pionette (Frisk); Mandoline Solo; Mandoline (Thoune); Ginger Snaps (Bourdon); Hawaiian Memories (Armandola); Xylophone Solo; Snappy Sticks (Robbins); The Dance of the Kaindrops (Reeves); Valse blanche (Drigo). 5.30, Concert for Hastings and Eastbourne Listeners. Military Band Concert: Brabazon (Dunn); Valse des alouettes (Drigo); Song, Route Marching (McCall); Coronation March; Selection from The Geisha (Jones); Jungle Drums (Ketelbey); Song, The Drum-Major (Newton); Here, There, and Everywhere (Bosc); Signature Tune. 6.0, French Programme. 10.0 till Close Down, Programme arranged by the I.B.C. 10.0, Dance Music: Signature Tune, Bells of Normandy; In My Bell-Bottom Trousers; Deep in my Lady's Eyes; Who do you love?; Learn to Croon; Masquerade; Peter, Peter; In the Valley of the Moon; You're Mine, You; When the Morning rolls around; Here is my heart; Let bygones be bygones; My Bluebird's Singing the Blues; Castles in the Sand; I cover the Waterfront; Under my Umbrella; Stay out of my Dreams; Signature Tune. 11.0, Talkie Time: Signature Tune, Sitting in the Dark; Please; I want to be happy; You are my Heart's Delight; To-day I feel so Happy; There's something about a Soldier; Selection from Love me To-night; I'm playing with Fire; Lover of my Dreams; Signature Tune. 11.30, Concert for Nottingham Listeners. Part I.—Music from Opera: Signature Tune, The Chum Song; Grand March from Aida (Verdi); Toreador Song from Carmen (Bizet); One fine Day, from Madame Butterfly (Puccini); Violin Solo: Hymn to the Sun, from The Golden Cockerel (Rimsky-Korsakov); Selection from La Traviata (Verdi); Walther's Song, from The Mastersingers (Wagner); Waltz Song from La Bohème (Puccini); Selection from Tannhäuser (Wagner). 12.5 a.m. (Tuesday), News Bulletin in English. 12.10, Club Concert. Part 2: Somebody stole my gal; Manhattan; That's what life is made of; I raised my Hat; This Lovely Rose; Signature Tune. 12.30, Dance Music by Jack Hylton and his Orchestra (Electrical Transcriptions): Little Miss Muffet; Hold Me; Out in the Open; You're Mine, You; What a Lady Josephine must have been; Dancing Butterfly; Hyde Park Corner; I can't Remember. 1.0, Dance Music: Signature Tune, Bells of Normandy; When my little Pomeranian; Pop Gum; Under My Umbrella. Thank Heaven for You; No more Love; Something came and got me in the Spring; Wanderer; In a Second-hand Store; The Toymaker's Dream; There's a Cabin in the Pines; Jog along; Drifting under a Summer Moon; Shuffle off to Buffalo; Down the Old Ox Road; It's the Band; The Old Spinning Wheel; Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m., Concert by the Station Orchestra. Soloist: Fritz Kullmann (Pianoforte). Part I: Brillante caprice on the Theme Jota Aragonesa (Glinka); Pianoforte Concerto No. 2 in F minor Op. 21 (Chopin). Part II: Old Dance Music. 5.45, Economic Notes. 6.0, The German Almanac. 6.10, Variety Item. 6.25, Talk: Queer Wills. 6.45, To-day's News. 6.50, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Variety Concert. 10.0, Topical Talk. 10.20, Time and News. 11.0, See Leipzig. 12 Midnight (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBOURG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker: Overture, Euryanthe (Weber); Lyric Suite (d'Albert); Czardas from Der Geist des Wojewoden (Grossmann); Symphonic Sketch, In the Steppes of Central Asia (Borodin); Selection from The Gipsy Baron (Joh. Strauss). 6.45, Exchange and Weather. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Topical Talk. 8.10, Concert of Russian Music by the Philharmonic Orchestra, conducted by José Eiben-schütz: Soloist, Hugo Kolberg (Violin); Symphony No. 5 in E Minor, Op. 64 (Tchaikovsky); Violin Concerto in D, Op. 35 (Tchaikovsky); Overture, Russian and Ludmilla (Glinka). 9.40, Concert by the Station Choir and Soloists. Conductor, Gerhard Gregor. 10.10, News. 10.30, Topical Talk. 10.40 (from Kiel), Concert by the Kiel Orchestra of Unemployed Musicians: Overture, Rühzahl (Flotow); Suite, Un giorno in Venezia (Nevin); Selection from Wenn die Liebe erwacht (Künneke); Ländler (Pachernegg); Waltz, Sommerlust (Lüneke); Der kleine Pflücker (Kockert); March, Un-sere Marine (Thiele).

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—1.5 to 2.30 p.m., Gramophone Concert. In the intervals at 1.20 and 2.0, News. 2.30 (Danzig), Exchange and Market Prices. 3.0, Market Prices. 3.30, Programme for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the interval at 5.0, Technical Talk. 5.45, Programme from Berlin (Deutschlandsender). 6.15, Market Prices. 6.25 (from Danzig), Talk: Social Welfare Work in Old Danzig. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, News. 8.10, Concert by the Small Station Orchestra: Overture, Der Bajazzo (Czibulka); Selection from The Daughter of the Regiment (Donizetti); for Flute and Orchestra; Cello Solo: At the Fountain (Davidoff); Pianoforte Solo: Straussiana (Börschel), with Orchestral Accompaniment; Selection from Luise de Montfort (Bergson); for Clarinet and Orchestra: Violin Solos: (a) Spanish Dance, No. 7. (b) Zapateado (Sarasate); Perpetuum mobile (Joh. Strauss). 9.10, Concert by the Königsberg String Trio: String Trio in D Minor, Op. 141 (Reger); Quartet in F for String Trio and Oboe (Mozart). 9.50, Elementary English Lesson. 10.15, News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW. (until 5.40 p.m.), and 20 kW. from 5.40 p.m. Programme of the Christian Radio Society (N.C.R.V.). 11.55 a.m., Gramophone Music. 12.10, Organ Recital by Jan Zwart. 1.40, Broadcast for Schools. 2.15, Talk. 2.55, Gramophone Music. 3.25 to 3.40, Interval. 3.40, Bible Reading and Sacred Songs. 4.40, Violin Duets and Pianoforte Solos: The Golden Sonata (Puccini); Sonata in C minor (Bach); Gramophone Records; Pianoforte Solos: Preludes, Op. 28, Nos. 4, 6, 13, and 15 (Chopin); Violin Solos: (a) Romance (d'Ambrosio), (b) Piece (Rachmaninoff); Gramophone Records: Six Duettini (Godard). 6.10, Answers to Correspondence. 6.40, Police Notes. 6.55, Religious News. 7.10, Answers to Correspondence (cont.). 7.40, Choral Concert of Folk Music, conducted by Spoel. Soloists: Mme. Flinterman van Eck (Soprano), Mlle. Born (Mezzo-Soprano), de Vries (Tenor), Seghoer (Baritone), and Mme. de Ridder-Spaan (Pianoforte). 8.40, Talk. 9.10, Choral Concert (cont.). 9.40, News. 9.50, Organ Recital: Cherubino's Song (Mozart); Ich Wolt (Mendelssohn); Waltz No. 3 (Chopin); Songs without words (Tchaikovsky); Selection from Manon (Massenet); Elegy (Massenet); Stephanie Gavotte (Czibulka); Serenade (Widor); Erotica (Grieg); Overture, Poet and Peasant (Suppé). 10.40, Gramophone Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk on 50 kW. from 3.40 p.m.—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by the Eddy Walis Ensemble, Gramophone Records in the interval. 1.40 p.m., Recitations. 1.55, Violin Duets by Mlle. van Wijnngaarden and van Slochem: Sonata in G, No. 1 (Leclair); Sonata in A, No. 2 (Leclair); Duet (Geminiini); Duet in C (Mozart); Duet in B flat (Mozart); Concert Duet, Op. 25 (Leonard). In the interval at 2.25, Recitations. 3.10, Gramophone Music. 3.25 to 3.40, Interval. 3.40, Organ Recital by Steyn. 4.10, Programme for Children. 4.40, Concert by De Notenkrakers, conducted by Wims: Oechi uri (Campolmi); Schwert und Leier (Strauss); Selection from A Kiss in Spring (Kálmán); Novletta (d'Ambrosio); Venetian Song (Crémieux); Gramophone Records: Marionetten-Groteske (Dreyer); Salut d'amour (Elgar); Tanz der Schmetterlinge (Kockert); Ein Märchen (Leopold); Chanson de Capri (Massenet); Pensée d'automne (Massenet); Krackowiak (Noskowsky); Le baiser (Crémieux); Selection from Paganini (Leloir). In the interval at 5.25, Recitations. 6.10, Music Talk. 6.40, Concert by the Small V.A.R.A. Orchestra, conducted by de Groot: March from A Waltz Dream (O. Strauss); Angoreuse (Berger); Baby Parade (Maurfred); O Sole mio (di Capua); Polka (Darmar); Selection from Lucia di Lammermoor (Donizetti); Marionetten auf der Spieluhr (Armandola); The Grasshopper's Dance (Bucalossi); Waltz Potpourri (Robrecht). 7.38,

S.O.S. Messages. 7.40, Dramatic Programme. 8.0, Symphony Concert relayed from London. 9.25, News. 9.40, Concert by De Notenkrakers. 10.40, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—6.35 p.m., See Warsaw. 11.0, Talk in Neo-Greek: Jan Sobieski in Vienna.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.15 p.m., Concert by the Small Station Choir, conducted by Breuer. Soloist: Jakob Braun (Violin). Folk Song, Wollauf in Gottes Schöne Welt; Ständchen (Trunk); Auf der Wiese (Trunk); Three Songs (Othegraven); (a) Rätsel, (b) Die Vögelin, (c) Mein Schätzle ist fein; Violin Solos: (a) Extract from the Violin Maker of Cremona (Hubay); (b) Perpetuum Mobile (Ries); Marschier-Liedchen (Marschner); Speisetzettel (Zöbner); Bergisches Heimatland (Brambach). 1.15, News. 1.30, Concert by the Station Chamber Orchestra, conducted by Breuer. Tone Poem, Finlandia (Sibelius); Waltz, Hofballtänze (Lanner); Selection from Aida (Verdi); Homage March (Grieg); Negro Lullaby (Chusum). In the interval at 2.0 (approx.), News. 2.30, Market Prices. 3.0, Talk: Fruit-trees for the Small Garden. 3.30, Talk: Civil Servants and the State in German History. 4.50, Political Talk. 5.0, Famous Conductors and Famous Orchestras—Gramophone Concert. 5.30, Concert of Folk Music, conducted by Kneip. 6.15, A Story of German Colonisation. 6.25, French Lesson. 6.45, Announcements. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, News. 8.5, Concert by the Station Orchestra, conducted by Buschkötter. Soloist: Hans Haas (Pianoforte). Symphonic Poem, Till Eulenspiegel's Merry Pranks (R. Strauss); Pianoforte Concerto in D (Haydn); Pianoforte Concerto in A, The Coronation (Mozart); Symphony in D minor (Schumann). In the interval, Eulenspiegel greift ein (Eulenspiegel takes a hand)—A Play of Youth and Age (Heinz Stegawit). 10.15, News. 10.30, Serenade by the Münster Municipal Orchestra. In the interval, Recital of Classic Songs and Ballads by Streinz (Bass) and Grape (Pianoforte). 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—3.0 p.m., Talk for Women. 3.35, Market Prices. 4.0, Song and Pianoforte Recital by Karin Brandt (Soprano) Helene Müller-Schäfer (Alto), Herbert Neck (Tenor), and Karl Weiss (Pianoforte): Soprano and Alto Duets from the Balladen und Romanzen, Op. 75 (Brahms): (a) Guter Rat, (b) Walpurgisnacht; Soprano and Tenor Duets (Schumann): (a) Unterm Fenster, (b) So wahr die Sonne scheint; Pianoforte Solos from the Idyllen, Op. 43 (Jensen): (a) Feld-Wald und Wiesengötter, (b) Waldvögelin; Soprano and Alto Duet: Der träumende See (Pfltzner); Soprano and Tenor Duets (Schumann): (a) In der Nacht, (b) Tanzlied; Soprano and Alto Duets (Brahms): (a) Boten der Liebe, (b) Hut' du dich. 4.40, Talk: Great German Books—Dr. Faust. 5.0, Talk: The Army Intelligence Corps with Reference to the Battle of the Marne. 5.20, Organ Recital by Ernst Müller relayed from the University Church: Prelude and Choral Paraphrase, Ach, blieb mit deiner Gnade; Theme with Variations. 5.50, News, Weather and Time. 6.0, Italian Lesson. 6.25, Opera and Operetta Music on Gramophone Records. 6.50, Review of the Day's News. 7.0, Transmission for all German Stations relayed from Breslau. 8.0, See Stuttgart. 9.20, News. 9.30, Concert by the Leipzig Symphony Orchestra, conducted by Weisbach: Ballet Suite in D, Op. 130 (Reger); Symphony No. 2 in D, Op. 73 (Brahms). 10.45, News. 11.0 (from Dresden), Concert by the Plietsch-Marko Orchestra. 12 Midnight, Close Down.

LINZ.—See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Concert by the Station Orchestra, conducted by Pensis: Comedy Overture (Lincke); Selection from Der Freischütz (Weber); Intermezzo No. 1 (Kalkman); Balinage (d'Agreves); Waltz, Mon rêve (Waldteufel); Norwegian Wedding Procession (Grieg); Selection from The Bird-Fancier (Zeller). 1.30, Gramophone Music. 7.30 till Close Down, Italian Programme. 7.30, Symphony No. 4 in A (Mendelssohn) by the Orchestra of the

Scala, Milan (on Gramophone Records). 8.20, Italian Concert by the Station Orchestra, conducted by Pensis; Soloist, Camille Delmotte (Double-Bass): Double Bass Concerto (Dragonetti); Overture, William Tell (Rossini). 8.50, News in French. 9.0, Italian Song Recital by Gustave Simon, with the Station Orchestra: Aria from Le Maître de Chapelle (Paer); Che fiero costume (Legrenzi); Selve amiche (Caldara); Spesso vibra (Scarlatti); Quella fiamma che m'accende (Marcello); Aria from The Barber of Seville (Rossini); Orchestra: Selection from Madame Butterfly (Puccini). 9.50, News in German. 10.0, Concert by the Station Orchestra, conducted by Pensis: Serenade (Donaux); Nic and Nac (Demare); Scherzetto (Demare); Selection from Gri-Gri (Lincke). 10.25, Dance Music on Gramophone Records.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal, and Request Gramophone Records. 9.15, Topical Review. 9.30 (approx.), Close Down.

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—12 Noon to 1.0 p.m., Programme for Catalonians in America. 11.30 p.m., Popular Concert. In the interval at 11.45, Radio Chronicle. 12.35 a.m. (Tuesday), Sports and Bull-fighting Notes. 12.40, Light Music. 1.0 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 p.m., Orchestral Concert, conducted by Plichta: Overture in Italian Style (Schubert); Dances (Manfred); Furiant (Malat); Polka (Nedbal); Rhapsody in B minor, Op. 25 (Hartung); Waltz (Provanzik); Melody (Higgs); March (Fricik). 3.50-4.0, See Prague. 5.45, See Prague. 6.5, Talk on Sports. 6.15, See Prague. 6.30, Guggan Transmission: Two Talks. 7.0, See Prague. 7.10, Concert of Folk Music. 7.50, See Bratislava. 8.5, See Brno. 9.5, Talk: Street Orators. 9.25, See Prague. 10.15 (approx.), Close Down.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—4.30, Orchestral Concert, conducted by Erich Kloss: Overture, Undine (Lortzing); Cello Solos: (a) Brise de mer (Leoncavallo), (b) Serenade (Drigo); Suite campestre (Amadei); Three Norwegian Dances (Grieg); Selection from Cavalleria rusticana (Mascagni); Waltz (Provanzik); Adoration (Plietsch); Old Styrian Suite (Pachernegg). 5.45, Reading for Young People: The Spirit of Frederick the Great. 6.5, Programme to be announced. 6.25, Sonata for Viola and Pianoforte (Dittersdorf), by Philipp Haas and Richard Staal. 6.45, Time, Weather and Agricultural Notes. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0 (from Nürnberg), Opera (to be announced). 9.0, Talk from the Series: The German and the Russian Revolutions. 9.20, Concert by the Station Orchestra, conducted by Hans Winter. Soloist: Margot Leander (Soprano); Overture, The Cid (Cornelius); Dance Fantasia (Weismann); Four Songs for Soprano; Overture, Der Improvisator (d'Albert). 10.20, Time, Weather, News and Sports Notes. 11.0, Concert by the Station Schrammel Quartet, with Viennese Songs by Paula Menari. 12 Midnight, Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.30 p.m., Concert by the Station Ensemble. 6.30, Recitations. 7.0, News. 7.30, Political Talk. 8.0, Time Signal. 8.1, Pianoforte Recital by Bergliot Havnevik. 8.35, Saxophone and Pianoforte Recital by Sigurd Rascher and Mlle. Hendriksen. 9.10, Political Review. 9.40, News. 10.0, Topical Talk. 10.15, Song Recital by Erling Aas: Aria from A Masked Ball (Verdi); Songs (Schubert): (a) Ständchen, (b) Die Nebensonne, (c) Liebesbotenschaft; Melody (Humm); Fattigmännströst (Sinding); Song (Westwang); Sweet Mystery of Love (Moya). 10.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Notes. Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. 8.20, Gramophone Music. In the interval at 8.30, Time

SEPT. 18th

MONDAY

continued

and Announcements. 8.45, Chamber Music: Quartet in C Minor (Beethoven); Tenor Solos: (a) O del mio amato bene (Donaudy); (b) Ballata medioevale (Mazziotti); Nocturne from the Quartet in D (Borodin); Tenor Solos: (a) Supremo sonno (Santoliquido); (b) Romance (Mazziotti); Two Movements from the Quartet in D (Mendelssohn). 9.45, Talk. 10.0, Gramophone Music. 11.0, Giornale Radio.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—6.45 p.m., Theatre Talk. 7.0, Le Journal Parlé. 8.30, Orchestral Concert, conducted by Flamant: Four Noctettes for Quartet and Pianoforte (Andric); The Nutcracker Suite (Tchaikovsky); Overture and Melodies from The Barber of Seville (Rossini); Indian Rhapsody (Nolety). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Concerto in G (J. C. Bach), on Gramophone Records. 7.15, Journal Parlé. 7.30, Hot Jazz on Gramophone Records. 8.0, Bizet Song Recital by Paul Payen. 8.30, Humorous Songs by Max Régner. 9.10, Gramophone Concert. 10.10, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Music: Santander (Van Hoorebeke); Espiegleries (Yatove); Tina (Rolero); Donauwellen (Ivanovici). 8.0, Weather and Press Review. 12 Noon, Gramophone Concert of Nineteenth Century Opera Music: Extracts (a) Le Roi d'Ys (Lalo), (b) La Gioconda (Ponchielli), (c) Patrie (Paladilhe), (d) Gwendoline (Chabrier), (e) Le roi malgré lui (Chabrier). In the interval at 1.0 p.m., Market Prices, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Market Prices. 7.0, Agricultural Notes. 7.10, Gramophone Music: Hungarian Czardas, Sivar (Kim); L'epave (Codini); Heintzenmüchens Wachtparade (Noack); L'ajaccienne (Costa); Patria Belgica (Laborov); Allons gai, gai bergeres (Casteley); Fleurs de lune (Poppies); Romance (Crémieux); Granada (Garcia); Lusina (Curtis); Arab March (Ganne); Le temeraire (Mougeot). 7.50, Market Prices and News. 8.0, Schumann Gramophone Concert. In the interval at 8.30, News, Weather and Sports Notes, and at 8.40, Review by Paul Reboux. 8.45, Five Songs (Dalerovez). 9.0, Bondu sauve des eaux—Play (Fauchois), relayed from the Théâtre des Mathurins. In the intervals, News.

PITTSBURGH

KOKA, 980 kc/s, 306 metres; 50 kW. Relay by W8XK on 48.86 metres and 25.27 metres.—7.30 p.m., Pontiac, Home Forum. 8.0, Betty and Bob, from New York. 8.15, Words and Music, from New York. 8.45, Human Values. 9.0, Radio Guild, from New York. 10.0, Uncle Tom and Betty. 10.15, Tarzan of the Apes. 10.30, The Singing Lady. 10.45, Orphan Annie, from New York. 11.0, Press News-Reeler. 11.15, Sports Notes and a Song. 11.30, Pittsburgh Spotlights. 11.45-3.0 a.m. (Tuesday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Baby Rose Marie. 12.30, Popular Programme. 1.0, Yesterday and To-day. 1.30, Potash and Perlmutter. 1.45, Gould and Shefter. 2.0, Sinclair Minstrels. 2.30, Melody Moments. 3.0, Silver Toppers.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Moravská-Ostrava. 3.50, Aviation Weather Report. 3.55, Exchange. 4.0, Interval. 5.45, Practical Hints for the Housewife. 5.55, Talk. 6.5, Agricultural Programme. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission—Talk on German Universities. 7.0, Chimes and News. 7.10, See Moravská-Ostrava. 7.50, See Bratislava. 8.5, See Brno. 9.5, See Moravská-Ostrava. 9.25, Clementi Pianoforte Sonata Recital by Jan Herman with Commentary: Sonata No. 16 in C Minor; Sonata No. 13 in B Flat. 10.0, Time, News and Sports Notes. 10.15, Talk in German. 10.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS; 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—6.15 to 6.30 a.m. (from Lausanne). Gymnastics. 12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.40 (from Geneva), Gramophone Concert. 1.0 (from Geneva), Financial Notes. 1.10 (from Geneva), Gramophone Music. 2.0 to 3.28, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Lausanne), Concert by the Radio Lausanne Orchestra, conducted by Moser. 5.0 (from Lausanne), Programme

for Children. 5.30 to 7.0, Interval. 7.0 (from Geneva), Talk: Lutheranism in Bologna in the Fifteenth and Sixteenth Centuries. 7.30 (from Geneva), Weather, News, and Announcements. 8.0 (from Lausanne), Accordion Recital by Albert Huard, with Orchestral Accompaniment. 8.45 (from Lausanne), Humorous Items. 9.0 (from Geneva), Popular Programme by a Mandoline Orchestra and a Children's Choir. 9.50, News and Weather. 10.0 (from Geneva), Gramophone Music. 10.30 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Popular Concert by the Station Quartet, with Songs.

RIGA

572 kc/s, 525 metres; 15 kW.—6.0 p.m., Agricultural Talk. 6.30, English Lesson. 7.0, Weather Report. 7.5, Orchestral Concert, conducted by Medins: Suite. Scènes du Sud (Nicolé); Suite. A Day in Venice (Nevin); Suite. Scènes italiennes (Goulard). 8.0, News. 8.15, Pianoforte Recital of Lucija Garuts Music, by the Composer. 8.45, Orchestral Concert, conducted by Medins: March from Russian and Ludmilla (Glinka); Three Pieces (Tchaikovsky); (a) Arab Dance, (b) Chinese Dance, (c) Trepak; Toreh Dance of the Brides of Kashmir (Rubinstein); Kamarinskaya (Glinka). 9.0, Weather Report. 9.30, Concert by a Mandoline Orchestra. 10.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 180, 680 kc/s, 441 metres; 50 kW. Relay by Naples, 941 kc/s, 319 metres; and 280, 11,810 kc/s, 25.4 metres, from 5.15 p.m., and Milan (Vigentino), 662 kc/s, 453.2 metres from 8.45 p.m.—12.30 p.m., Gramophone Records. 1.0, Gramophone Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.30, Children's Radio Review. 4.55, Giornale Radio and Exchange. 5.10, Weather. 5.15, Song and Violin Recital by Angelo Parigi (Tenor), Carmen Garcia Cornejo (Soprano), and Nella Ranieri: Violin Solos: Popular Songs and Dances of Brittany (arr. Mangot); Tenor Solos: (a) Aria from The Secret Marriage (Cimarosa), (b) Intorno all'idolo mio (Cesti), (c) Girau pure in ciel le sfere (Pasquini); Violin Solos: (a) Waltz (Brahms-Hochstein), (b) Spanish Serenade (Carnevali-Corti); South American Songs for Soprano. 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolavoro Notes and Tourist Report. 7.15, Agricultural Report. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.30, Giornale Radio and Sports Notes. 8.45, Variety Programme. 9.45, Benedetta among the Men—Comedy in One Act (Gian Capo). 10.15 (approx.), Dance Music. 11.0, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relay at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—9.0 p.m., Book News by Levere Fuller. 9.15 to 10.0 (approx.), New York Relay. 9.15, Soloists. 9.45, Lady Next Door. 12.45 a.m. (Tuesday), Stock Reports and Police Notices. 1.0, Soconyland Sketch, from New York. 1.30, Fitzgerald Brothers Programme. 1.45 to 3.30, New York Relay. 4.45, Ferde Grofe's Orchestra. 2.0, A. and E. Gipsies. 2.30, Musical Programme. 3.0, Contended Programme. 3.30, Radio Revue, from New York, followed by Programme Resumé.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER; 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—6.15 a.m. (from Basle), Gymnastics. 6.35 to 11.59, Interval. 11.59, Time Signal from Neuchâtel Observatory, and Weather. 12 Noon (from Basle), Operetta Music on Gramophone Records. 12.30 p.m., Time, Weather, and News. 12.40 (from Basle), Song Recital on Gramophone Records. 1.25 (from Basle), Time, Weather and Exchange. 1.30 to 5.0, Interval. 5.0 (from Berne), Programme for Women. 5.30 (from Berne), Variety Concert on Gramophone Records. 6.30 (from Zurich), Talk on Rabel Yarnhagen. 7.0, Time and Weather. 7.5 (from Zurich), Gramophone Concert. 7.30 (from Zurich), English Lesson. 8.0 (from Zurich), Concert by the Radio Orchestra. 8.30 (from Zurich), Talk: The Renaissance. 9.0, Weather and News. 9.10 (from Zurich), A Radio Play of Circus Life. 10.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relay by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Song Recital by Nils Svantfeldt. 5.20, Talk, relayed from Uppsala, 662 kc/s, 453.2 metres. 5.45, Gramophone Music. 6.45, Elementary German Lesson. 7.30, Talk. 8.0, Folk Songs of the Nations, Iceland, Germany, America, Palestine, France, Denmark and Sweden—Recital by Engel Lund; Iceland: (a) Fjillbrekka (Maelkottelöhjén), (b) Bi bi og blaka (Sveinbjörnsson), (c) Sprettur (Pentland); Germany: Da unten im Tale (Brahms), (b) Frau Nachtigall (Kieckstat); America: Soldier Boy and Riddle Song from the Appalachian Mountains (arr. Cecil Sharp); Palestine: (a) Jafin halelot bimanu (Jevons), (b) Po baare z (Jevons); France: (a) Jardin d'amour (Weskerlin), (b) La romanesca (Weckerlin); Denmark: (a) Dronning Dagmars död (Reuter), (b) Langt ude i Skoven laa et lille Bjerg (Reuter); Sweden: (a) Stor Ola, lille Ola (Reuter), (b) Kristallen den fina (Reuter). 8.35, Reading. 9.0, Concert by the Erka Quartet, relayed from the Royal Academy of Music. 9.45, Weather and News. 10.0, Concert by the Station Orchestra: Soloist, Magda Sjögren (Songs) and Oskar Lindberg (Organ): Concerto in F for Two Violins, Cello and string Orchestra (Handel); Aria from the Septuagesima Cantata (Bach); Aria from the Ode for St. Cecilia's Day (Handel); Organ Solo: Te Deum laudamus (Sgambati); Songs: (a) Gebet (Wolf), (b) Auf ein altes Bild (Wolf), (c) Marienlied (Marx); Variations for Organ (Lindberg). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Variety Music. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Light Music on Gramophone Records. 2.0, Interval. 5.0, Orchestral Concert, conducted by Roskam, Suite in Old Style, Trianon (Laclauque); Waltz, Rose mousse (Bose); Selection from The Geisha (Jones); Two Alsatian Sketches (Gross); Dance Suite (Messager); Intermezzo (Kálmán); March, Le défilé de la Garde (Gilet). 6.0, Fortnightly Literary Review. 6.15, Review of the Week. 6.30, Pianoforte Recital by Alphonse Foellin: Ballade (Grieg); Nocturne in C Sharp (Chopin); Impromptu in A Flat (Chopin); Valse de l'adieu (Chopin); Ronde de nuit (Erb); Cortège champêtre (Erb); Five Chorales (Adam); Three Andalusian Dances (Turina). 7.30, Time and News. 7.45, Gramophone Music. 8.9, Press Review in German, Lottery Results and Announcements. 8.30, Orchestral Concert, relayed from the Strasbourg Fair, Conductor Maurice de Villers. Symphony for Orchestra and Organ (Saint-Saëns); Extracts from the Christmas Oratorio (Saint-Saëns). 10.30 (approx.), Close Down.

STUTT GART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relay by Freiburg, 527 kc/s, 570 metres.—12 Noon, Folk Music on Gramophone Records. 12.30 p.m., Löwe Ballad Recital by Fritz Seefried (on Gramophone Records). 12.35, Pianoforte Concerto No. 1 in D Minor. Op. 15 (Brahms), by Wilhelm Backhaus and the Station Symphony Orchestra (on Gramophone Records). 1.15, Time and News. 1.30, See Langenberg. 2.0, Concert arranged by the Post Office. 2.30, Spanish Lesson. 3.0, Elementary English Lesson. 4.30, See Munich. 5.45, Talk: Lost German Territory—Alsace Lorraine. 6.15, Talk: Eugenics in Daily Life. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, The Tyrol—Variety Programme (arr. Karl Köstlin), with the Station Orchestra and the Heinz Mouch Zither Trio. 9.20 (from Freiburg), Concert by a Nazi Band. 9.50, Ex-Soldiers' Reminiscences. 10.10, Time and News. 10.30 (from Freiburg), Dramatic Programme. 11.0, See Leipzig. 12 Midnight (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Music by an Argentine Orchestra. 6.30, Popular Melodies. 6.45, Viennese Orchestra. The Wedding of the Rose (Jessel); Waltz, The Blue Danube (Joh. Strauss); The Skaters' Waltz (Waldteufel). 7.0, Songs from Operetta. 7.15, News, Racing Results, and Market Prices. 7.30, Mascerade (Lacôme), by the Symphony Orchestra. 7.45, Opera Music. Arias from: William Tell (Rossini), La Juive (Halévy), and Faust (Gounod). 8.0, Orchestral Pieces. 8.15, Sound Film Music. 8.30, Hunting Horn Solos. 8.45, Accordion Music. 9.0, Concert. Part I: Russian Music: Extracts from Prince Igor (Borodin) and Les cloches du soir (Gretchaninov). Part II: Military Music. March on Aida (Verdi);

Fête militaire (Petit); Ce que c'est qu'un drapeau (La Marelle). Part III: Chansonnettes. 10.0, Music by a Viennese Orchestra. 10.15, North African News and Local News. 10.30, Concert for Listeners in Morocco. The Feast of the Gnomes (Hagen); Trio from Carmen (Bizet); Japanese Lantern Dance (Yoshitomo); Melody (Codini); Slav Dance (Kreisler); Reviens (Christiné). 11.0, Popular Music. 11.15, Dance Music. 12.0 Midnight, News, Weather and Announcements. 12.5 a.m. (Tuesday), Military Music. 12.15, Popular Orchestral Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW. —5.10 p.m. till Close Down. See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relay by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 599 kc/s, 500.8 metres.—5.10 to 6.0 p.m., Concert. 6.40, Giornale Radio. Dopolavoro Announcements, and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes, and Weather. 8.15, Sponsored Concert. 9.15, A Comedy in One Act. 9.45, Chamber Music. 10.30, Gramophone Music. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW. —11.0 to 11.15 a.m., Religious Information in Italian. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 kW. Relay by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—12 Noon, Orchestral Concert, conducted by Otto Wacek. In the interval at 1.0 p.m., News and Announcements. 2.0 to 3.0, Interval. 3.0, Time, Weather, and Market Report. 3.20, Talk on Photography. 3.30, Programme for Children. 3.55, The New World Symphony (Dvorak) on Gramophone Records. 4.35, Reading for Young People. 5.0, Music Talk. 5.25, Recital by Ina Graffius (Soprano) and Walter Höfermayer (Baritone): Songs for Soprano (Hans Schmidt): (a) Die Birken, (b) Im Sommer, (c) Botschaft, (d) Der Liebste schläft, (e) An die Nachtigall, (f) Herbstklage, (g) Untreu, (h) An der Wiege, (i) Früh am Tage, (j) Hirtinweise; Songs for Baritone (Grieg): (a) Glückshote mein, (b) Geschichten, (c) Lauf der Welt, (d) Eros, (e) Was ich sehe, (f) Zur Johannisnacht; Songs for Baritone (Hugo Wolf): Fühlt meine Seele, (b) Heimweh, (c) Der Musikant. 6.5, Talk: The Crucifixion and the Ecco Homo in German Graphic Art. 6.25, Books and Works of Reference in Connection with the Week's Talks. 6.30, Talk: Old Viennese Water Mills. 7.0, Concert of Variations by the Wiener Symphoniker; Variations on a Theme of Haydn, Op. 56 (Brahms); Istar Variations (d'Indy); Variations and Fugue on a Theme of Mozart (Reger). Variations from the Orchestral Suite No. 4 (Tchaikovsky). In an interval at 7.35, Time, Weather, and News. 8.15, Topical Talk. 8.30, Graniohstaedten Concert by the Wiener Symphoniker, conducted by Hoizer: Overture, Waltz, Duet and March from Bub oder Hadel; Waltz and Song from Ruf Befehl der Herzogin; Two Songs from Reklame; Selection from Bacchusnacht; Selection from Glück bei Frauen; Waltz from Majestät Mimi; Melodies from Das Schwalbenst; Potpourri from Der Orlov. 10.0, News, Weather, and Announcements. 10.15, Dance Music on Gramophone Records.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fantaisie from St. Mary's Church, Cracow. 12.5 p.m., Gramophone Music. In the intervals at 12.25, Press Review and at 12.33, Weather. 12.55, Radio Journal. 1.0, Interval. 2.55, News. 3.0, Gramophone Music. In the intervals at 3.5, News, at 3.25, Economic Notes, and at 3.45, Traffic Report. 5.0, Talk in French. 5.15, Violin and Pianoforte Recital by Ossendowska and Zaleska: Violin and Pianoforte Sonata (Schumann); Pianoforte Solos: (a) Ballad in F Minor (Chopin), (b) Spring Song (Schumann-Liszt), (c) Serenade (Schubert-Liszt), (d) Navarra (Albeniz); Violin Solos: (a) Butterfly (Sautet), (b) Seville (Ossendowska), (c) Serenade, Polichinelle (Kreisler); Tarantella (Wieniawski). 6.15, Talk on Economics. 6.35, Light Music from the Gastronomie Café. 6.55 Military Programme. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Book Review. 8.0, Frederica, Operetta (Lelhar) (Concert Version). In the intervals, Agriculture Correspondence and Radio Journal. 10.30, Sports Notes. 10.40, News, Weather, and Police Notes. 10.45, Dance Music on Gramophone Records.

ZURICH.—See Schweizerischer Landessender.

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal. Weather, Stock Report, followed by Gramophone Music. 4.0, Military Band Concert. 6.0, Programme for Children. 6.40, News. 7.0, Gaelic Talk. 7.15, Wireless Talk. 7.30, Orchestral Concert. 7.50, Mezzo-Soprano Solos by Mary Maguire. 8.5, Violin Solos by Robert Dutton. 8.25, Anglo-Irish Songs by P. J. O'Toole (Tenor). 8.40, Uilleann Pipes Solos by S. MacAong. 8.55, Variety Programme by Tom Mullen and Company, with the Station Orchestra. 9.30 to 10.30, Programme by the I.B.C. (Ireland). Ltd. 9.30, Concert. Song, Don't be late in the morning; Pianoforte Solo: Keyboard Kapers (Steele); Me and mine are doin' fine (Connelly); All over Italy (Munroe). 9.45, Hawaiian Band: My Waikiki Mermaid; Maria Mari (di Capua); Steel Guitar Solo: Dear Old Pal of Mine; La Paloma (Yradier). 10.0, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of Hospitals Trust, Ltd.: Signature Tune: Come back to Erin; In the Valley of the Moon; Butterflies in the Rain; What have we got to lose?; How deep is the Ocean?; Smile and sing your cares away; I'll never have to dream again; When the wild, wild roses bloom; Signature Tune. 10.29, I.B.C. Good-night Melody. 10.45, News and Weather.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trio Concert Minuet in D (Schubert); Romance (von Goens); Selection from Lakmé (Delibes); Intermezzo (Lindsay); Gavotte (Massenet); A Song of Autumn (Elgar); Selection from The Flying Dutchman (Wagner). 8.0, Request Gramophone Records. 8.30, Exchange and Talk in Catalan. 9.0, Gramophone Music and News. 10.0, Chimes from the Cathedral, Weather, Messages to Seamen, Exchange and Market Prices. 10.5, Sponsored Programme. 10.30, Wagner Concert by the Station Orchestra. Prelude to Act III of Lohengrin; Legend of the Grail from Parsifal; Waltz of the Apprentices and Prelude to Act III, from the Mastersingers; Overture Rienzi. 11.30, Concert, relayed from the Café Español. In the interval at 12.0 Midnight, News. 1.0 a.m. (Wednesday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—See Rome.

BASLE.—See Schweizerischer Landessender.

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—1.45 p.m., News. 2.0, Gramophone Concert. 3.0, Handwork for Children. 3.30, Weather and Exchange. 3.45, Reading. 4.0, See Leipzig. 5.0, Talk on Cosima Wagner. 5.20, Concert. Part I; Lieder Recital by Margarete Rolé (Mezzo-Soprano); Lob der edlen Musik (Rathgeber); Das Franziskaner (Telemann); Lob der Faulheit (Haydn); Liebes Mädchen (Haydn); Männer sehen stets zu nachen (Mozart); Ich sah ein Röschen (Weber); Minnelied (Schubert); Lied im Grünen (Schubert); Frühlingsbotschaft (Brahms); Auf dem Schiffe (Brahms). Part 2: Pianoforte recital by Käthe Heinemann: Impromptu in B flat (Schubert); Wit über den verlorenen Groschen (Beethoven); Arabesque on The Blue Danube (Schulz-Evler). 6.0, Poems. 6.15 (approx.), Eberhard Wolfgang Müller reads from his drama, Der Untergang Karthagos. 6.30, Review of Politics. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, To-day's Motto. 8.5, Variety Programme by Harald Paulsen and the Garden Orchestra. 10.0, Weather, Time and Sports Notes. 10.45, Weather for Shipping. 11.0, Concert from Stuttgart. 12 Midnight, Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.30 p.m., Orchestral Concert relayed from the Café Corso. 5.10, Lulu von Strakos-Torney Programme on the occasion of her Sixtieth Birthday. 5.40, Pianoforte Sonata in C (Mozart) by Wolfgang Burger. 6.0, Modern Lyrics (Gottfried Benn), with Introductory Talk. 6.15, Book Review. 6.40, The Funkstunde informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.5, Wagner Concert. The Station Orchestra and Choir, conducted by Otto Frickhoff. Soloist: Wilhelm Winterberg (Baritone). 9.0, Carl Maria von Weber—Last Days and Burial in London and Re-interment Eighteen Years later in Dresden (Heinrich Burkard). The Station Orchestra, conducted by Otto Frickhoff, the Station Choir, conducted by Heinz Karl Weigel, and Soloists: Rost Seegers (Soprano) and Wilhelm Winterberg (Baritone). 10.0, News. 10.15 (approx.), Dance Music, relayed from the Epproa Pavilion. In the interval at 11.0 (approx.), Talk: Stage and Film. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BÖDEN.—See Stockholm.

BODO.—See Oslo.

TUESDAY

SEPTEMBER THE NINETEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- NATIONAL "La Bohème," by Puccini, relayed from Sadler's Wells.
LONDON Excerpt from "Sunny Days," relayed from Largs.
REGIONAL Military Band programme.
MIDLAND Concert from the Houldsworth Hall, Manchester.
REGIONAL Programme of music by West Country composers.
NORTH Excerpt from "Sunny Days," from the Barrfields Pavilion, Largs.
REGIONAL "Mr. Arthur's Operation," a comedy, by John McCann.
WEST Excerpt from "Sunny Days," from the Barrfields Pavilion, Largs.
REGIONAL "Mr. Arthur's Operation," a comedy, by John McCann.
SCOTTISH Excerpt from "Sunny Days," from the Barrfields Pavilion, Largs.
REGIONAL "Mr. Arthur's Operation," a comedy, by John McCann.
BELFAST Excerpt from "Sunny Days," from the Barrfields Pavilion, Largs.

ABROAD

- BARCELONA 7.0 p.m. Trio concert. 10.30 p.m., Wagner concert, by the Station Orchestra.
BRUSSELS (No. 1) 9.0 p.m. Beethoven concert, by the Station Symphony Orchestra.
HAMBURG 10.30 p.m. The Philharmonic Orchestra, conducted by J. Eibenschütz.
HILVERSUM 7.40 p.m. The K.R.O. Orchestra, conducted by Gerritzen.
PALERMO 8.45 p.m. Opera: "Andrea Chénier," by Giordano.
ROME 8.45 p.m. Light opera: "The Toreador," by Caryl and Monckton.
WARSAW 8.0 p.m. The Station Orchestra, conducted by Oziminski.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.40, News. 7.50, Gramophone Concert. 8.30, Programme to be announced.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—6.25 p.m., Violin Recital. 6.55, Talk for Housewives. 7.0, See Prague. 7.10, See Moravská-Ostrava. 7.50, See Prague. 11.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gliwicz, 1,184 kc/s, 253 metres.—1.5 (approx.), Gramophone Concert. 1.45, Time and News. 2.5, Song Recital by Elizabeth Pfeiffer (Contralto): Four Songs (Richard Trank); (a) Die Stadt, (b) Die Nachtigallen, (c) Unter Blüten, (d) Pan; Six Songs (Graener); (a) Weisser Pfieder, (b) Das bitterste Lied, (c) Verspruch, (d) Männertreu, (e) Mädchenlied, (f) Sommer. 2.35, Request Concert on Gramophone Records: 1812 Overture (Tchaikovsky); Turkish March (Mozart). 3.0, Market Prices. 3.15, Review of Books. 3.35, Programme for Children. 4.10, Concert by the Station Orchestra, conducted by Gerhard Riselka: Overture, Titus (Mozart); Elegy (Sibelius); The Nutcracker Suite (Tchaikovsky); Selection from Der Opernhall (Heinberger); Hutzi Putzi (Ailbott); Lagunen-Walzer (Joh. Strauss). 5.30, Market Prices. 5.35 (approx.), Talk: German Socialism. 5.55, Topical Programme. 6.20, Carl Alois Scheninger reads from his own works. 6.50, Meat Market Prices. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, News. 8.10, Concert by the Station Orchestra, conducted by Ewald Riselka. Soloist: Hugo Kolberg (Violin). Overture, Die Geschöpfe des Prometheus (Beethoven). Violin Concerto in A (Mozart). The Unfinished Symphony (Schubert). 9.10, Dance Music with Vocal Refrains. 10.0, See Munich. 10.20, Time and News. 10.40, Theatre Talk. 11.0, Dance Music with Vocal Refrains. 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.25 p.m., German Transmission: News and Talk: Moravia in the Ice Age. 7.0, See Prague. 7.10, See Moravská-Ostrava. 7.50, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orches-

tra, conducted by Leemans: Military March (Schubert); Minuet (Boccherini); Serenade from Milenka (Blockx); La cinquante (Gabriel-Marie); La lettre à Manon (Gillet). 12.20 p.m., Soprano Song Recital by Anita Touret: Aria from Rinaldo (Handel); Aria from Les dragons de Villars (Mailart); Oh! ses pas incertains (De Boeck). 12.35, Orchestral Concert (cont'd): Overture, Fierrabras (Schubert); Overture, Meeresstille und glückliche Fahrt (Mendelssohn); Overture, Titus (Mozart). 1.0 p.m., Le Journal Parlé. 1.10, Extracts from Les Dragons de Villars.—Opera (Mailart), on Gramophone Records. 1.35, Pianoforte Recital by Marie-Jeanne Verminst: Perpetuum mobile (Weber); Impromptu in B flat (Schubert); Waltz in A flat (Brahms). 1.50, Light Music: Cigany Rhapsody (Kalmán); Frühlingsstimmen (Strauss). 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Suite, Arlequin (d'Olone); Les trois sultanes (Büsser). 5.30, Programme for Children. 6.5, Literary Review. 6.15, Cello Recital by Jean de Nocker. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Feuilleta de voyage (Florent Schmitt); Gramophone Record: Träumerei (Schumann); Chausons à danser (Bruneau). 7.15, Film Review. 7.30, Art Notes and Talk for Women. 8.0, Concert by the Radio Orchestra, conducted by André: African Suite (Coleridge-Taylor); Algerian Scene (Ketelbey); Suite marocaine (Delmas); Caucasian Suite (Hypolitov-Ivanov). 8.45, Talk: The Cinematograph. 9.0, Beethoven Concert by the Station Symphony Orchestra, conducted by Kumps. Soloist, Desclin (Violin): Overture, Caribbeans; Violin Concerto. 9.40, Pianoforte Improvisations by Jean Meer. 9.55, Christus Vincit (Liszt). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

I.N.R., 387 kc/s, 338.2 metres; 15 kW.—Programme in Flemish.—12 Noon, Gramophone Concert. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans. 5.0, Concert by the Radio Orchestra, conducted by Franz André: March, Le rêve passe (Krier); Foxtrot, Love me to-night (Brown); Oh Dona Clara (Peterburski); Humorous Variations on a Popular Theme (Blumau); Foxtrot, Antoinette (Oberfeld); Rumba, Azor (Gabaocle); Waltz Potpourri (Robrecht). 5.45, Programme for Children. 6.30, Gramophone Music. 7.0, Soloist Concert: Wien bleibt Wien (Schrammel); Boston, Jane (Carliolato); Melody (Fenstad); March, Hoch und Deutschmeister (Ertl). 7.15, Talk. 7.30, Interview with Lode Baekelmans of the Literary Museum at Antwerp. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Jubilee March (De Boeck); Humoresque (Gillon); Gramophone Records; Overture, Charlotte Corday (Benoit); Flem-

ish Dances (Blockx). 8.45, Hondsdoelheid—Play in One Act (Goetz). 9.15, Concert by the Radio Orchestra, conducted by Franz André: Song (Eisler); Overture, The Crown Diamonds (Anber); Verdi Potpourri (Morena); Gramophone Records: (a) Bell Song from Lakmé (Delibes), (b) Aria from Manon (Massenet), (c) Variations on a Theme of Proch; Waltz Suite (Tallan); Marche lorraine (Ganne). 10.0, Le Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Motoi Orchestra. In the interval at 6.0, Radio Journal. 7.0, Educational Programme. In the interval from 7.20 to 7.40, Instrumental Music on Gramophone Records. 8.0, Song Recital by Serban Tassian: Ich geh' nicht (Schumann); Tom der Reimer (Loewe); Songs (Capolongo); Aria from Herodiade (Massenet). 8.20, Concert by the Station Orchestra: Overture, Turandot (Weber); Scènes napolitaines (Massenet); Selection from Gipsy Love (Lehár); Slav Dances, Nos. 1 and 4 (Dvorák). In the interval at 9.0, Talk. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 8.0 p.m. till Close Down.—5.30 p.m., Concert by the Simi Kurla Cigany Orchestra. 7.0, Gramophone Music. 7.30, Reading. 8.0, Concert. 8.45, Radio Sketch. 9.30, News. 9.45, Concert by the Budapest Concert Orchestra, conducted by Polgar: Overture (Brill); Suite, Sunday Afternoon (Mikus Csak); Ballet Music from Carmen (Bizet); Selection from The Daughter of the Regiment (Donizetti); Coronation March from The Prophet (Meyerbeer). In an interval at 10.30, Weather. 11.15, Concert by the Hetenyi Trio, relayed from the Café Simphon.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time Signal and Chimes from the Town Hall. 12.2 p.m., Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. 2.0, Interval. 3.0, Concert by Louis Prell's Instrumental Ensemble; Soloist, Rose Marie (Songs); Overture, The Princess in the Golden Slippers (Rust); Dreamland Waltz (Fucik); Selection from Words and Music (Coward); Wien, du bleibst das verwöhnteste Kind der Welt (Kotter); Hungaria (Black); Mexican Serenade, Los Marineros (Bochmann); Songs: (a) Le chanson de marionette (Tagliafico), (b) Old Provencal Folk Song, Rose de Provence, (c) Minuet, Paris est un roi, (d) La barque d'Yves (Tranchant), (e) Seventeenth Century Musette, (f) Breton Folk Song, Le biniou; Intermezzo, Sie kommen (Lincke); Waltz: Impromptu (Odenhour-Poulsen); Selection from Fahrt ins Blaue (Dostal); Serenade No. 2 (Ieykens); Ballad (Windfeld); Melody (Thurban); My Teddybear (Gunglberger); Foxtrot, Confetti (Kappfusch). 5.0, Programme for Children. 5.30, Exchange and Fish Market Prices. 5.45, Talk: Liberia, The Negro Republic. 6.15, Elementary German Lesson. 6.45, Weather. 6.54, Announcements. 7.0, News. 7.15, Time Signal. 7.30, Talk on the Danish Legislature. 8.0, Time Signal from the Town Hall. 8.1, En Børsharon—Comedy in Five Acts (Richard Schröder). 10.30, News. 10.45, Sonata No. 46 in A flat (Haydn) by Folmer Jensen. 11.5, Dance Music by Richard Johansen, relayed from the Lodjher Restaurant. In an interval at 12 Midnight, Time Signal and Chimes from the Town Hall. 12.30 a.m. (Wednesday), Close Down.

CORK.—See Athlone.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour. Part I: Military Band Music. Signature Tune; The Bull-fighters' March (Kottau); Wood Nymphs (Coates); Cornet Solo: Il Bacio (Arditi); Parade of the Tin Soldiers (Jessel); Praeludium (Lärmfeld); Cornet Solo: Carnival of Venice (Briccialdi); Jolly Fellows (Vollstedt); Old Panama (Afford). Part II: Dance Music. My Bluebird's singing the Blues (Robin); Sweetheart darlin'; Thank Heaven for you; Let's all be happy together; Twelfth Street Rag; Lover; I'm getting sentimental over you; I wish I had wings; Signature Tune. 12 Noon, French Programme. 4.30 to 6.0 p.m., Programme in English by the I.B.C. 4.30, Programme for Children. 5.0, Concert by a Balalaika Orchestra for Torquay and Exeter Listeners. Signature Tune: The Night by the Sea; Faun (Andreef); Choir: The Twelve Robbers (Traditional); Troika and a Lady (Andreef); The Red Saraphan (arr. Leontief); Solo: Caucasian Gipsy Songs; Russian Folk Song and Dance; Choir: The Cossack Prisoners; Song of the Volga Boatmen. 5.30, Gramo-

SEPT. 19th

TUESDAY

continued

phone Concert for Plymouth and Devonport Listeners. My Lady Dainty (Hesse); River, stay away from my Door; Witches' Ride (Puccini); That Futuristic Rag (Bloom); The Porter's Love Song (Razaf); I'd love to be a Sailor (Lauder); A Woman should stick to her Man (Hdu); Selection from The Flower of Hawaii (Abraham); Signature Tune. 6.0, French Programme. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music. Signature Tune: Bells of Normandy; Won't you stay to Tea?; There's a Tiny little Hair upon your Shoulder; Hiawatha's Lullaby; That's my Home; Old Man Harlem (Vallee); We're a couple of Soldiers; I can't remember; Brighter than the Sun (Noble); Lover (Rodgers); Sweetheart Darlin'; In Old Vienna; Somebody stole my Gal; Just an Echo in the Valley; Love is the sweetest Thing; When Glimble hits the Cymbal; Chewing Gum; Learn to Croon; Signature Tune. 11.0, Sound Film Music. Signature Tune: Sittin' in the Dark; The Shadow Waltz (Dubin); You are too beautiful; Reaching for the Moon; Hits from Forty-Second Street (Warren); Love Songs of the Nile (Brown); Heaven will protect an Honest Girl (Weston); In the Park in Paree (Ranger); You don't understand (Ellis); Signature Tune. 11.30, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of Hospitals Trust, Ltd. Signature Tune: Come back to Erin; Cœur brisé (Gillet); Irish Medley (arr. Somers); Song: Come back to Sorrento (de Curtis); Once on the Rhine in (Ostermann); Song: Love's Pleading (Peccia); General Mulcahy (Brace); Pianoforte Solo: Sweetheart I'm dreaming of you (Brody); Minuet No. 1 (Paderewski); Signature Tune. 12.5 a.m. (Wednesday), I.B.C. News Bulletin in English. 12.10 (approx.), Concert for Bulwell Listeners. Part I: Tango Band. Signature Tune: The Chum Song; The Song of the Rose (Bottero); I'll keep you in my heart always (Gartman); Jealousy (Gade); Julian (Donata); There was a poor Musician (Schwartz). Part II: Dance Music. Alabama Song; Old Man Harlem; That's what life is made of; Here is my Heart; Adorable; I gotta right to sing the Blues; My first love to last; Moon over Dixie; Signature Tune. 1.0 a.m., Dance Music. Signature Tune: Bells of Normandy. Dance pretty Lady; Maybe I love you too much; Waiters on Parade; I raised my Hat; Good-night but not good-bye; I shall still keep smiling along; Forty-Second Street; Put that Sun back in the Sky; In the Park in Paree; Hyde Park Corner; This is the Rhythm for me; Alice Blue Gown; I wish I had Wings; What a Lady Josephine must have been; Thank Heaven for you; My, oh, my!; Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

FLensburg.—See Hamburg.

Florence.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m., Concert. 5.45, Economic Notes. 6.0, Discussion. 6.45, To-day's News. 6.50, Time and Announcements. 7.0, Transmission for all German Stations: Tallyho!—the Hunting Season starts. 8.0, Friedemann Bach—Opera in Three Acts (Grüner), relayed from the State Theatre, Cassel. 10.15, Time and News. 10.45, See Stuttgart. 12 Midnight (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,157 kc/s, 259.3 metres; Hanover, 530 kc/s, 566 metres, and Kiel, 1,292 kc/s, 232.2 metres.—5.30 p.m., Variety Programme. 6.45, Exchange and Market Prices. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, Das Schicksal der Expedition Rüdiger (The Fate of the Rüdiger Expedition)—Radio Play (Ernst Hofmann and Walter Bernhard Sachs). 9.30, Pianoforte Recital by Wilhelm Ammermann: Partita No. 6 in E minor (Bach); Variations in F minor (Haydn). 10.0, Time and News. 10.20, Topical Talk. 10.30, Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz: Romantic Overture (Thuille); Spinning Song and Intermezzo from Twelfth Night (Humperdinck); Suite, Aus baltischen Länden (Kämpf); First Norwegian Rhapsody (Halvorsen); Overture, Pique Dame (Suppé); Waltz Intermezzo

(Bull); Wedding March from The Piper of Hamelin (Nessler); Waltz, In lauschiger Nacht (Zielher).

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—1.5 p.m., Gramophone Concert of Popular Music. In the intervals at 1.20 and 2.0, News. 2.30, Programme arranged by the Post Office, with Gramophone Music. 2.45, Market Prices. 3.0, Concert by the Small Station Orchestra, conducted by Eugen Wleken. 4.0, Musical Improvisations for Children. 4.30, Concert by the Small Station Orchestra, conducted by Eugen Wleken. Overture, Jean de Paris (Boieldieu); Ballet suite, Esmeralda (Drigo); Waltz, Königskinder (Löhrl); Selection from Jalka (Fetras); An Eastern Romance (Haynes); Overture, Loreley (Lincke). In the interval at 5.0, Review of Books on Gymnastics. 5.55, Humour in East Prussian Dialect. 6.15, Market Prices. 6.25, Radio Report for Workers. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, Weather. 8.5, Schloßballade—Dramatic Narrative (Walter von Hollander). 9.5, An Hour with the Königsberg Storm Troops—a Radio Sequence. 10.0, Political Press Review, followed by News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW. (until 5.40 p.m.) and 20 kW. from 5.40 p.m. Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Sextet Concert. 1.25 to 1.40 p.m., Interval. 1.40, Programme for Women. 2.40, Song, Violin, and Pianoforte Recital: Sonata in G Minor (Tartini); Romance in F (Beethoven); Songs: (a) Aria from The Valkyrie (Wagner); Violin Solos: (a) Spanish Dance, Op. 22 (Sarasate). (b) Viennese Caprice (Kreisler), (c) Sérénité (Vieuxtemps); Songs: (a) The First Kiss (Brandts-Buys), (b) Junge Liebe (Mann), (c) Musica proibita (Gastaldon). 3.40, Programme arranged by the H.I.R.P. (Hebrew Radio Society). 4.50, Gramophone Music. 5.10, Concert by the K.R.O. Boys. 6.40, Police Notes. 6.55, Gramophone Music. 7.5, Talk: Lenin and Gandhi. 7.25, Talk. 7.40, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Overture, Donna Diana (Henznick); Selection from Otello (Verdi); Polovtsian Dances from Prince Igor (Borodin). 8.10, News. 8.15, Talk: James Watt. 8.25, Concert (cont'd). Soloist: George van Renesse (Pianoforte). Academic Festival Overture (Leutner); Pianoforte Concerto in E flat (Liszt); Waltz, Frühlingsstimmen (Strauss); Pianoforte Solos: (a) Rondo in D (Schubert), (b) Waldesrauschen (Liszt), (c) Consolation in E (Liszt), (d) Au bord d'une source (Liszt); San Lorenzo (Silva); Overture, Gri-Gri (Lincke); Ernst and Scherz für's Wiener Herz (Kozsak); Waltz, Freut euch des Lebens (Strauss). In the interval at 9.10, Gramophone Records. 10.10, News. 10.15, Concert of Light Music by the K.R.O. Boys, conducted by Lustenhorwer. 11.40, Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk on 50 kW. from 3.40 p.m. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40 a.m., Report of the Opening of the Dutch Parliament. Speakers: W. Vogt and D. Hans. 1.40 p.m., Concert. 2.10, Baritone Song Recital by Gerard Hothaus. 2.40, Gramophone Music. 3.40, Violin Recital by Colette Franz: Sonata in A (Vivaldi); Romance in G (Beethoven); Havannaise (Saint-Saëns); Perpetuum mobile (Ries). 4.10, Concert by a Children's Choir, conducted by Jacob Hamel. 4.40, Programme for Children. 5.10, Concert by the Station Orchestra, conducted by Nico Treep: Overture, Flotte Bursche (Suppé); Suite, La Ferri (Lacome); Trameret (Schumann); Gavotte (Popper); Melody (Kälänmaki); Selection from Waltzes from Vienna (Strauss-Korngold); The Vision of Fuji San (Ketschey); Madrid (Speyer); Los Banderilleros (Vopatti); Von Wien durch die Welt (Hruby); Ideale (Tosti); Marchiare (Tosti); Czardas (Nielchiel). In the interval at 6.10, Talk. 7.10, Talk. 7.40, Time Signal. 7.41, News. 7.45, Gramophone Music. 8.10, Tattoo. 8.40, Gramophone Music. 9.10, Concert by Kovacs Lajos and his Orchestra. 9.40, Talk. 10.10, Concert (cont'd). 10.40, News. 10.50, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.40 p.m. till Close Down, See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Concert by the Fröhliche Fünf. 1.15 p.m., News. 1.30, Concert by the Station Orchestra, conducted by Werner Göhre: Overture, Giroffé-Giroffé (Lecocq); Donaulieder-Walzer (Strauss); Selection from The Geisha (Jonas); Andalusian Romance (Sarasate); Rondino (Sibelius); Zigeunerständchen (Nehl); Potpourri, Für alle (Dostal). In the interval at 2.0, News. 3.0, Programme for Children. 3.30, Exchange and Time. 3.50, Review of Educational Books. 4.10, Reading (Wilhelm von Scholz). 4.30, Tales of Australian Adventures by a Ship's Cook. 5.0, Pianoforte Recital by Hans Haass: Polonaise in C Sharp Minor (Chopin); Alt-Wien (Niemann); Two Pieces (Godard); (a) Au Matin, (b) Mazurka; Nocturne (Keller); Rigoletto Paraphrase (Liszt); Waltz (Hugmüller). 5.30, Something for Everybody—Gramophone Concert. 6.15, Political Announcement. 6.25, Italian Lesson. 6.45, News. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, First General News. 8.5, Bunter Abend. 10.5, News. 10.25, West German Weekly Review.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12 Noon, Concert from Munich. 1.15 p.m., News and Programme Announcements. 1.30, German Folk Songs (on Gramophone Records). 2.15, News. 2.30, Review of Books for Young People. 3.0, Song and Pianoforte Recital by Margerete Steffen (Mezzo-Soprano), Werner Drosihn (Baritone), and Friedbert Sammler (Pianoforte). 3.35, Market Prices. 4.0 (from Dresden), Concert by the Dresden Philharmonic Orchestra, conducted by Hilmar Weber: Overture, König Drosselbart (Hanel); Ballet Suite from Lazy John (Nedbal); Selection from The Barber of Bagdad (Cornelius); Second Norwegian Rhapsody in A (Svendsen); Hilmar Waltz (Delmert); Ballet Music from Ritter Pasman (Strauss); Selection from Don Caesar (Dellinger). 5.50, Economic Notes, News, Weather and Time. 6.0, Dialogue for Parents: The Nervous Child. 6.20, Talk: Mussolini before he became Duce. 6.50, Review of the Day's News. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, (from Dresden), Concert by the Dresden Soloist Ensemble: Overture, Berliner Luft (Lincke); Moonlight on the Alster (Fetras); Descriptive Piece (Dicker); Flower Suite (Siele); Selection from Der Vagabund (Zeller). 8.40, Gaudeamus igitur—Stories of our Father's Student Days. 9.0, See Berlin (Funkstunde). 10.15, News. 10.45, See Stuttgart. 12 Midnight, Close Down.

LINZ.—See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Concert by the Station Orchestra, conducted by Henri Pensis: March (Lincke); Waltz, Longchamps fleuris (Waldteufel); Overture, Nero (Reissiger); By the Blue Hawaiian Waters (Ketschey); Czardas (Grossmann); Selection from Martha (Flotow); Leucht-käferchens Stelldichein (Siede). 1.30, Gramophone Concert. 7.30 till Close Down, Belgian Programme. 7.30, Pianoforte Concerto No. 2 in C Minor (Rachmaninov), on Gramophone Records. 8.20, Concert of Belgian Music by the Station Orchestra: Prelude to Henry VIII (Gilson); Songs d'amour (Marsick); Comme meurent les feuilles (de Taeye); Fantasia on Two Songs of Tournai (Daneau); Overture, Sous la régence (Brusselmans). 8.50, News in French. 9.0, Quartet for Oboe, Violin, Viola, and Cello (Mozart). 9.20, Concert by the Station Orchestra: Norwegian Dances (Grieg); Rhapsody in Blue (Gershwin). 9.45, News in German. 9.55, Variety Music on Gramophone Records. 10.30, Dance Music.

LWOW

788 kc/s, 381 metres; 16 kW.—7.20 p.m., Announcements and Gramophone Music. 7.40, See Warsaw. 10.0, Violin Recital. 10.15, Dance Music relayed from Warsaw. 10.40, Gramophone Music. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30 p.m., Gala Concert, conducted by Waerssegers, relayed from the Opera House; Soloists, relayed from the Opera House; Ticiers, Trillat (Pianoforte), Guénot (Songs), Ticiers (Cello), and Yvonne Brohier (Songs). Overture, Le Roi d'Ys (Lalo); Pianoforte Concerto No. 5 (Saint-Saëns). Songs: (a) Les berceaux (Faure), (b) Au cimetière (Faure), (c) Song (Musorgsky), (d) La vague et la cloche (Duparc). (e) The Two Grenadiers (Schumann). Symphony in D Minor (César Franck); Joyeuse marche (Chabrier); Cello Concerto (Lalo). Songs: (a) Aria from Richard Cœur

de Lion (Grétry), (b) The Song of the Butterfly (Campra), (c) Serenade (Gounod), (d) Song from Chérubin (Massenet), (e) Adieu (Faure), (f) Clair de lune (Faure), (g) Romance (Debussy), (h) Waltz Song from Isoline (Messager); L'Apprenti sorcier (Dukas).

MADRID

ARANJUEZ, EAQ, 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m., Popular Concert. In the interval at 11.45, Radio Chronicle. 12.45 a.m. (Wednesday), Light Music. 1.0 (approx.), Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal, and Request Gramophone Music. 8.30, Talk by Jouquin España Cantos, followed by Gramophone Records (cont'd). 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time Signal, and Topical Review. 11.20 (approx.), Faust—Opera (Gounod) on Gramophone Records. 1.15 a.m. (Wednesday), Topical Review and News. 1.30, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—7.0 p.m., See Prague. 7.10, Recitations and Music. 7.50, See Prague. 11.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 300 kc/s, 1,000 metres; 100 kW.—11.45 a.m., Weather. 2.25 p.m., Weather. 3.0, Popular Concert. 3.55, Time, 4.0, Topical Talk. 4.30, Literary Programme. 5.30, Talk: The Development of the Soviet Union. 6.30, Concert of Spanish Songs and Dances. 9.0, News. 9.30, Programme Announcements. 9.55, Chimes from the Red Square. 10.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—2.20 p.m., Concert of Chamber Music. 3.0, Programme for Housewives. 3.55, Weather and Agricultural Notes. 4.5, Talk: The Changes in the Broadcasting World. 4.30, See Frankfurt. 5.45, Talk: The Native Indian Tribes in America. 6.5, Max von Schillings Pianoforte Recital by Wilhelm Kempff: Hellundekel; Trotz; Invocation; Dies und das. 6.25, Talk: Clairvoyants and their Dupes. 6.45, News. 7.0, Transmission for all German Stations, relayed from Frankfurt. 8.0, See Stuttgart. 9.0, Michael Gaismayr—Peasant Drama (Franz Kraewitter). 10.0, Austria. 10.20, News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,053 metres; 60 kW. Relayed by Fredrikstad 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m., Gramophone Concert. 6.0, Talk for Housewives. 6.45, Musical Programme. 7.0, News. 7.30, Talk on Narcotics. 8.0, Time Signal. 8.1, Concert by the Station Orchestra, conducted by Hugo Kraum: Selection from The Queen's Kerchief (Joh. Strauss); Ballet Suite from Namouna (Lalo); Songs (Schubert): (a) Die Rose, (b) Der König in Thule; Songs (Schumann): (a) Jägerlied, (b) Der Abendstern; Serenade (Reidarson); Barcarole (Liedlich); Selection from Turandot (Puccini); Waltz, La plus belle (Waldteufel). 9.10, Recitations. 9.40, News. 10.0, Topical Talk. 10.15, Variety Music, relayed from Bergen, 824 kc/s, 364 metres. 10.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

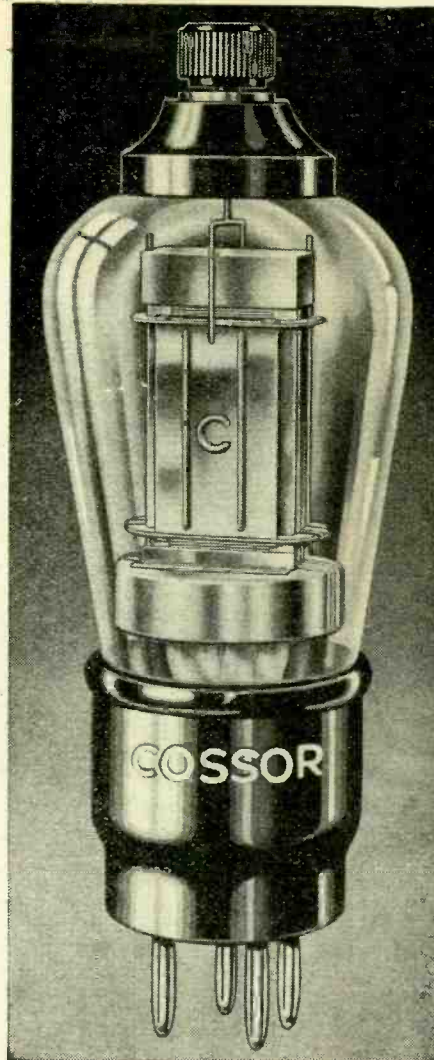
558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Gramophone Music. In the interval at 8.30, Time and Announcements. 8.45, Andrea Chénier—Opera in Three Acts (Giordano). In the interval, Talk and Announcements. After the Opera, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—6.45 p.m., Talk on the Theatre. 7.0, Le Journal Parlé. 8.30, Concert of French Music from the Opera House, Lyons.



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**+MVSG	Variable-Mu	200,000	—	2.5	17/6
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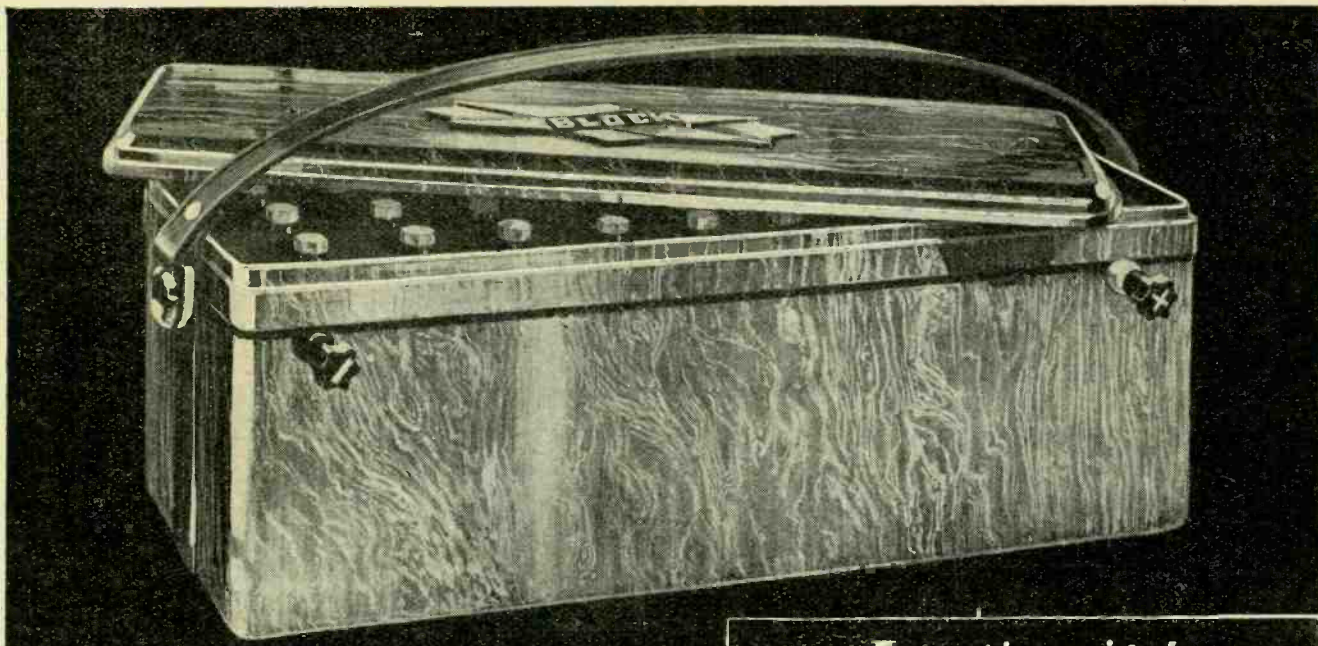
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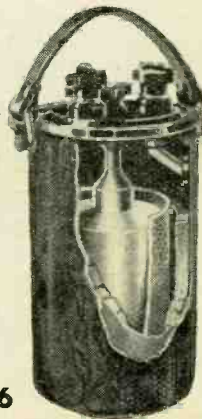
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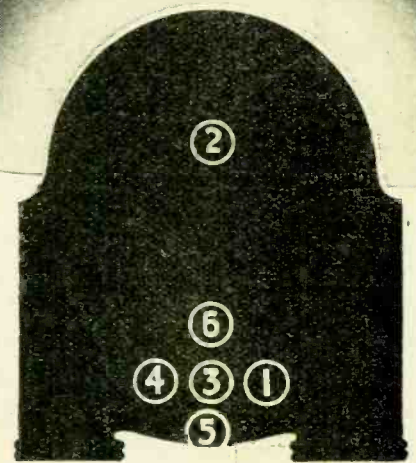
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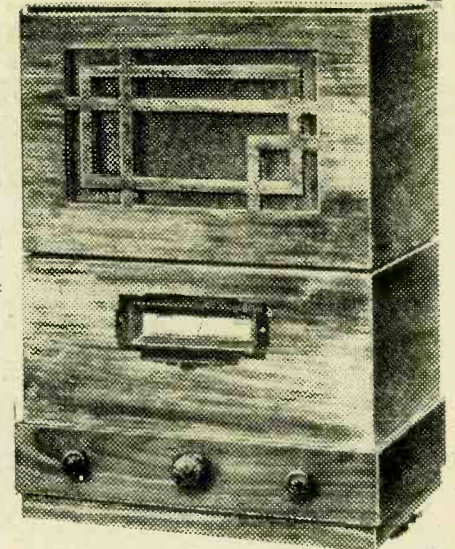
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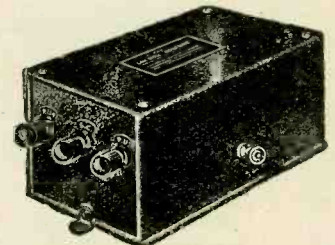
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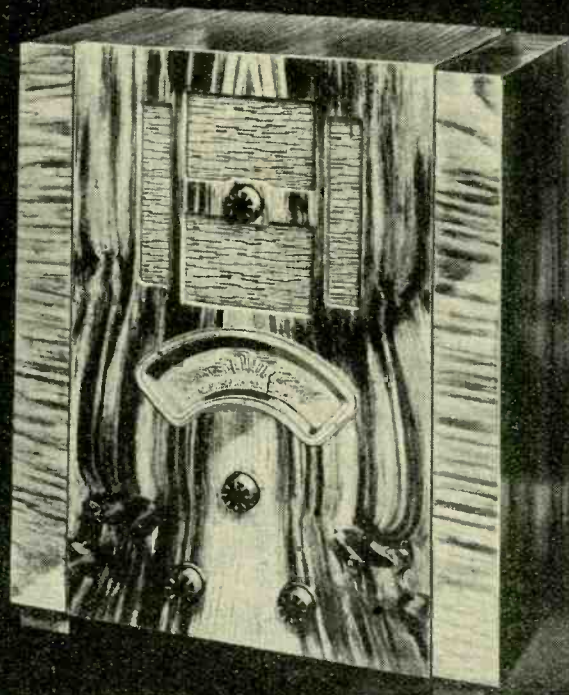


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As many of the circuits and apparatus described in these
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making use of them, to satisfy themselves that they would
not be infringing patents.

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EDITORIAL COMMENT

Aerials and Earths

Importance of an Overhaul

ALL of us have a natural desire to improve the standard of reception and are prepared to devote a large amount of time, and money according to our means, in doing all that we can to perfect our receivers. In the early days of wireless reception, when the simplicity of the crystal set left comparatively little scope for improving the efficiency of the receiver beyond a certain point, we paid the greatest attention to the aerial and earth because it was on this end of the outfit that we depended for any real improvement in reception.

Why Aerials Are Neglected

To-day, with the amazing amplification which the modern valve can give, and the efficiency of our receivers, we are inclined to think that the aerial and earth do not matter. A year or so ago, when the increase in the number and power of transmitters overtook the standard of selectivity in receivers, it was common practice to shorten the aerial, reducing its efficiency as a collector, as a means of improving selectivity of the set. Now, with set selectivity vastly improved, we would be prepared to wager that there are thousands of aerials which have been left precisely as they were, in spite of the fact that a new and up-to-date selective receiver has been installed in the meantime in place of the unselective one.

Wherever circumstances and space permit, a return to a long and efficient aerial would be found worth while to-day if a selective set is in use, and an indoor aerial, or any compromise of this nature, should only be entertained as an alternative if a good outside aerial is a physical impossibility.

In three weeks Summer Time will be

at an end and very probably a wet spell will set in, so that the opportunity should be taken now for a thorough overhaul of the outside aerial and earth. From every point of view it will be found well worth the time spent.

Do It Well

Whilst on the job, put up the best aerial possible in the space available and then see how much difference it is going to make to reception. The earth, too, requires the same sort of overhaul, and, above all, watch for any rubbing contacts which may give rise to crackles which we may have hitherto regarded as inevitable atmospheric. Whilst the fine weather is still with us it is an opportunity, also, to consider whether it is advisable to install a screened down lead or other refinements. It is a job easily tackled whilst the fine weather lasts, but one to be shunned on a cold and wet day.

We should take the opportunity to discourage our friends from resorting to the use of "aerial substitutes" of pocket size, which, even in these enlightened days, are still being sold in a variety of types, in spite of the fact that their very dimensions are sufficient to preclude the possibility that they could act as efficient collectors. On the other hand, indoor aerials of good type and others of special design for outdoor use, will often be found to be the next-best-thing if outside aerial facilities are restricted.

On this question of aerials we should not be selfish, that is to say, we should, in our common interest of raising the standard of reception, encourage our friends, particularly those who are not technical, to take this opportunity to overhaul the aerial system or fit an outside aerial, if possible. We shall have the satisfaction of our friends' appreciation later of the value of the advice we give them now.

The Electrostatic Loud Speaker

1. How It Works

By M. G. SCROGGIE, B.Sc., A.M.I.E.E.

IF a sufficiently high voltage were applied between the plates of a variable condenser, and the moving plates were sufficiently freely suspended, they would rotate into the maximum capacity position. In practice there is no great likelihood of our tuning dials moving round in this way when an extra powerful "atmospheric" arrives, because the friction at the bearings is so great that the voltage would spark across between the vanes long before being enough to shift them round. But the electrostatic voltmeter, which is simply a very tiny and lightly suspended variable condenser fitted with a pointer, demonstrates the truth of this principle every time it is used.

The principle, of course, is that a difference of potential or voltage between any two conductors causes them to attract one another, and, where they are free to move, to approach one another.

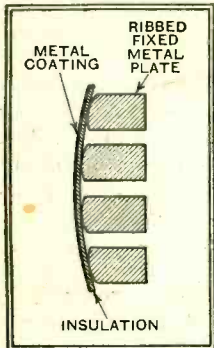


Fig. 1.—Section of the "Kyle" electrostatic loud speaker.

If the potential continually varies, the degree of attraction varies and the motion is continuous. A back-and-forward motion repeated at anything between about 16 and 16,000 times a second causes sound. Therefore, a condenser is, in principle at least, a loud speaker. Actually an ordinary paper fixed condenser may sometimes be heard to emit a faint note

on being connected across the A.C. mains or other source of high alternating voltage. But generally the manufacturer has taken good care that the two strips of foil that make up the condenser are too tightly sandwiched between the waxed paper dielectric strips to vibrate at all.

Practical Considerations

If a condenser is to be any good as a sound reproducer it should be exposed to the open air, and one at least of its two conducting elements should be reasonably free to move to and from the other. This could be done by suspending it a little distance away, with a layer of air in between. There are several disadvantages in this. The layer of air acts as a cushion, tending to damp out the motion, just as a pneumatic stop prevents a door from being slammed, however hard it is pushed. Then the force set up by a given voltage falls off very rapidly as the plates are separated even slightly. And to keep them separated at a fixed distance without solid material in between it is necessary to im-

pede their free motion still further, either by making the plates very thick and stiff or by stretching them tightly.

The result is that the simple condenser loud speaker tends to be very inefficient and insensitive, and the object of design is to remove these objections. An example

THE amount of information which has been published about the electrostatic or condenser loud speaker is almost negligible. Being such an unknown quantity it has not yet come into general use, although it has been on the way for over fifty years. This neglect is not altogether deserved, for in some respects, particularly reproduction of the higher frequencies, it is unrivalled. Being fundamentally different from other types of loud speaker it is unfair simply to substitute it and expect the best results. The purpose of the author of this contribution will be to explain how the electrostatic loud speaker works and to give advice on its use.

of the stretched diaphragm type is that by Hans Vogt, of Ferrocart fame. He used an extremely thin moving diaphragm, stretched so tightly, close to a perforated fixed plate, that the natural frequency was above the usual audio frequency range—about 15,000 cycles per second, in fact. The perforations were intended, of course, to remove the air damping.

The Kyle loud speaker—of American

tion of this arrangement. The fixed plate is slotted and ribbed, and so shaped where it makes contact with the composite moving plate that an increase in voltage between them causes the latter to cling closer to the fixed plate and squeeze some of the air out through the slots. The reverse action takes place when the voltage relaxes.

A still closer approach to unrestricted motion is obtained in the "Primustatic" speaker, which, as it is one readily obtainable in this country, will be principally considered. Fig. 2 shows an enlarged section of it, in which the fixed plate, of perforated aluminium, is slightly curved. Behind it is a tinfoil-coated sheet of waxed paper, folded so as to form tiny triangular-sectioned air spaces behind the perforations. At the "dead" lines, in between the rows of perforations, where there is no motion, the foil paper is held in position by a special sort of hairy thread which makes very light, but adequate, contact everywhere. It is possible to use graphite-coated paper instead of metal, as a fairly high resistance does not interfere with the operation.

It will be clear that when a voltage is set up between the plates a sort of rolling action takes place, causing the line contact to spread out into a strip, as shown dotted, and air to be expelled through the perforations.

Possibilities of Distortion

As the attractive force takes place whenever a difference of voltage exists between the plates, it is obvious that they will move together during both positive and negative halves of an alternating wave. Thus, in Fig. 3, if (a) represents two complete periods of a 50-cycle supply, (b) represents the corresponding attractive force set up, and it will be seen that there are four complete waves. So instead of a 50-cycle note we get a 100-cycle note.

Reproduction in which every frequency is double what it ought to be is not likely to be considered satisfactory. It is interesting to note that precisely the same result is obtained in a moving-iron loud speaker or headphones in which no permanent magnetism is provided, the only

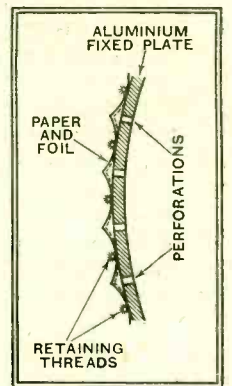
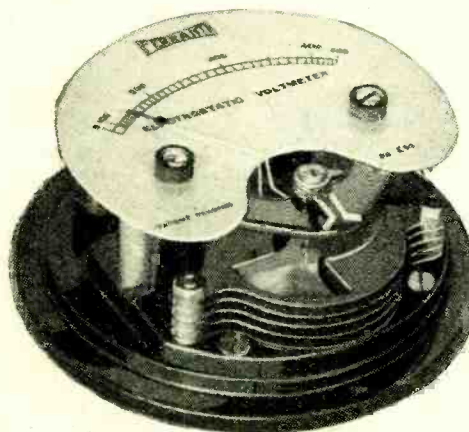


Fig. 2.—Section of the "Primustatic" loud speaker. The dotted line shows the position of the diaphragm under the force of attraction.



The Ferranti electrostatic voltmeter illustrates the principle of electrostatic attraction.

origin—has the effect of splitting up the total surface into a vast number of tiny diaphragms, by stretching the moving element directly on the fixed one, separated only by a thin layer of flexible insulation. Fig. 1 shows in section a small por-

The Electrostatic Loud Speaker—

attractive force being due to the signal current. The remedy in the latter case gives us the clue to that for the electrostatic speaker defect—the provision of a steady initial force considerably larger than any due to the signal.

Fig. 3 (c) shows the combination of the high steady voltage and the alternating signal voltage, and one important feature is that it never reverses—the initial voltage being relatively large keeps it on one side of the base line throughout. Consequently the frequency-doubling effect is absent, and the attractive force closely follows the outline of the voltage, Fig. 3 (d).

The Polarising Voltage

It can be shown mathematically that not only is the distortion reduced to an unimportant quantity, but also the sensitivity is considerably increased. In practice it is not advantageous to increase the initial polarising voltage indefinitely, even if it were convenient. There would be the danger of breaking down the insulation—air or solid according to the type of construction—between the plates. Also the freedom of motion would be impaired by an excessive displacement in one direction. So the actual voltage is something of a compromise, and one is not far wrong in imposing the voltage used at the anode of the output valve. The signal voltage at this point is, of course, always substantially less. If the latter is stepped up, however, it may be necessary to increase the polarising voltage also, to make sure that it is in the correct proportion.

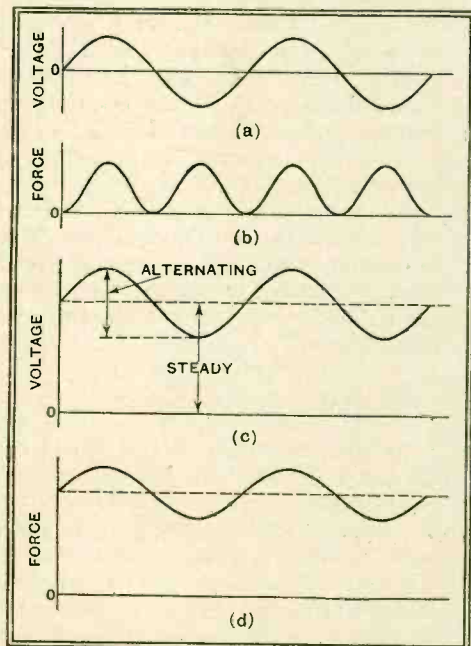


Fig. 3.—Without a polarising voltage, frequency doubling would occur in an electrostatic loud speaker.

A polarising voltage of 1,000 used to be necessary for the earlier types, which is sufficient to explain the disfavour with which they were regarded for general use, and an advantage of the Primustatic type is that about 250 volts is usually enough.

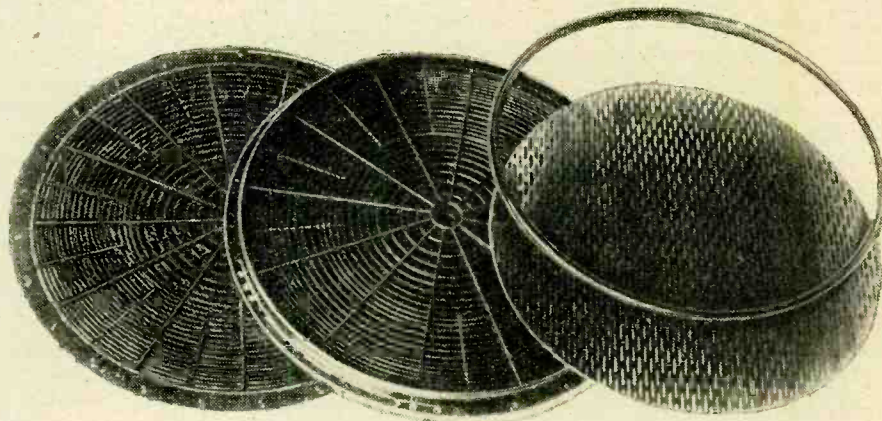
So what used to be a serious drawback now seldom presents much difficulty. The loud speaker being in effect a condenser draws no current from the polarising source.

A rather more serious criticism is that the amplitude of motion is not very great, and that there is therefore difficulty in obtaining strong reproduction of the lowest frequencies. This can be got over to some extent by increasing the area of the diaphragm, which can be done as much as one pleases by adding more units in parallel.

in speech, string tone, and sounds involving transients, such as clapping, tapping, paper rustling, and cymbals.

The construction is much simpler than that of any other type. There are no coils, magnets, or field excitation. For the same reason it is extraordinarily light, and as regards compactness it can be made into panels of very little depth—an inch or so, for example, or even less if necessary.

An electrostatic loud speaker, used alone, is far superior in naturalness and clarity of speech to a moving coil speaker,



Component parts of the Vogt stretched diaphragm loud speaker.

Lastly, on the debit side of the account there is a problem in efficiently coupling the speaker to the output valve. This matter will be gone into in detail later.

High-frequency Response

Now for the credit side. It has already been pointed out that the high note reproduction is a strong feature. There are several reasons for this. Instead of the relatively heavy and complex moving system of any of the magnetic types of speaker, which renders it difficult to get upper frequency reproduction except in the form of resonances, there is a light uniform moving diaphragm, with extremely low inertia. Moreover, this is actuated all over its surface instead of at one part, as in other types, thus avoiding the complicated modes of vibration with resulting resonances and irregularities that distinguish the latter. Further, the area of the diaphragm can be made as large as one pleases, and the focusing and "interference" effects of a small cone are avoided. It is a better sound radiator, in other words. There is practically no upper frequency limit, and therefore it is in advance of present day microphones and transmitting systems, and advantage can be taken of any improvements in the latter. But even with existing standards of transmission, so long as local interference does not impose a severe limit, it is possible to appreciate a very greatly increased clarity and faithfulness of reproduction. It is significant that for special experiments in America, where substantially uniform output of sound was required up to 14,000 cycles, a condenser reproducer was employed.

The advantage is particularly marked

particularly of the cheap sort now almost universal. But unless very large there is not enough depth to music to please most listeners, although even this deficiency can be made considerably more tolerable by the delightful distinctiveness of the instruments in the upper registers, which is variously described as brilliance, "life," and crispness. It is a great relief to get away from the thumpy whoofy reproduction that is so common, or the still commoner apology for "brilliant" tone produced by a fierce high note resonance.

The best overall reproduction is therefore given by a combination of moving coil and electrostatic speakers. To obtain a satisfactory distribution of labour between the two, or even to run an electrostatic on its own, we must consider how it behaves as a load in the valve circuit. Unless attention is given to this the results can be very bad indeed. So it will form the subject of the next part of this article.

**Northern National
Radio Exhibition**

The Manchester Wireless Show will be held in the City Hall, Deansgate, from Wednesday, September 27th, to Saturday, October 7th, 1933.

Next week's issue will contain a plan and guide to all the Stands at the Show.

Practical HINTS and TIPS

IN a few cases it may be found that the special frequency-changing valve in the New Monodial receiver fails to oscillate over the whole of the medium wave-band. Assuming that the circuits are correctly wired and that the working voltages are normal, this effect must generally be ascribed to the fact that the particular specimen of valve in use has a somewhat lower mutual conductance than usual.

The Pentagrid Oscillator.

Although there are several ways of correcting this trouble, probably the simplest and most satisfactory cure can be effected by shunting the reaction section of the oscillator coil assembly with a fixed condenser of 0.0001 mfd. The coil terminals across which the condenser should go are numbered 1 and 2 in the diagrams published with the description of the set.

IT is probable that many readers have not noticed that, in the A.V.C. version of the original Monodial, a "free" supply of anode voltage for the control valve is obtained by the expedient of inserting the loud speaker field in the negative high-tension lead. This is a plan that might often be adopted when fitting a similar system of A.V.C. to existing receivers of the superheterodyne type; it is not suitable for "straight" sets, for the reason that a sufficiently high H.F. voltage is not available on the anode of the detector at the higher frequencies. The system of control is, however, useful when

Free Volts for A.V.C.

receivers of the superheterodyne type; it is not suitable for "straight" sets, for the reason that a sufficiently high H.F. voltage is not available on the anode of the detector at the higher frequencies. The system of control is, however, useful when

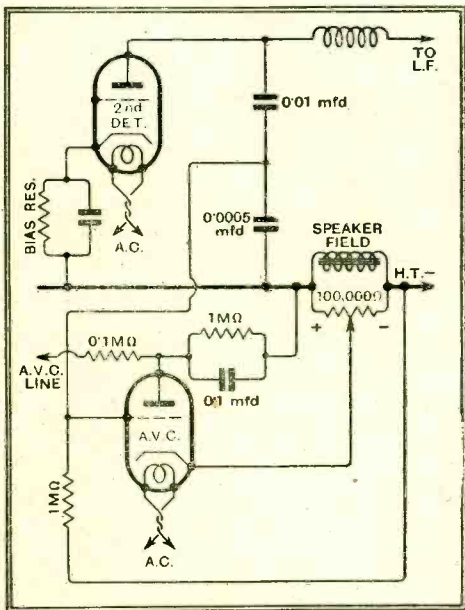


Fig. 1.—The voltage developed across the speaker field winding in the negative H.T. lead supplies the anode circuit of an A.V.C. valve; adjustment of grid voltage is made by means of a potentiometer.

AIDS TO BETTER RECEPTION

a straight set is employed in conjunction with a superheterodyne converter for short-wave work.

The essentials of the control system are shown in Fig. 1. By adopting this form of connection, correct working voltages will be obtained for the A.V.C. valve; its anode will be positive with respect to the cathode, and its grid will be negative with respect to the same point by an extent depending on the position of the potentiometer slider. This slider is provided in order that the working voltage of the A.V.C. grid may be set to a value which gives the correct amount of "delay" action; in practice it is easily adjusted by tuning in a very weak signal and then moving the slider gradually from the positive towards the negative end until a point is reached where signal strength begins to decrease. The slider is then moved back slightly towards the positive end; this will be the final working position.

The actual voltage existing across the speaker field is comparatively unimportant; 60 volts will give results, but a higher voltage is desirable.

FOR amateur use there is no more convenient method of coupling together two H.F. circuits than the "top-end capacity" system. As compared with methods which require adjustment of the relative positions of the coils, it presents no mechanical difficulties, and is therefore especially suitable for extemporising two-circuit tuners or filters when existing apparatus not specially designed for the purpose is to be used. Practically speaking, the only difficulties that are likely to arise are those brought about by imperfect screening and excessive minimum coupling; both have the same effect. It is therefore necessary to make sure that the coils used are properly screened, and that the coupling condenser which is joined between the high-potential ends of the circuit has a suitably low minimum capacity.

Although this system of coupling is largely used in signal-frequency circuits, it does not appear to be generally realised that it is equally applicable to the I.F. couplings of superheterodynes—this in spite of the fact that it has been so used in several well-known receivers. As compared with arrangements in which the relative positions of primary and secondary coils may be changed, the capacity-coupled filter is probably easier to adjust and is certainly more suitable for those who, in spite of limited workshop facilities, are in the habit of making their own coils.

A capacity-coupled I.F. filter is shown diagrammatically in Fig. 2. For the coupling condenser CC, a semi-variable component of 50 micro-mfds. will be amply large enough; a condenser of 0.0001 mfd. may be used, but it is sometimes desirable to reduce its minimum capacity by cut-

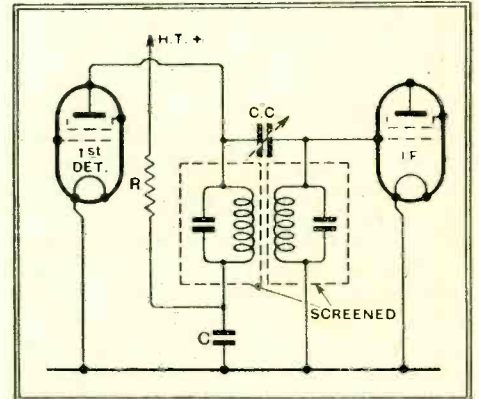


Fig. 2.—"Top-end" capacity coupling is as suitable for I.F. as for H.F. circuits.

ting off a part of one of the plates. The decoupling resistance R and the associated condenser C may have normal values.

THE main reason for the universal dislike to a background of mains hum is that it impairs the artistic value of the programme, gives a constant reminder that we are hearing an artificial reproduction, and is distinctly unpleasant to listen to for long periods.

Another Aspect of Mains Hum.

In addition to this, the existence of hum may actually have a prejudicial effect on the behaviour of the receiver. An output valve, or even a detector, which is partially loaded by hum potentials will not accept so large an input as one working under more ideal conditions.

It might be thought that if the intensity of hum be sufficiently great to load the valve to an appreciable extent the noise would be unbearably loud, but this is not always so in practice; if the hum frequency be above or below the normal band of frequencies reproduced at good strength by the loud speaker it is quite possible that it may not be audible at anything approaching its proper relative strength.

Similar remarks apply to interfering voltages produced by certain forms of man-made static, and in one case which was recently investigated it was found that the fittings of a proper mains filter, in addition to providing a quieter background, made a very obvious improvement to the sensitivity of the set. Admittedly, the detector used in this particular case was of the screen grid type, and able to deal with but a very small input without overloading, but the average detector has quite a small margin of safety.

DESIGN OF THE Detector-Oscillator

Precautions to Observe When a Single Valve is Employed to Serve the Dual Purpose

By F. R. W. STRAFFORD

THE frequency-changing device employed in all superheterodyne receivers generally presents the designer with his most difficult problem. Practically every case of failure to work or violent instability can be traced to this stage, particularly when a single valve is made to perform the dual function of providing the local oscillation, mixing it with the incoming preselected signal, and rectifying the resultant wave form to give the desired beat frequency or intermediate frequency.

The use of a separate valve for each function is often the most straightforward method of securing the optimum conditions for maximum heterodyne conversion, but the tendency of the manufacturer, as distinct from the builder of an individual set, towards reducing costs of construction and subsequent maintenance is a paramount factor in these days; and if the commercial designer can kill two scientific birds with one stone it is the course to adopt.

Bearing this in mind, the writer will

able to rectify these combined wave forms, although less efficiently than a separate detector, and the resultant intermediate frequency appears in the plate current components and sets up a resonant voltage across the intermediate frequency transformer. The apparent simplicity of the action, however, loses some of its appeal when the circuit is tried out unless great care is exercised in selecting the circuit constants.

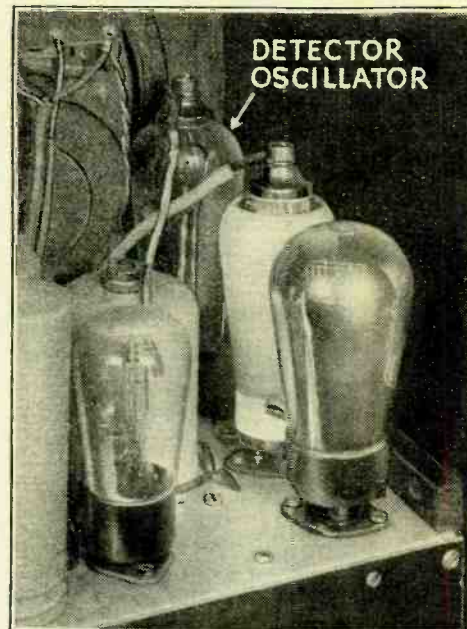
Undesired Oscillations

It can easily be seen that, since there are two tuned circuits in the anode lead, there is every possibility of the circuit oscillating at an undesired frequency in the neighbourhood of the intermediate frequency. This often occurs—particularly when the dynamic impedance of the oscillator circuit is less than that of the intermediate frequency circuit. The condition may be cured by tapping the anode lead down the primary of the intermediate frequency transformer, thereby reducing its effective dynamic impedances as reflected into the anode circuit. Such an operation will naturally reduce the intermediate magnification, but in general practice this method of eliminating intermediate frequency oscillation will give the necessary suppression before much loss of magnification has occurred.

The desirability of employing an oscillator circuit with a

high magnification has now been established from the viewpoint of stabilising the oscillation over the working frequency range. Another advantage is the reduction of oscillator harmonics transferred to the grid circuit; for it is known that when the preselection is not exceedingly high the small out-of-tune signals from a local transmitter produce a complex series of chirps by beating with these harmonics as the tuning condenser is rotated in search of stations.

Theoretically, the amplitude of the intermediate frequency is directly proportional to the product of oscillator and signal voltage, and it would therefore appear that



An H.F. pentode valve, the Mullard S.P.4, is employed in the detector-oscillator stage of the Varley "Square Peak" 4 Superhet.

the best operating conditions implied strong local oscillation. The assumption is, however, only true while the rectification continuously occurs on the parabolic portion of the anode current grid volts characteristic; when the valve has to perform the dual function of simultaneously oscillating and rectifying the conditions are altered, and the assumption no longer implies.

Effect of Strong Oscillations

If the oscillations are too strong, first the violent grid current will damp the preselector circuit and increase also the re-radiation of oscillator voltage via the grid cathode impedance, and, secondly, the rectification efficiency will fall, since the weak signal is, in a way, demodulated by the stronger oscillation.

Fig. 2 shows the approximate relationship between oscillator voltage and intermediate frequency output for a small input signal assumed to be constant.

It can be seen that a linear action does exist until a certain strength of oscillation

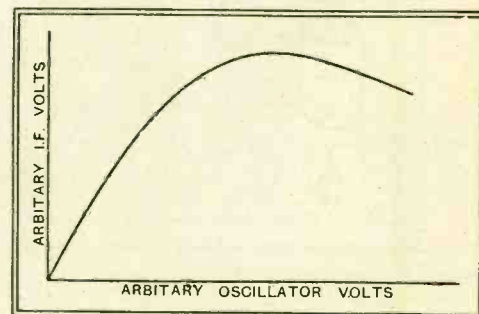


Fig. 2.—Relation between oscillator and I.F. voltage.

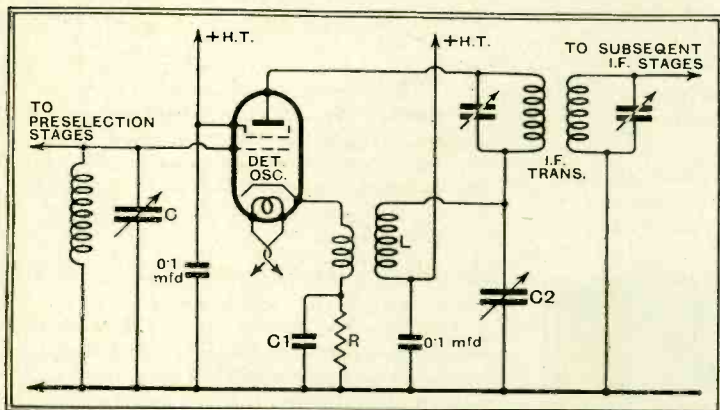


Fig. 1.—A typical detector-oscillator circuit. Condensers C, C₂, are normally ganged.

attempt to elucidate the action of the detector-oscillator and describe how a single screened grid or H.F. pentode valve may successfully perform the requisite dual function if certain circuit precautions are observed.

Schematically, the simple detector-oscillator circuit is depicted in Fig. 1. Oscillations, the frequency of which are fixed by the LC circuit, are produced via the coupling coil in the cathode circuit, and the oscillating difference of potential set up between cathode and earth is applied to the grid, together with the signal from the preselector stage or stages.

Even though oscillating, the valve is

Design of the Detector-Oscillator— is reached, and thereafter the rate of change rapidly decreases and finally reverses.

Experience has indicated that the best value for initial bias voltage (obtained via the cathode resistance R) and oscillator voltage between cathode and earth should be experimentally determined.

Using typical British A.C. screened grid valves or H.F. pentodes, at their normal voltage ratings, the bias resistance should be between 3,000 and 8,000 ohms, and the r.m.s. oscillator voltage across the cathode coil from 2 to 5 volts, and certainly not greater.

Effect of Coupling

The strength of oscillation is chiefly determined, for a given anode voltage, by the tightness of coupling between the reaction and oscillator coils, and the selection of suitable reaction conditions is very important. Tight coupling with few turns is better by far than loose coupling with many turns, although the mutual inductance may be the same in each case. For when the reaction turns are excessive the inductance of the winding may resonate with associated capacities and produce either spurious oscillations or "blind spots" over certain portions of the desired waveband, resulting in partial or complete loss of sensitivity. Even when few turns are used it is a good plan to wind the coil with resistance wire so that the reaction circuit losses effectively damp out any such tendencies.

In normal practice, a rough guide to the number of reaction turns required when tight coupling is used is as follows: For ordinary screen-grid valves operating at normal voltage ratings, approximately one-tenth of the oscillator coil turns, and for H.F. pentodes about one-twentieth.

When the oscillator-detector is directly connected to the aerial preselection circuits a certain amount of re-radiation of oscillator frequencies is unavoidable due to the

grid cathode impedance, which is normally a capacity resistance. Great care should therefore be taken to keep any stray capacities, effectively in parallel with grid and cathode, at a minimum. Where the valve is metallised it is useful to remove the coating by scraping; or, better still, to employ the equivalent unmetallised version.

In most cases the clear valve is the better to employ, since the cathode is at H.F. potential above earth, and the metallising, which is connected to the cathode pin, will often produce queer "blind spot" effects by resonating with the reaction coil inductance.

There is still one very important function of the detector-oscillator with which it is proposed to deal. The intermediate frequency component passes through the reaction coil during its circuit from anode to cathode, and thereby sets up potentials across the grid-cathode circuit. These potentials are therefore amplified to some extent by the oscillating valve, and unless the phase is suitably adjusted the net result developed across the intermediate frequency transformer may show an appreciable loss in magnification.

By a judicious adjustment of phase, which may be carried out to a considerable degree by varying the capacity C_1 across the cathode bias resistance R , the intermediate frequency may be reintroduced so that the anode circuit components are brought very nearly into phase. By this method the magnification or conversion factor of the detector oscillator stage may be increased several times. If the adjustment is carried out too far the inevitable occurs, and the stage flops into violent oscillation or squegging.

Summary

The important points in detector-oscillator design may be summarised as follows:—

(1) The use of a high magnification oscillator circuit reduces the tendency for unstable oscillation or sudden transference

of oscillations to intermediate frequency.

(2) For normal screened grid or H.F. pentode valves the oscillating voltage across the cathode coil should lie between 2.0 and 5.0 volts r.m.s.

(3) The bias resistances should lie between 4,000 and 8,000 ohms, and the capacity between 0.001 and 0.005 μF . It is best to commence with some low limit of both resistance and capacity and finally adjust both for maximum stable magnification when the other circuit conditions are correct.

NEW BOOKS

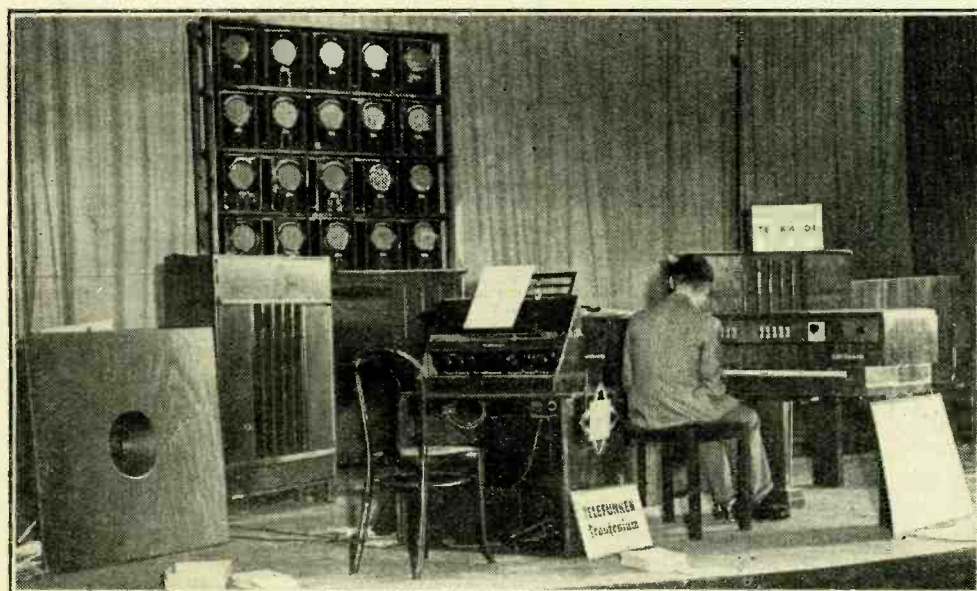
Experimental Television, by A. Frederick Collins, F.R.A.S. Sir Isaac Pitman and Sons, Ltd. 313+xxii and 185 diagrams. Price 10s. 6d.

The title of this book would lead one to believe that it deals with the experimental side of television transmission or reception, but a glance at the chapter headings soon shows that it is concerned at least as much with optics and radio technique. Although they both play an important part in television they are themselves specialised subjects, and elementary descriptions of experiments with reflection, refraction, crystal detectors, and simple amplifiers are out of place in a book on television. A thorough knowledge of these subjects is undoubtedly necessary for a complete understanding of the problems of television, but there are many good text-books available which deal with them in a scientific manner.

Apart from matters of this nature, the book is by no means free from errors. On page 2 it is stated that "a molecule consists of two or more atoms," whereas, of course, molecules consisting of no more than a single atom are quite common. The errors in the circuit diagrams are too numerous to be listed here, but it should be noted that they consist chiefly of the omission of grid leaks and the connection of H.T. batteries in such a manner that they are short-circuited.

The author possesses a happy air of infallibility, and it is interesting to know that he has settled the vexed question of the exact composition of the ether! The book assumes no knowledge whatever on the part of the reader beyond the ability to read, and while this in itself may be a good point, in this case it results in a style which is reminiscent of a book for the very young.

The book is of American origin, but the English edition under review, which is well printed and bound, and free from typographical errors, is published by Sir Isaac Pitman and Sons, Ltd. W. T. C.



The Trautonium and other electrical musical instruments shown at the Berlin Exhibition. The Telefunken Company now manufactures the Trautonium to an improved design.

The Radio Trade Annual of Australia, 1933 (First Edition), compiled by the staff of "Radio Retailer of Australia" and containing a quantity of useful information concerning the progress and present position of wireless in Australia, including the general history of the industry during the past twenty years, the laws, regulations, and agreements now in force in the Commonwealth, list of national and private broadcasting stations, servicing, and technical data and other useful information. Pp. 247. Published by Australian Radio Publications, Ltd., Sydney. Price 10s. post free in Australia, or 12s. 6d. overseas.

YOU BE THE JUDGE



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... I place before you the actual EVIDENCE of where your set is right or wrong. I am giving you conclusive and all-inclusive evidence of radio faults and efficiency. I give you—not just the circumstantial evidence of amperes, volts and ohms, no mere hypothesis, but proved and tested ACCURACY. I present the precision of the AvoMinor, a younger brother of the famous Avometer, the instrument that is so accurate and efficient that it is preferred and insisted upon by the world's foremost technical experts and service engineers. This in itself is evidence enough that nothing less than the AvoMinor is dependable enough for you.

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Ask your radio dealer to show you the AvoMinor. Be satisfied with nothing less. Remember, it's accuracy that is all-important. In case of difficulty, write for fully descriptive folder.



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(Prices not valid in I.F.S.)

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To The Columbia Graphophone Co. Ltd.,
98 Clerkenwell Road, London, E.C.1.

Please send me particulars of the new Columbia models without obligation.

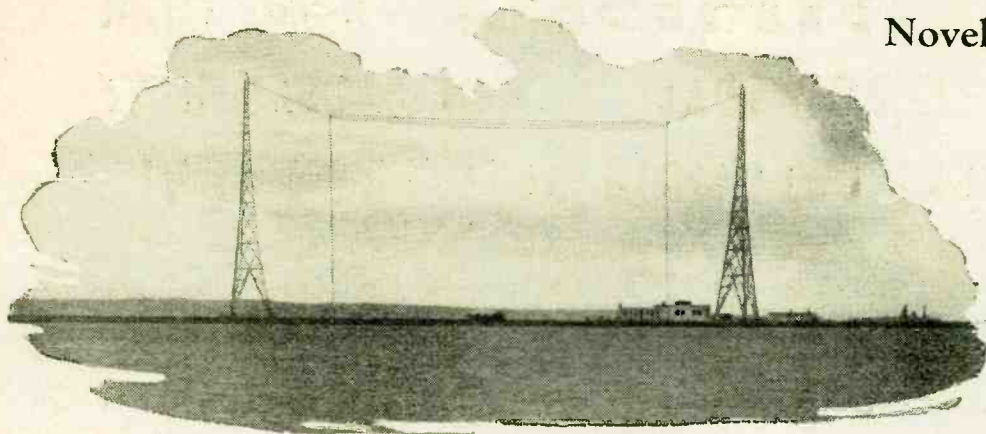
NAME.....

ADDRESS.....

W. W.

Why Kalundborg is Loud

Novel Features in New 60 kW.
Transmitter



Denmark's famous station at Kalundborg occupies a dominating site on a narrow peninsula.

A PART from the remarkable strength at which it is received in this country, the new 60 kW. broadcasting station at Kalundborg is notable in several ways, not least in the method of high power assembly. It has been usual in the past to build transmitters in factory-made units. With increase in power and consequently in size of components, this unit system may tend towards a certain mechanical clumsiness, seriously modifying the layout as compared with what would be desirable from an electrical point of view. This consideration led the manufacturers, Standard Telephones and Cables, of Hendon, London, working in collaboration with the Danish Posts and Telegraphs Administration, to adopt a "cellular" system of construction, the high-power amplifying valves and inter-stage circuits being mounted in a line of cubicles forming part of the building.

Each cubicle, which is inset into the walls, consists of two screened cells in which are mounted the two halves of a balanced push-pull amplifier or output circuit. As a consequence, the transmitter room presents a remarkably simple appearance, in which all that can be seen of the apparatus is the front panels with their indicating dials and switches.

From the circuit standpoint, probably the most prominent feature is the use made of push-pull in the high-frequency stages. Only the Master Oscillator and First Separator are single valve circuits; the Second Separator, the Modulated Amplifier and the three Power Amplifiers are all of the push-pull type. Besides giving an exceptional degree of stability, the use of such balanced circuits aids in the reduction of harmonic

content at the output stage, thus reducing the possibilities of interference.

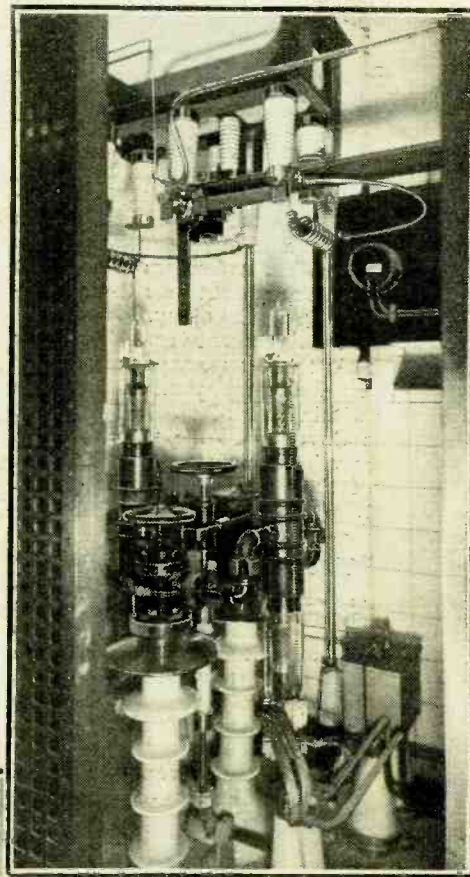
A plate supply of no less than 20,000 volts operates the two high-power stages. This handling of high power at high voltage levels means greater economy and efficiency; the valves used in the last stage are each capable of an output of 200 kilowatts with a plate supply of 25,000 volts.

The Valves

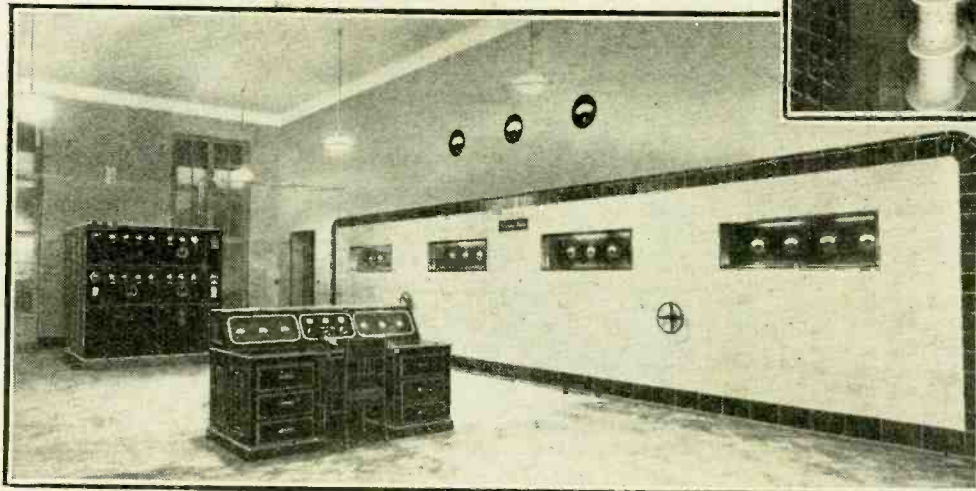
These valves, being of the double-ended type, are designed with the idea of reducing internal capacity. The filament is a system of Tungsten wires kept in tension by means of a spring, and the terminals are fitted with cooling pins so that, despite the large current to be handled—225 amps. at 25 volts—there is no necessity for air blast cooling of the filament seals. The grid terminal at the top end is also fitted with cooling pins. The water jacket, which is a fixture on the anode, is made with flexing ribs, whereby the mechanical stress of contraction and expansion, corresponding to changes in load and temperature of the water, can be taken up safely.

The anode supply for the high-power stages comes from a 20,000-volt rectifier embodying hot cathode mercury vapour

valves. It was during laboratory tests with these particular valves that the interesting discovery was made of a former cause of the unreliability which has been a drawback with this type. As a consequence, it is now possible to make satisfactory rectifiers embodying this form of valve, with its extraordinarily high efficiency of the order of 99 per cent. The Kalundborg rectifier is of the three-phase, full-wave type, and is made in two units, each using six valves and giving an output of 10,000 volts, the total output of the two units in series being 20,000 volts, 12 amps. It is believed to be the largest rectifier of its type at present in regular commercial service.



(Above) Two output valves of the double-ended type, each capable of an output of 200 kilowatts at a plate voltage of 20,000. Note the cooling fins and central water jackets.



(Left) This view of the transmitting room, with its control desk, shows the unique "cellular" layout adopted by the manufacturers, Standard Telephones and Cables.

Why Kalundborg is Loud—

The Kalundborg aerial system is of the "multiple-tuned" type, and good radiation efficiency is obtained while using masts lower than the long wavelength would otherwise necessitate. Slung between the two 330ft. masts, the horizontal length of the aerial is nearly 400ft. At each end is a tuned down-lead, one of which is coupled to the transmitter through a short transmission line.

As the station receives most of its programmes from Copenhagen, an elaborate line amplifier system equipment has been

necessary with all power supply taken from the station lighting mains. Mercury vapour valves are used for the H.T. supplies and copper oxide rectifiers in conjunction with ballast lamps for the filaments.

While it cannot be claimed that Kalundborg is Europe's most powerful station, it certainly earns distinction on the score of novelty, and it will be interesting to observe whether the new ideas incorporated in the design, particularly in regard to the "cellular" form of construction, become popular in the case of other and more powerful transmitters.

DISTANT RECEPTION NOTES

France's Broadcasting Problems

INTERFERENCE by heterodynes or actual jamming has been rather serious on both the medium and the long wavebands of late. Much of it is due to wavelength wandering, though some of it is caused by illicit stations or by authorised stations working on unauthorised wavelengths. This state of affairs does not augur very well for the success of the Lucerne Plan, for one might have expected that station engineers would now be doing their best to ensure correct wavelength keeping to prepare for it. Some of them will require a good deal of practice in this matter if they are to comply with the stringent rules of the Plan! Governments, too, should be setting their houses in order. It is not to be expected that a miracle will happen on January 15th, and if any country permits illicit stations within its borders to continue broadcasting at the present time there is undoubtedly trouble in the offing.

The French Government is making every effort to obtain the necessary powers to deal with the extraordinary wireless situation that exists within its borders. Bill after Bill to give the Government the power that it needs has been brought before the Chamber, but none of them so far has ever passed into an Act.

The Ferrié Plan

The Ferrié Plan is going forward, though it has been to some extent revised. In its original form it contemplated the erection of fourteen stations, mostly with output ratings of 60 kilowatts, though two or three were rated at 30 kilowatts only. In its present form the scheme allows for ten main stations, one on the long waves and nine on the medium band. The long-wave station will be Radio-Paris, whose power will soon be raised from 75 to 100 kilowatts. In addition to the Poste-Parisien, it is expected that three other high-power French stations on the medium waveband will be at work before Christmas.

The Russian interference with Huizen's transmissions (Hilversum programmes) has ceased for the moment, and it is to be hoped that no more will be heard of it. A good deal of trouble has been caused on the lower part of the medium waveband by spark signals which frequently mar transmissions on wavelengths from about 250 metres downwards. Some of the transmitters responsible are very broadly tuned, and one of them was "double-humping" badly a few evenings ago. It seems a most curious thing that

spark transmissions should be allowed to take place during programme hours within the limits of the waveband dedicated to broadcasting.

The number of well-received stations has increased considerably during the last week or two. The improvement is particularly noticeable at the top of the medium waveband, where stations are usually the first to suffer from summer-time conditions and the last to return to their winter strength. Budapest is now well heard on most evenings. Vienna is improving, and will, no doubt, come in well as soon as the aerial mast is in full use. Munich is now strong, and Riga has been coming in at good loud-speaker strength.

Recommended stations on the long waveband are Motala, Luxembourg, Kalundborg, Radio-Paris, and Huizen. On the medium band the choice is very large, and the following list gives those which have been found completely reliable night after night during the week preceding the writing of

FOREIGN BROADCAST GUIDE

BUDAPEST

(Hungary).

Geographical position: 47° 30' N.; 19° 3' E.
Approximate air line from London: 903 miles.

Wavelength: 550 m. Frequency: 545 kc/s. Power: 18.5 kW.

Standard time: Central European (coincides with B.S.T.).

Standard Daily Transmissions.

06.45 B.S.T., Physical exercises; 08.45 (Sun.), 09.45 (weekdays), news; 10.00, sacred service (Sun.); 12.00, carillon; then continuous broadcast until 18.30, concert; talks; 19.30, relay of opera or concert; 23.30, Cigány orchestra or dance music.

Announcers: Man and woman.

Call: *Hallo! Radio Budapest* (followed by names of relays). Details of programmes are frequently given in the French and German languages; also in English on International evenings.

Interval signal:



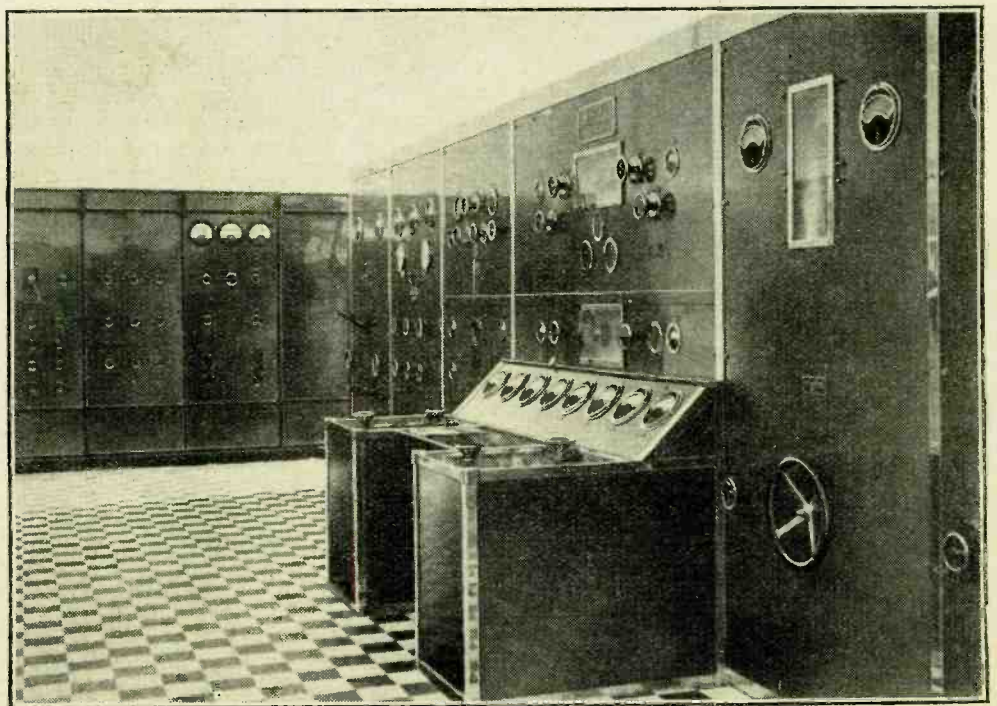
When plays are broadcast a gong is used at the beginning and end of each act.

Closes down with good-night greetings in several languages, occasionally followed by the Hungarian Anthem.

Relays: Miskolc, Magyarovar, Pecs—on 209.8 m. (1,429 kc/s), 1.25 kW. Budapest—Csepel, 840 m. (357.1 kc/s), 3 kW., and Nyiregyhaza, 267.4 m. (1,022 kc/s), 6.25 kW.

these notes. Here they are: Brussels No. 1 and No. 2, Prague, Langenberg, Rome, Toulouse, Leipzig, Strasbourg, Breslau, Hilversum, Heilsberg, and Trieste. Many others were good on most nights, but just fail to obtain places in the list owing to occasional heterodyne interference.

D. EXER.



MARCONI BROADCAST EQUIPMENT IN FINLAND. The control desk and main transmitter of the Finnish Broadcasting station at Viipuri (Viborg), in the background can be seen the switchboard. This station broadcasts on a wavelength of 291 metres and the power is given as 13.2 kW.

News of the Week

Current Events in Brief Review

Test for Ether Searchers

ANY listener with a good receiver has an opportunity to beat the world in an interesting competition which opens on October 1st to discover the set user who can tune in the greatest number of broadcasting stations on the medium waveband between 180 and 500 metres. The stations in question must be situated at a distance of not less than 2,000 miles from the receiving point and on a separate continent.

The contest is being organised by the International DX'ers Alliance, Brighton Grove, Newcastle-upon-Tyne. The competition remains open until April 1st, 1934.

The Sultan's Own

IT is rumoured that the Sultan of Morocco will soon possess a private broadcasting station. On his recent visit to France, the Sultan ordered several receivers, including a short-wave set, and it is understood that special enquiries were made regarding transmission gear.

First Aid by Radio

ALTHOUGH car radio, so far as we are aware, has made no progress in Soviet Russia, motorists are being helped by a new system of short-wave transmitters installed at strategic points on certain main roads. These wireless "posts" are of the fool-proof type, so that any car driver in need of mechanical or medical help can get into immediate radio touch with the nearest regional listening centre to which the transmitter is permanently tuned.

Believe it or Not

THE latest radio story from Paris concerns a small boy whose schoolmaster considered that he deserved corporal punishment. The father, however, refused to take action, and on being questioned by the schoolmaster declared: "I dare not punish the lad; he is the only one in the family able to work the new wireless set."

Polytechnic Wireless Classes

THE London Polytechnic courses in Wireless and High-Frequency Engineering commence on September 25th next, enrolment dates being from September 18th to the 22nd. The courses, which are given in the evenings from 6.30 onwards, are arranged to provide a thorough training in the principles and technique of H.F. engineering, and should appeal specially to those engaged or interested in wireless, gramophone, or talking film work.

The wireless laboratory includes a complete commercial installation for telegraphy and telephony (G6RA).

Fuller particulars can be obtained on application to the Polytechnic, 307-311, Regent Street, London, W.1.

The Tell-Tale Badge

SWISS licence holders are now required to affix an official badge on their receivers to indicate payment of the necessary fee.

Kite as Aerial

A KITE flying at the height of 1,500 feet was used to support a 30-ft. aerial for ultra-short wave experiments carried out by the London chapter of the International Short-Wave Club on September 3rd. The tests were carried out on Parliament Hill, London, with a "Wireless World" Ultra Short Wave Two, and several stations were heard.

Programme Souvenirs

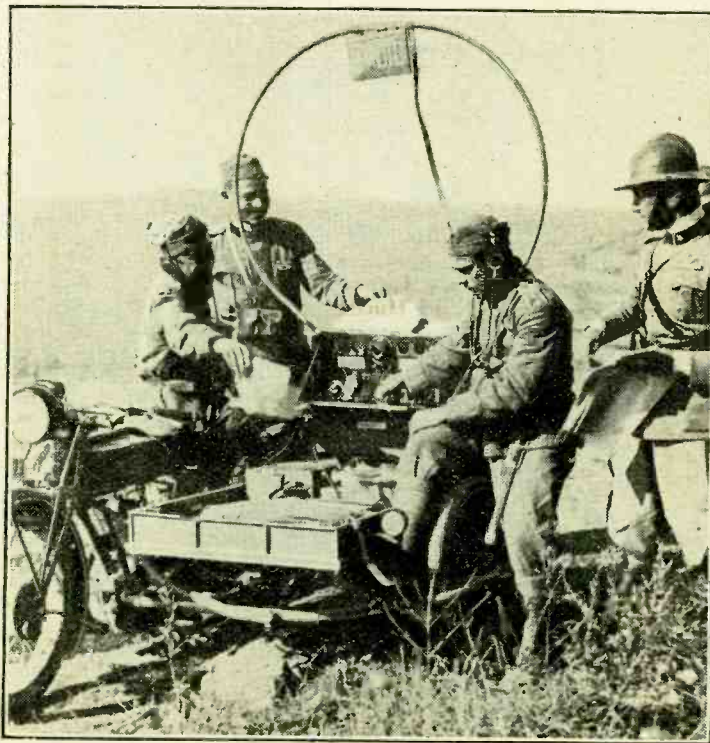
"E.I.A.R.," the Italian Broadcasting Company, has now begun the production and sale of gramophone records.

Anti-Static Laws for Germany

GERMANY is considering legislation to stop electrical interference with radio reception. We understand that a Committee is being formed to investigate all causes of man-made static and to report to the Government at the earliest possible moment.

Ban on Interference?

A TYPE of French listener who hopes to escape the new wireless tax is the man who is troubled by man-made static. Many claims have been sent in by individuals who claim exemption because the "parasites" are produced by the Postal Administration itself. The Post Office has bluntly replied in the negative, adding that a decree will be issued within six months on the subject of responsibility for interference with radio reception.



H.Q. CALLING. Battlefield instructions being communicated by a mobile field equipment during recent Italian Army manoeuvres.

Boy Scouts Calling

A NEW sub-division of the American "ham" fraternity is the Boy Scouts' network, which now includes about fifty stations, the prime mover of which is H. W. Yahnell, of Helmetta, New Jersey, operator of station W2SN.

Still They Come

THAT kilowatts spell wireless licences is once more revealed in Switzerland, where, since the opening of the high-power transmitters at Sötens and Beromünster, the number of licences has increased by leaps and bounds. Last year the licence figure was 187,080. On June 1st, 1933, the figure had increased to 261,361.

The Gramophone Quota

POSTE PARISIEN has signed an agreement with the gramophone manufacturers limiting gramophone recitals to sixty hours per month, and forbidding a second broadcast of the same record without a special permit. The other French stations are expected to follow suit in the near future.

More Encouragement for German Amateurs

GERMAN short-wave amateurs are about to be granted much more liberty in their experiments. Formerly there were not more than thirty to forty German short-wave transmitters. At least 150 licences are about to be issued.

Super Pigmies in Paris

MINIATURE or "Gulliver" sets are to be a leading feature of the coming Paris Radio Salon; indeed, according to our Paris correspondent, many of the superhets will be "super pigmies." The average weight of the miniature set will not exceed ten pounds. The main difference between the London and the Paris show will be the almost complete absence at the latter of the battery set. France is "all electric."

Trying Again

BELGIAN architects are to have another opportunity to design a "Broadcasting House" worthy of their country. It will be remembered that the recent competition failed to evoke any effort of the required standard, though the first eight of the competitors have since been awarded consolation prizes of 1,000 francs each. The closing date for the new competition is November 10th.

World Beater Set for Geneva

FACILITIES for hearing the world's broadcasting stations are considered essential for the new Palace of the League of Nations now being built at Geneva. In the Secretary-General's room a wireless receiver is to be installed operating on all wavelengths and capable of picking up any foreign station.

At the Brussels Show

OVER 100 exhibitors, occupying 275 stands, provided Brussels with its fifth annual radio show last week. According to our Brussels correspondent, the event was a triumph for the superhet. Nearly all manufacturers displayed at least one superheterodyne receiver, and all the latest features, such as automatic volume control and silent tuning, were very much in evidence.

Short wave reception has not yet captured the public imagination in Belgium, but this year several short-wave receivers were shown, and it is hoped that this heralds the popularity of this form of reception.

German sets were displayed in large numbers, notably the new People's Receiver. American receivers were also well represented, and considerable interest centred on a 16-valve example which included A.V.C., silent tuning, a Class "B" low-frequency output stage, rectifier and twin speakers, and a tuning range of 14 to 2,000 metres. British sets were well in evidence, but it is a notable fact that the Belgians are most attracted by British components and accessories, which are always assured of a good market.

Slander on the Air

THE Vienna police are still seeking the whereabouts of a mystery station at Oradea, which nightly broadcasts slanderous statements concerning well-known citizens. The transmission begins at exactly nine o'clock each evening, and a regrettable feature of the affair is that nearly all the citizens of Oradea forget the Vienna programmes in their anxiety not to miss the secret transmissions.

Television at the Berlin Show

A Review of the Year's Progress in Germany

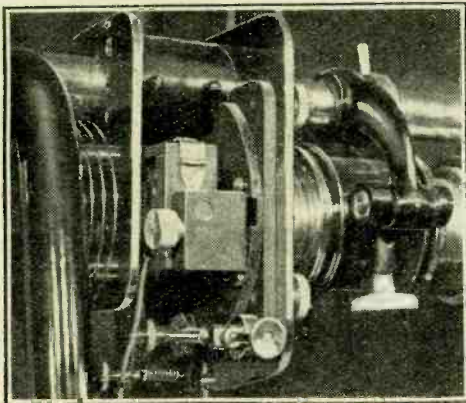
With a regular television transmission on ultra-short waves, Germany is at present taking a lead in television development in Europe. Apparatus for the reception of these transmissions is being developed by a number of manufacturers

DURING the past year, and particularly in recent months, there has been great activity in the field of television in Germany. The German Government is anxious to encourage television. Even so, the only prospect of television at present seems to be on ultra-short waves. German investigators all use twenty-five picture changes and 180 lines, with 40,000 picture elements, and thus obtain pictures far in advance of the current Post Office transmissions.

Some examples of the progress made and shown at the Berlin Exhibition will be briefly mentioned.

The Principal Exhibits

The Fernseh A.G. has been able to improve to a remarkable extent its well-known "intermediate film" process. In this system the object to be transmitted is first filmed, and the film still wet (in fact, five to ten seconds after exposure) is passed through the televisor and scanned. Formerly it was necessary to use a new film for every record; now, this is no longer necessary. A blank film in an endless band is now used. A sensitised layer is deposited on this by a special apparatus. After passing through a drying chamber the film arrives in the recording camera, where it is exposed, developed, fixed, and led to the



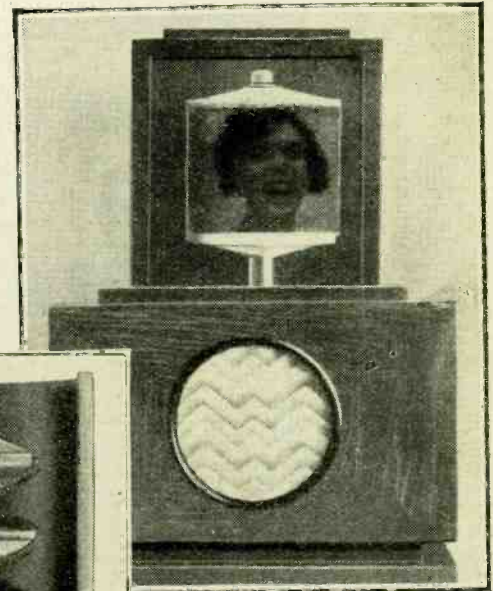
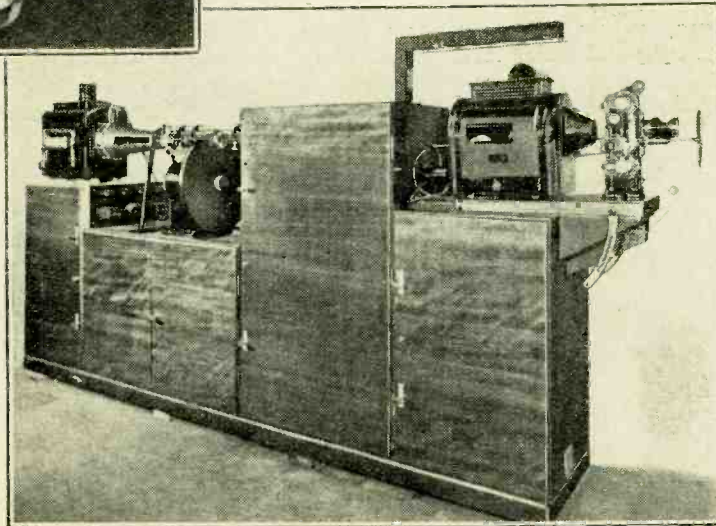
The Fernseh A.G. continuous "intermediate film" television projection receiver, with (inset) a close-up view of the Kerr cell unit which modulates the light.

television transmitting apparatus. Once the picture has been scanned, it is wiped out from the film by another process: a new sensitive layer is deposited on it, and the whole circle repeated. Another

accomplishment of the Fernseh A.G. this year is the projection of television pictures to a size of 3 x 4 metres, by the following method. An endless band of blank film is provided with a sensitive layer in a special apparatus and is then dried. From the drying chamber the film passes to a window at which the received television picture is recorded as a negative by means of a perforated disc and a source of light modulated as to brightness. Although every separate picture element can only be illuminated for about a millionth of a second, the illumination is sufficient. The recorded picture is immediately developed and fixed and then projected as a positive picture in much the same way as an ordinary film, by a special cine projector. After passing through this projector the photographic layer is removed from the film and replaced by a new one so that the process continues without intermission.

Another exhibit of the Fernseh A.G. is a new light ray scanner for the direct scanning of subjects. The novelty in this process is that the scene and persons to be transmitted are in a closed room whose inner walls are as white as possible and thus possess a high power of diffuse reflection; in this way three dimensional scenes can be transmitted without interfering shadows and with great efficiency.

The Fernseh A.G. were also showing a cathode ray television receiver and a mirror



The Te-ka-de mirror screw television receiver and an enlarged view of the mirror screw and motor.

screw receiver, as developed by Te-ka-de.

As in former years, the Te-ka-de exhibited a mirror screw television receiver which is on sale and which this year also reproduces sound. A Te-ka-de novelty is a new type of Kerr cell for the control of the light ray. This Kerr cell does not consist, as

usual, of a small condenser in nitro-benzole, but of a crystal through which the light passes. The crystal plate is coated on both sides with metal foil to which the modulating voltage is applied. Under the influence of this voltage the transparency is altered, linearly.

The firm of Loewe exhibited a cathode ray television receiver. The length of this cathode ray tube is 60 cm., the diameter of the fluorescent screen being about 25 cm. The lower portion of the apparatus contains the ultra-short wave receiver, the "Kipp" apparatus for controlling the tube, and a mains unit for providing the necessary voltages. The knobs on the left-hand side of the front regulate the volume for the loud speaker and the tuning of the short-wave receiver, the knobs on the right control the sharpness, and also the switching on and off of the mains



A crystal substitute for the Kerr cell. The crystal transparency varies, depending upon the potential applied across it.

Television at the Berlin Show—

current. The pictures demonstrated were extremely good. In the Loewe apparatus both sound and picture are received on the same receiver, but are then separated by two detector valves.

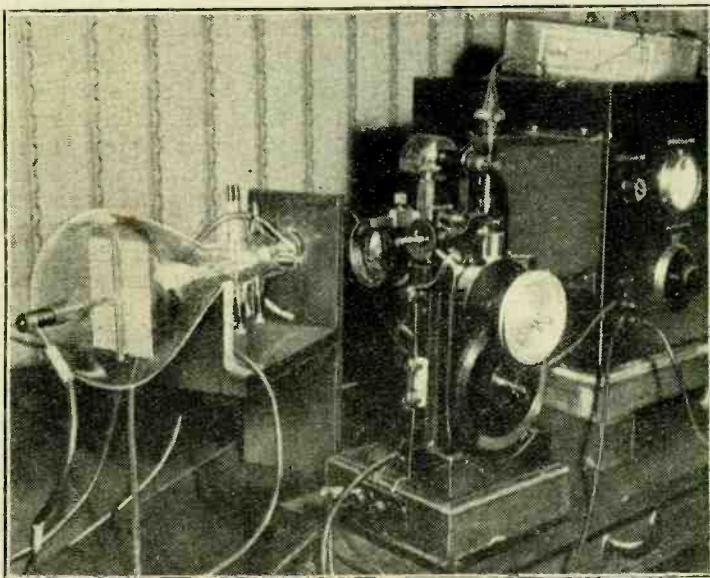
Telefunken also exhibited a television receiver with cathode ray tube. This, like the Loewe apparatus, has an ultra-short wave superheterodyne receiver.

M. von Ardenne was showing his new cathode ray tube equipment, distinguished by the remarkable brightness of the light spot, so that the images can be observed on the screen in daylight or can be projected. The method used is that of "line control" (speed modulation, in which a constantly bright spot of light travels over the field of view with varying velocity).

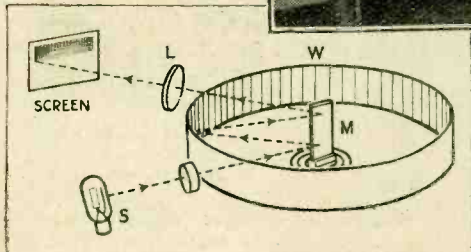
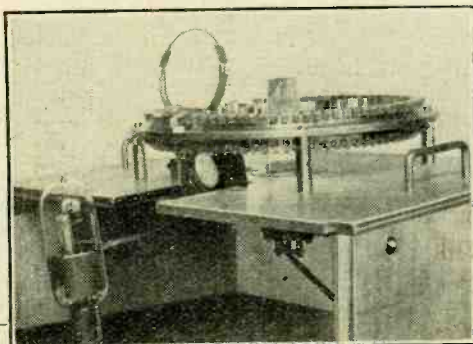
Apart from the Post Office exhibits, which also made use of cathode ray tubes, the new mirror wheel process of Mihaly should be mentioned. This employs a Weiller mirror wheel, in which, however, the mirrors are on the inner side. The mirror wheel W (see diagram) does not itself move, but inside it on its axis there is a small rotating plane mirror M, which is very light. This is driven by a small motor and kept in synchrony with the picture-changing frequency; a ray of light from a very strong source S is thrown on to this mirror, which reflects it on to the mirrors of the wheel. From here the ray is again led back to the little mirror which then projects it through a lens system on to the screen.

This extremely simple system would

The new Mihaly mirror wheel apparatus. The diagram indicates the principle of operation. With the complete receiver, which is enclosed in a cabinet, an external screen on a stand is provided and the picture is projected onto this screen from the receiver.



The new cathode ray tube equipment of von Ardenne, employing the principle of speed modulation.



appear to have obvious advantages. The tiny rotating mirror only needs a very small and weak motor, which is no bigger than those used in synchronous electric clocks. As a result of this the driving and synchronising energy is extremely small, being only

a fraction of a watt in the case of the latter. The energy can, therefore, be taken from the receiver itself, and thus the television transmitter controls the synchronism of the receiver.

As already mentioned, the mirror drum is stationary and its different mirrors, when

once adjusted in the factory, need no further attention. The images thrown on the screen are sufficiently big to be viewed by a number of people from almost any position of the room. Apart from the technical advantages are the constructional ones, as the manufacturing price of this receiver is low.

At the Berlin Radio Exhibition this receiver was shown working off the 7-metre television transmitter. The image consisted of 90 lines (10,000 elements), there being 90 mirrors on the drum. In this receiver the small rotating mirror was silvered on both sides, so that the rotating speed need only be half of the picture speed, i.e., 750 r.p.m., according to the British standard.

The results on the 90-line receiver were pleasing, the detail being about equal to a 9 mm. home cinema outfit. The image size was about 6 by 8 inches. Synchronism was perfect, the picture being rock steady. The internal construction of the receiver can be clearly seen in the illustrations. The complete set contains the actual television portion, together with a 3-valve ultra-short wave receiver for A.C. mains.

A receiver for the new German standard of 180 lines will shortly be put into production. This model will probably employ a Kerr cell as a light source, thus giving brighter and black-and-white images.

It is interesting to note that the regular television transmission service of the German Post Office employs ultra-short waves, the picture being horizontally scanned twenty-five times a second in ninety strips, the total number of picture elements or points being 10,000.

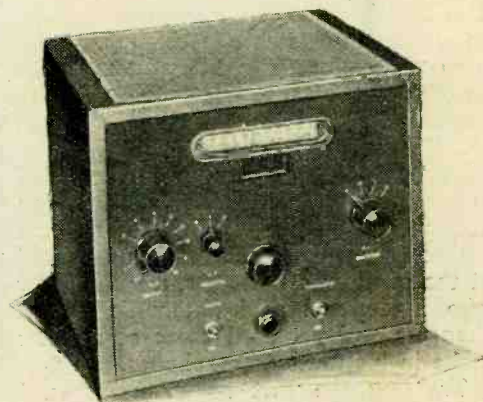
Singleton-Brown Test Oscillator

A Mains-Energised Source of Modulated H.F. for Receiver Servicing

RECENT improvements in the design and performance of receivers have called for a corresponding advance in the skill and equipment of the service man, and a test oscillator is now as essential and important an item on the test bench as the soldering iron or the multi-range meter.

The S.B. Model 2 Modulated Oscillator consists of a screen-grid dynatron R.F. oscillator with three ranges (1,500-545, 375-136, and 148-96 kc/s) modulated to a depth of approximately 70 per cent. by a triode giving three alternative frequencies of approximately 70, 500 and 4,000 cycles. The H.F. ranges and modulation frequencies are controlled by switches on the front panel, and an extra contact on the L.F. switch brings into circuit pick-up sockets which may be used to modulate the oscillator by music or standard frequency records.

The illuminated horizontal tuning scale is divided into 100 divisions and a calibration chart is screwed to the top of the metal cabinet. An attenuator resistance is also incorporated and a calibration curve of the



S.B. modulated oscillator in which the A.C. power pack may be used for external testing.

voltage output is given. The range is from 50 microvolts to 2.5 volts R.M.S., and the output is taken from a plug and jack through a pair of screened leads. A second jack supplies a source of audio-frequency voltage for testing L.F. amplifiers.

The oscillator runs entirely from A.C. mains and the output from the power pack may be used for energising mains receivers in which a fault in the power supply is suspected. Plugs and sockets are provided at the back of the cabinet for this purpose and are rated as follows: L.F. 4 volts 6 amps., H.T.1 200 volts 13 mA., H.T.2 100 volts 7 mA.

The cabinet is constructed of steel and is neatly finished in brown crystalline enamel, the overall dimensions being 12in. x 10in. x 10in.

The price of the Model No. 2 illustrated is £18, and supplies may be obtained from The Singleton-Brown Radio Instrument Co., Singleton House, Compton Road, Wolverhampton. A simplified model omitting the I.F. range and with only one modulating frequency (500 cycles) is also available at £15.

UNBIASED

BY FREE GRID

Glasgolympia

YOU will no doubt be surprised to learn that, although the Scottish Radio Exhibition has been all over for a week now, I am still sojourning in the city of rivets and Red Biddy. I have, in fact, become so imbued with the spirit of Burns and Haig that I can scarcely tear myself away from the place; and at the conclusion of the show instead of returning with the caravan I risked being carted away forcibly.

The language difficulty at Glasgow has proved to be not nearly so bad as I had been led to believe. In any case, forewarned is forearmed; and I had come fully prepared to meet all difficulties in this respect, as my dentist had produced a special denture which was so arranged that it dealt automatically with the Scottish accent, and I flatter myself that my speech was indistinguishable from that of an inhabitant of the Broomielaw. I may mention that my dentist, a Cavendish Square man of considerable repute, specialises in this sort of thing, and has a considerable clientele among the London announcers, many of whom are actually Highlanders who, by the simple expedient of donning trousers and one of his special dental plates, have succeeded in passing the Oxford accent examination at Broadcasting House with flying colours.

One curious case which I encountered at the show was that of a manufacturer who made and sold automatic record changers and yet used those of another make in his radio-gramophones.

Tackling the first salesman I saw, I asked him to lead me gently by the hand and explain. I was, of course, referred to the elusive Mr. Blank, who, as at other radio shows, had gone to his interminable



At Glasgolympia.

lunch. I said I would wait, and did, and after an hour or so the people on the stand evidently realised that they had got to do something about it, with the result that a scientific-looking youth with bulging

forehead and horn-rimmed glasses presented himself and proceeded to try on the old dodge inherited from the motor-ing industry and which is, I believe, known among the fraternity as "blinding the customer with technicalities."

Eventually he retired baffled and gave place to another young man resplendent in gent's autumn suiting whom I took to be the leading salesman. His arguments were long, wordy and unconvincing, and I was getting very impatient when sud-



Blinding him with technicalities.

denly a brilliant idea struck him. "To tell you the truth, Sir," he said, "our own record changers are so much better than those of other makers that we decided to let the public have the benefit of them as our present factory output is not sufficiently large to fulfil the needs of the public and supply our own radio-gramophones as well."

Happily I was glad to see a fine collection of chairs, making it possible to sit down at intervals and reflect upon the frailty of human nature. According to all reports, things were not so comfortable at Olympia.

The dance floor was exceedingly well patronised, and I was glad to see that the authorities had followed the lead of Olympia last year by providing dancing partners. Of these there were so many that I felt quite embarrassed with their attentions.

Arguing with the Blinkers On

AN ophthalmic surgeon, writing quite seriously to the Editor of a well-known daily, states that the cathode ray system of television reception is definitely harmful to the eyesight. Now I am more of an optimist than an optician, but, at the same time, I cannot give any credence to a medical man, however eminent in his own sphere, who supports his asser-

tions by arguments that totter like a superannuated cab horse.

He alleges that the cathode ray system is harmful because, in his view, the picture it gives is as unsteady and as full of flicker as the early movies of thirty years ago, and causes similar eye strain.

I am not going to deny that flickering pictures tire the eyes, no matter whether they emanate from cathode ray radio-scopes or early cinema projectors, but what about the pictures given by alternative methods such as the scanning disc receiver?

It seems scarcely credible that an eminent oculist should have sat in judgment upon one type of machine without seeing the results from the other; if he had seen the other he would have realised that the older type was not one whit less flickery.

To What Base Uses . . .

A WELL-KNOWN cabinet supplier was discussing with me the other day the relative merits of modernistic bakelite as against wood cabinets, to which latter substance he remains as faithful as the glue which he uses in his products.

I pointed out that one well-known firm was turning its attention to the production of bakelite tables and other major articles of furniture. "In fact," I added, "it is fairly certain that you and I will be buried in bakelite coffins if we live many years longer." "Not for me!" he said. "I am off at once to see my solicitor to guard against such a paradox in my will."

Frankly speaking, I cannot see any reason for retracting my prophecy except that in my own case, of course, not quite



Not all of me will be buried.

all of me will be buried, as I am at present considering several attractive offers from various hospitals and medical schools who want my scalp.

BUSH RADIO BAIRD Television Receiver

An Efficient Mirror-drum Televisor

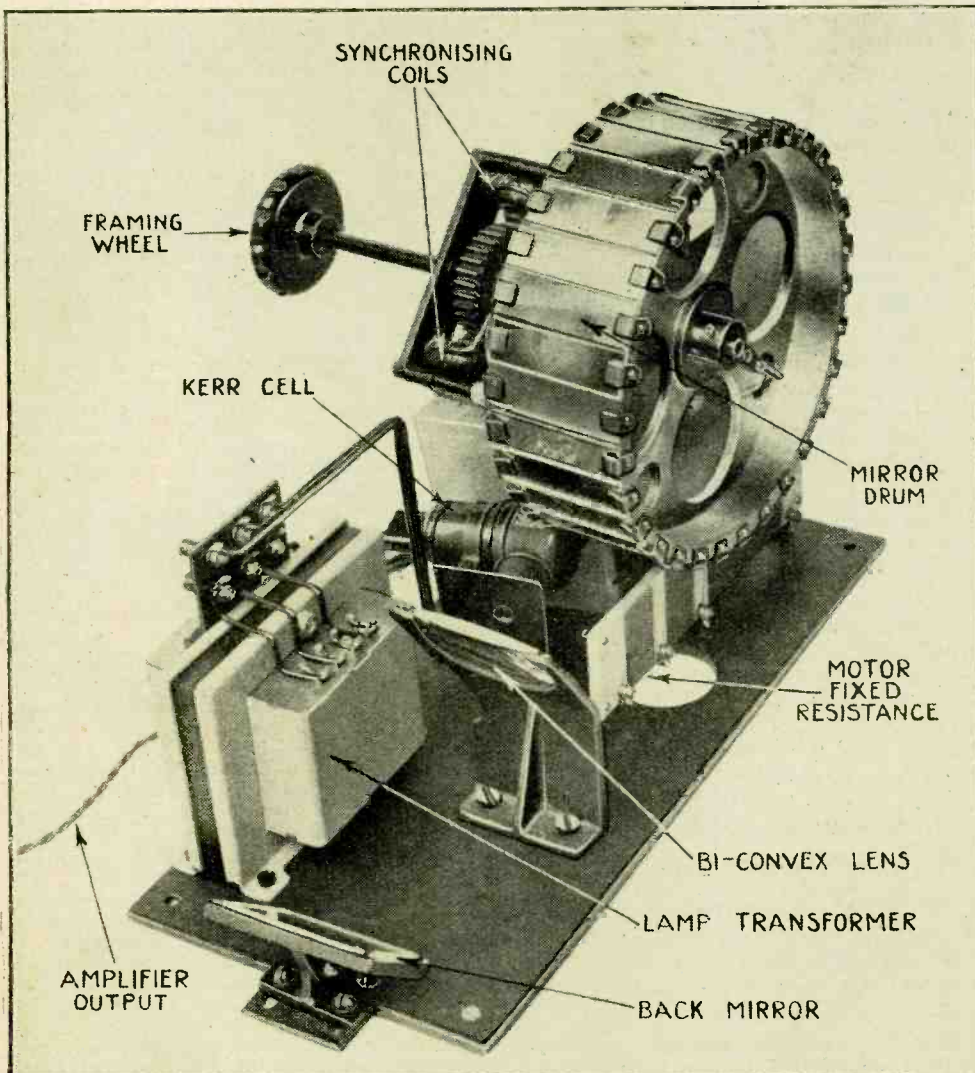
TELEVISION transmission and reception has not yet achieved the degree of perfection which is now found in sound broadcasting, but in spite of this, the possession of a televisor is not without interest. Comparisons between vision and sound are difficult, but it is probable that the results now obtainable from good television apparatus are comparable with those given by sound equipment in the days when the weekly broadcast transmissions from Writtle were an outstanding event.

Unlike sound broadcasting, television receivers must be designed to operate with a given system of transmission, and the transmitter and the receiver are far more closely interlinked. The present B.B.C. broadcasting is carried out on the 30-line, $12\frac{1}{2}$ -picture system, which means that $12\frac{1}{2}$ complete pictures are transmitted each second, and that each picture is analysed by scanning it vertically 30 times. With

the definition obtainable in this way it is probable that a receiver employing a mirror-drum is as satisfactory as any.

The apparatus under review is contained in a strongly built cabinet, which is similar in shape to that of a miniature grandfather clock; the lower portion contains the receiver proper, the power amplifier, and the mains equipment, while the upper part houses the purely television apparatus. The receiver is of conventional type, including H.F. amplification and resistance-capacity coupled L.F. circuits, and unusual care has been taken to avoid any loss of the upper modulation frequencies. Used for sound reproduction, therefore, the apparatus is capable of giving an exceptionally high standard of quality. Tuning coils are included for the medium

The picture covers the full area of the screen, 9×4 inches. The screen draws out to the correct position.



The important parts of the Baird projector. The rotary mirror drum works in conjunction with an optical system of adjustable lenses and mirrors.

waveband only, since there are no television transmissions on the long waveband. A loud speaker is fitted in order to facilitate tuning, and when the station has been found a switch permits a change over to the television equipment.

The output valve is of the 25-watt type and feeds a Baird Grid Cell which acts to convert current, or, more strictly speaking, potential variations, into variations of light intensity. An additional valve of similar type is provided for synchronising, and it is doubtless largely due to the considerable power which it supplies that such a good performance is obtainable.

The Television Equipment

The Baird Grid Cell acts, as a loud speaker in sound reception, to convert the electrical impulses into a form in which they can be detected by the senses. It consists essentially of a type of Kerr cell mounted between Nicol Prisms. A 100-watt lamp is mounted at one end of the assembly, and in its passage through the prisms and cell the light is modulated by the varying electrical potentials on the plates of the Kerr cell. The cell itself is a voltage-operated device, so that at first it seems that a large power valve is unnecessary for its control. Owing to its high self-capacity, however, it must be shunted by a fairly low resistance if frequency and phase distortion are to be kept at a low value. In order to obtain the necessary voltage variations across this resistance quite a large amount of power is required.

The modulated light output of the cell falls upon the mirror drum from which it is reflected on to the viewing screen. The drum contains thirty flat mirrors, each set

Bush Radio Baird Television Receiver—

at a slightly different angle so that with the drum rotating at the correct speed and in the absence of a signal thirty vertical, parallel, and equi-spaced lines appear on the screen. This screen must be at some considerable distance from the mirror, so that to obtain a compact assembly it is arranged with bellows to pull out of the cabinet when reception is required.

The drum is driven by an electric motor, the speed of which is controlled by a variable resistance mounted on the left-hand side of the cabinet with the motor switch and the framing control. To assist in obtaining the correct speed it is fitted with a stroboscopic indicator which is viewed by the light of a neon tube operated by the 50 cycles lighting supply. With the aid of this it is a simple matter to adjust the motor speed. When the motor gathers speed the lines of the stroboscope can be seen slowly rotating, and as the correct speed is approached the apparent rotation is reduced. When the correct speed is found the stroboscope lines appear stationary.

Synchronising is carried out in the usual way. The black edging provided at the transmitter gives a series of pulses, one at the top of each scanning line. Since there are thirty lines per picture and $12\frac{1}{2}$ pictures a second, there are 375 synchronising impulses a second, and in the receiver these are applied to what is virtually a small motor mounted on the main drum driving shaft. If the main driving motor increases or decreases its speed, the synchronising control operates to give a breaking or accelerating effect and to maintain constant speed.

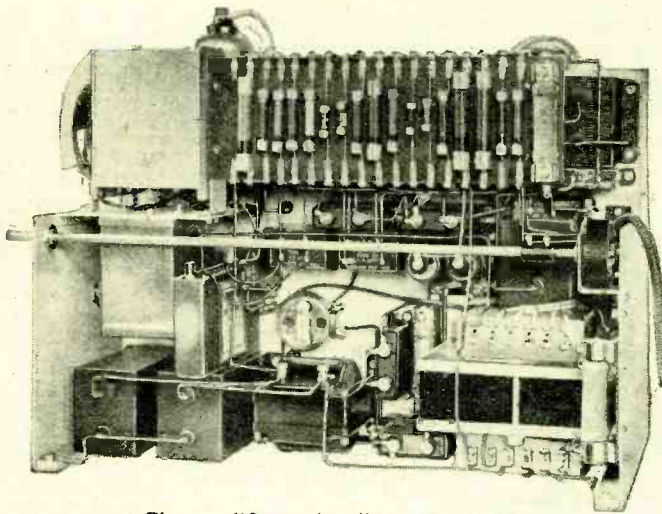
The controls comprise the normal tuning and volume adjustments, and an on-off switch mounted on the front of the cabinet, together with a control which acts to bias the Grid Cell and so regulate the average illumination of the picture. At the side of the cabinet are the purely television controls; the motor speed regulator, the framing handle, and the motor on-off switch, together with a viewing hole for the stroboscope.

Adjusting the Apparatus

In operation, the station is tuned in using the loud speaker as an indicator. The motor is started up and adjusted to its correct speed by the rheostat while watching the stroboscope. A change over from the speaker to the vision equipment is then made, and if perfect synchronism has been obtained the picture will be visible. A "flashing rain" effect indicates that the motor speed is incorrect, and an appropriate adjustment to the controlling resistance effects the necessary alteration.

When the picture appears, however, it may not be in frame; that is, it may be divided horizontally or vertically. This indicates incorrect phasing, and is adjusted by the framing control. This control operates to rotate the carcass of the motor and so moves the picture in a vertical direction. A small movement of this control, therefore, is sufficient to correct for any degree of vertical mis-framing. With most apparatus, horizontal mis-framing is more difficult to correct, and it is usually necessary to slow-up the motor momentarily so that a few pictures are slipped. The operation, therefore, requires some little skill for its successful accomplishment.

In this particular apparatus, however,



The amplifier and radio receiver unit.

the difficulty is avoided by a clever arrangement of the vertical framing control. The picture is arranged to be very slightly out of the vertical, so that rotating the carcass of the motor to produce a vertical displacement of the picture causes also a very slight sideways motion. To correct for horizontal displacement, therefore, it is necessary only to turn the framing control to a much greater degree than is necessary to compensate for vertical mis-framing. As the control is turned, the visual effect is of a number of pictures slowly moving vertically and gradually gliding sideways.

Performance

The operation, therefore, is quite simple, and the performance obtainable probably represents the best that can be achieved with the present 30-line transmissions. The detail obtainable is not high, and dark objects of different degrees of illumination tend to merge together. Thus, a man's chin is quite distinct as long as his head is held upright, but it merges into his tie when he looks downwards and his chin falls into the shadow. The scanning lines are quite obvious, and give a vertical striped appearance to any white object, such as a shirt front.

In spite of these drawbacks, which are unavoidable with the present transmissions, the programme can be followed with ease provided that it does not contain too rapidly moving objects. The degree of

definition is such that it is easily possible to recognise a well-known face.

The synchronising is really good, and during the half an hour's transmissions the apparatus often carries through without going out of synchronism even once. Occasional readjustment of the framing is necessary, since there is an occasional slow drift of the picture. The lapses from synchronism are apparently due more to the transmitter than to the receiver, for they invariably occur at the end of an item, when the curtain falls in the studio. Apparently this interrupts the synchronising impulses.

The apparatus is solidly built, and should give long and satisfactory service, and its adjustment does not call for any special degree of skill. The makers are Bush Radio, Ltd., of Woodger Road, Shepherd's Bush, London, W.12, and the apparatus is priced at 50 guineas complete.

The Radio Industry

WE are informed by Messrs. J. J. Eastick and Sons, of Eelex House, 118, Bunhill Row, London, E.C.1, that they are able to supply a dual-range "Hartley" coil for the pentode oscillator described in the issue of August 25th. Complete with a suitable D.P.D.T. switch, the coil assembly costs 9s. 6d., or 7s. 6d. without switch.

An attractively written brochure, entitled "A City of Sound," by E. P. Leigh-Bennett, has just been issued by the Marconiphone Company. It describes Marconi activities from the earliest experiments of Marchese Marconi to the present-day work of the factory at Hayes. Free copies will be sent to interested readers.

In our "Show Guide" number it was stated that Fuller "Sparta" batteries are intended for Q.P.P. and Class "B" receivers. The Fuller Accumulator Co. now point out that, although the "Sparta" Batteries may be used for this form of set, their "Triple Capacity" types are especially recommended for the purpose.

The Hawley Products Company of America have now established a European factory and office at 101, Walner Road, North Kensington, London, W.10. The new firm, under the name of Hawley Products, Ltd., will manufacture loud speaker diaphragms under the original patents; diaphragms can be made in all sizes, and with different response characteristics to meet various specifications and requirements.

1933/1934 Catalogues Received.

Colvern, Ltd., Mawneys Road, Romford, Essex.—Radio List No. 12 dealing with principles, design and application of Ferrocart components. A particularly informative booklet which is obtainable free on application to Colvern, Ltd.

Varley (Oliver Pell Control, Ltd.), Kingsway House, 103, Kingsway, London, W.C.2.—A 28-page booklet illustrating and describing the new season's components, also leaflet dealing with the latest receivers and radio-gramophones.

Igranic Electric Co., Ltd., 149, Queen Victoria Street, London, E.C.4.—New season's catalogue of Igranic devices, containing 48 pages of descriptive matter, technical data and illustrations.

Ward & Goldstone, Ltd., Frederick Road (Pendleton), Salford, 6, Lancs.—1933-1934 Radio Catalogue R/130, containing 55 pages of descriptive matter and illustrations dealing with "Goltone" components and accessories. Full technical details are given wherever warranted for all components.

Broadcast Brevities

By Our Special Correspondent

Television and the Film Industry

LEST any novelist should be preparing a saga on the decline and fall of the film industry consequent upon the advent of television, it is worth while remarking that the film folk are losing no time in "tying up" with television in this country.

The Coming Tests

It is common knowledge, I suppose, that the new 120-line transmission tests from Broadcasting House, on the Baird and H.M.V. systems, will employ film almost exclusively.

The question arises as to whether the B.B.C. will ultimately rely entirely on celluloid entertainment in preference to the flesh-and-blood variety in the studio.

Complications

Complications are likely to occur. For instance, it is improbable that the film companies will be willing to permit their best efforts to be broadcast—a practice which will eventually mean that a costly film will dissipate half its value in the course of one evening. Again, the film companies are not likely to follow the present practice of the gramophone firms in permitting their products to be put over the ether in expectation that bigger sales will ensue.

No listener or "looker" will feel impelled to dash out and purchase a seat for the film he has just witnessed on his televisor.

By way of self-preservation, the film industry in this country will make a big effort while there is still time to link up with broadcasting.

Sir John Reith's Journey

Very shortly Sir John Reith will be crossing the Atlantic to attend the inaugural ceremony of Radio City, New York, which represents the world's greatest conglomeration of entertainment industries, banded together for mutual support and protection.

It will be interesting to note whether the



Mr. Melville Dinwiddie, D.S.O., O.B.E., M.C., who has been appointed the Scottish Regional Director.

Director-General, on his return, envisages a similar Palace of the Entertainment Arts in London, with Broadcasting House as the nucleus!

Another Conflict of Interests?

This, perhaps, is sheer speculation. But those who sense the growing importance of television cannot but see that the present independence of broadcasting and the film cannot endure when television develops.

For example, television may be restricted in the early stages to brief comedies and short items of news interest; ultimately, however, the film industry may find itself in conflict with the B.B.C.

"Effects" in Gramophone Programmes

I HAVE a fancy that "Free Grid" will relish the authentic news that the B.B.C. is adding "effects" to the broadcast of full-length operas on gramophone records. When "Pagliacci" was broadcast with the full gramophone version a short time ago, the Effects Department assisted with a special Columbia record of sounds in a theatre, the tuning-up of the orchestra, and the applause of the audience.

And Why Not?

Surely this practice could be developed, particularly in relation to talks, which are so badly in need of a little tonic treatment?

Let the B.B.C. engineers take some Blattnerphone records of noises in Hyde Park so that the well-blended murmur of approval and disapproval can form a misty background to the pontifical utterances of some of our more solemn speakers. After all, the speaker himself need not be aware of this background to his remarks. Better not, perhaps, for the hoots and cat-calls which would go down very well with the army of listeners might play havoc with the composure of the professor in the studio.

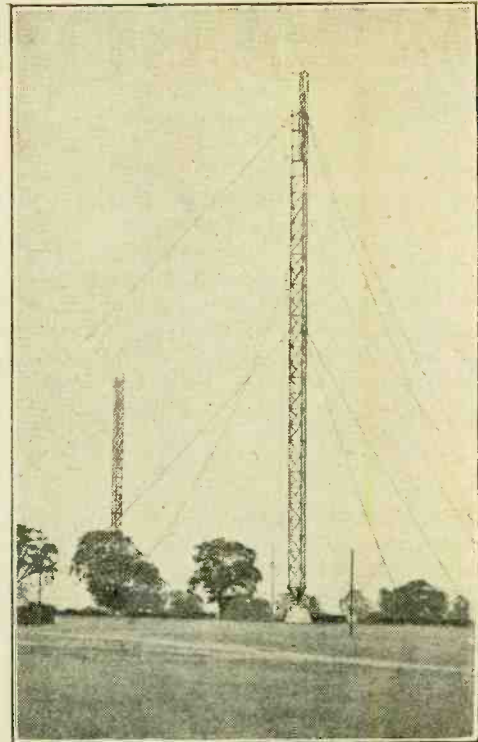
At any rate, the B.B.C. should be prepared to try anything *once*.

The Saturday "News Reel"

THE only striking innovation in the autumn talks programme is the introduction of the Saturday "news reel" after the second general news bulletin. This news reel will be based on the successful experiment of Saturday, July 1st, when news, topical talks, and relays from abroad were grouped in one continuous programme.

Blattnerphone Flashes

Beginning on October 14th, the news and talks, starting at 9 o'clock, will be incorporated in a single programme, and the first three or four minutes will be devoted to a summary of the outstanding events of the day. This will be followed by a more elaborate presentation of the details of these events, possibly by the aid of gramophone and Blattnerphone records, brief interviews with people "on the spot," and a more vivid Sports Bulletin than has been given in the past.



A DROITWICH LANDMARK IN THE MAKING. The first 250 feet of the giant masts of the new B.B.C. National transmitter in course of erection. When finished they will be over 700 feet high.

An Aside

In regard to this last, the B.B.C. remarks rather patronisingly that a number of listeners appear to be interested in no other aspect of human activities.

Big Names in the Making?

In the main the speakers are familiar names: Vernon Bartlett, Desmond MacCarthy, G. K. Chesterton, S. P. B. Mais, and Sir Walford Davies. There are, however, some new speakers, and we may legitimately hope that some hitherto mute and inglorious Miltons are about to burst upon our aspiring ears.

Symphony Concerts

THE detailed programmes for the series of symphony concerts, which begin on Wednesday, October 18th, have now been issued by the B.B.C. They will, as usual, be conducted mainly by Dr. Adrian Boult, but several famous guest conductors will also do their share.

Handel Modernised

AMONG the numbers to be performed for the first time in England are Bartok's Concerto No. 2 for pianoforte and orchestra, in which the composer will play the solo instrument; Alban Berg's "Wozzeck" and an arrangement by Arnold Schönberg of Handel's Concerto Grosso for string quartet and strings. It will be interesting to hear how Handel stands modernising, though it is difficult to imagine our old friend George Frederick in the dress of one of the ultra-moderns.

Political Talks

PERHAPS the greatest novelty in the coming season's talks will be the political addresses to be given on Thursdays at 9.20 p.m., in which the speeches will not be subject to preliminary censorship.

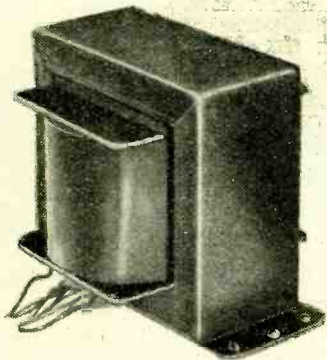
LABORATORY TESTS

NEW RADIO PRODUCTS REVIEWED

PARTRIDGE MONODIAL MAINS TRANSFORMER

PROSPECTIVE constructors of *The Wireless World* New Monodial Super may be interested to learn that a mains transformer for this set is now obtainable from N. Partridge, King's Buildings, Dean Stanley Street, London, S.W.1. The component is designed on very generous lines, for it measures 6½ in. x 4½ in. x 4½ in. high overall, and, in view of these dimensions, it would seem desirable that slight alterations be made in the size of the baseboard for the power pack. An increase of ½ in. in the length and of ¼ in. in the width would provide the additional space required. Increase in the latter direction may be avoided, however, by bending one of the fixing lugs at right angles and screwing it to the side of the baseboard, but the extension in the length is far preferable to a rearrangement of the components.

The various leads are brought out through the lower cheek of the bobbin, and thus fall convenient for passing through to the underside of the baseboard and thence to their respective anchorage points. The primary winding is screened, and a separate earth lead brought out. Small tags are tied on the wires for identification. Tappings are provided on the primary for supply mains of 200, 230, and 250 volts 50 cycles A.C.



Partridge mains transformer for the New Monodial Super.

With all windings giving the specified output currents, the various voltages when measured were found to be correct for the satisfactory operation of the set. After smoothing, the H.T. supply measured 430 volts with 120 mA. flowing; the two one-amp. L.T. windings showed 4.01 volts, while the rectifier filament and the six-amp. windings were each giving 3.98 volts.

The transformer runs perfectly cool; there is no trace of mechanical hum due to looseness in the core or in the assembly; and, altogether, the component is a sound electrical job, which, at 36s., represents very good value.

NEW POLAR DIALS

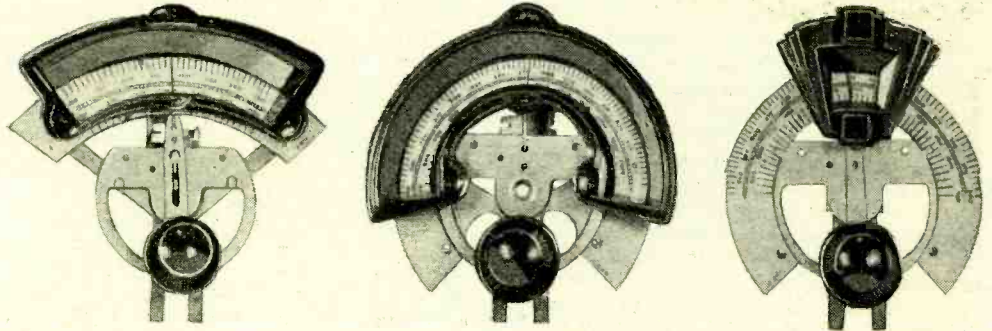
THE Polar range of condenser dials now includes six models; three are full-vision type, two are disc drives, and one is a drum pattern. The four latest additions, described respectively as the Horizontal, the Arcuate, the Semi-Circular, and the Moving Scale Disc drives are calibrated in wavelengths for Polar condensers, assuming a minimum capacity of the order of

70 m-mfds., and coils of 157 microhenrys and 1,900 microhenrys for medium- and long-wave pre-selector circuits. For super-heterodyne sets the oscillator coils should have inductances of 126.5 and 925 microhenrys respectively. But a plain graduated scale is provided as well, which in the Hori-

zontal and Arcuate models is divided in 100 divisions, and in the remainder into 180 degrees. These drives are very robust, well finished, and quite free from slip or backlash. The reduction ratio is about 8 to 1, and the knob drives the pointer in the same direction as its rotation.

rapidly. The price of the de Luxe energised model is 35s., and of the permanent magnet model 65s., or 67s. 6d. with Class "B" output transformer.

The new Sonochorde Midget has been designed for portable sets and car radio, and has a cone diameter of 4½ in. In spite



Polar condenser drives; illustrating the Arcuate, Semi-Circular and the Moving Scale Disc Models.

The new models can be supplied fitted with a small air-dielectric trimmer condenser giving a variation of about 50 m-mfds., its control being mounted concentric with the tuning knob. Dual lamp-holders mounted on a removable clip are fitted, and the prices are 5s. 9d. each for the three full-vision types, 4s. 6d. for the new disc model, 5s. for the plain disc pattern, and 7s. 6d. for the drum drive. Escutcheon plates of appropriate design for each model in brown bakelite, also knobs to match, are included, together with fixing screws. The trimmer condenser adds 2s. to the price of each model.

of its small size (the depth is 2½ in. in the energised and 2¼ in. in the P.M. type), the performance is remarkably good, and the quality is to be preferred to many moving-iron units of comparable price. The middle and top register reproduction is very similar to that of the average medium-sized moving-coil loud speaker except that the increased output in the upper middle register is somewhat higher in frequency—approximately 3,800 cycles. There is not much output below 150 cycles, but the "bass" resonance at 260 cycles serves to prevent the reproduction becoming too high pitched. On both speech and music the balance is really rather surprising, having regard to the small size of the diaphragm. Naturally the efficiency is not so high as that of units employing larger magnets and diaphragms, and for a given sound output an increase of about 4 db. in the power input is necessary above that required by the average 7 in. diaphragm unit. On the other hand, the power handling capacity is good, and over one watt was applied before chattering made itself heard. The price of

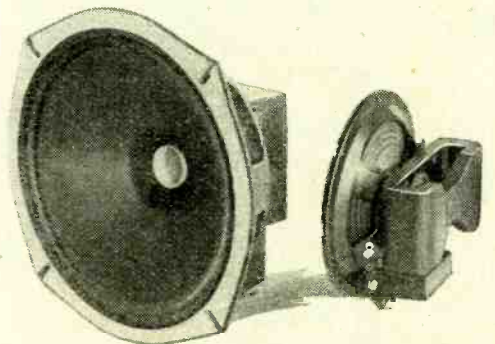
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TWO SONOCHORDE REPRODUCERS

IN producing the Sonochorde de Luxe models the makers have set out to provide a chassis unit of better finish and external appearance than the average "set builder's" loud speaker. It is finished in a very attractive two-tone cellulose enamel, and the transformer is enclosed in a detachable metal cover with a rubber bush for the connecting leads.

In the mains-energised model tested the field terminals and those of the input to the transformer were, in our opinion, spaced rather too closely, but there is no reason why trouble should arise in this quarter if it is realised that special care must be taken to avoid short circuits due to stray strands of wire.

As regards sensitivity, few loud speakers we have tested in this class have given better results. The quality is well balanced and the output is exceptionally uniform from 150 to 2,000 cycles. There is a bass resonance at 130 cycles, and the output falls gradually to a cut-off at 75 cycles. Between 2,500 and 4,000 cycles the output is five or six decibels above the average level, and above 5,000 cycles it falls off



Sonochorde de Luxe D.C. and Midget P.M. moving-coil loud speakers.

the permanent magnet model is 21s., and of the D.C. model 17s. 6d. The latter is available with 2,500- or 6,500-ohm field, and both types may be supplied with transformers for power or pentode valves.

The makers are Sonochorde Reproducers, Ltd., 1, Willesden Lane, London, N.W.6.



Varley "SQUARE PEAK" 4 Model A.P.46

High Selectivity with an Unconventional Circuit

FEATURES. *Type.*—Four-stage table model superheterodyne for A.C. mains. *Internal moving-coil loud speaker.* *Provision for pick-up and external loud speaker.* **Circuit.**—Signal frequency amplifier—oscillating detector with I.F. transformer—second detector—pentode output valve. *Full-wave valve rectifier.* **Controls.**—(1) Main tuning. (2) Waverange operated by sliding escutcheon. (3) Volume. (4) Reaction in I.F. circuit. **Price.**—15 guineas. **Makers.**—Messrs. Varley, 103, Kingsway, London, W.C.2.

THE four-valve superheterodyne receiver, on account of its superior selectivity, is gradually ousting the three-valve straight set from its position as the "standard" receiver of the day. The number and variety of sets of the former type shown at Olympia were sufficient indication of the trend of events in this direction.

In the Varley Model A.P.46, however, we have something more than "just another 4-valve superhet," for there are many points both in the circuit and the structural design which indicate original thought rather than mere repetition of current practice.

Probably the most interesting innovation is the omission of valve amplification in the I.F. stage. There is, of course, an I.F. transformer in which both windings are tuned, so that the full advantage of the superheterodyne principle from the point of view of selectivity is retained. This is further enhanced by reaction applied to the I.F. transformer from the second detector stage.

The first valve, which is usually the detector-oscillator in a 4-valve superhet, in this case is used purely as an H.F. amplifier. It is of the variable- μ pentode type, and volume is controlled in this stage by simultaneous variation of the bias and screen grid voltages. Incidentally, it is the primary of the H.F. transformer which is tuned, and this circuit is ganged with the tuned aerial circuit and with the oscillator circuit associated with the second valve. This, again, is of the H.F. pentode type and combines the functions of oscillator and first detector. It is coupled to the second detector—a triode—through the hand-pass I.F. transformer. Transformer coupling is employed between the detector and the pentode output valve,

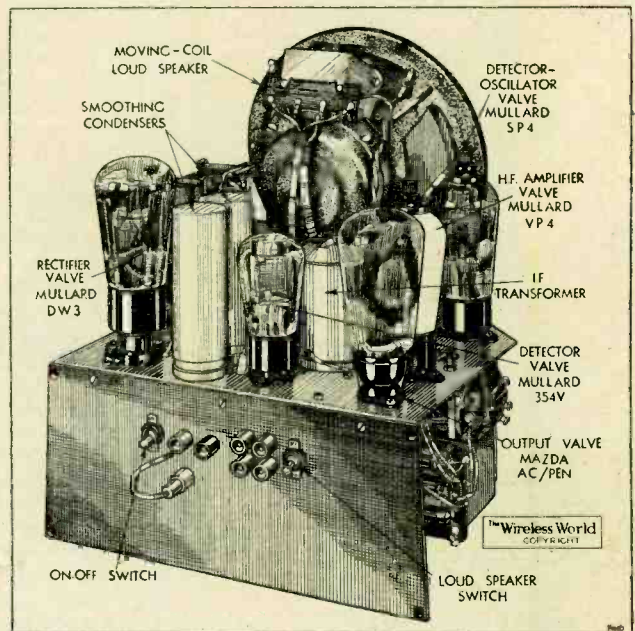
and tone correction is applied across the primary of the output transformer to the moving-coil loud speaker. The external loud speaker is connected through a condenser across the output transformer primary, and is therefore suitable for high impedance loud speakers as well as moving-coils fitted with a suitable transformer.

The controls consist of main tuning, volume, reaction on the I.F. circuits and waverange. The latter is controlled by switch mechanism attached to the moulded escutcheon plate which slides up or down, thus exposing the appropriate scale and station calibrations. It is interesting to note that the makers are already supplying tuning dials with stations distributed according to the Lucerne agreement, which comes into force in January next.

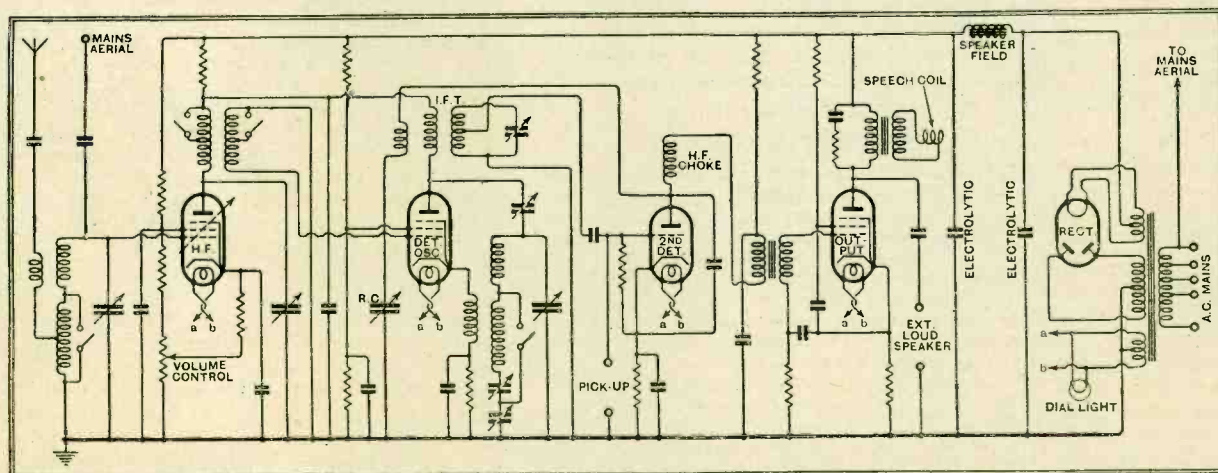
At the back of the chassis, in addition to the usual sockets for aerial and earth, pick-up, mains aerial and external loud speaker, there are two tumbler switches. One is connected in the mains supply circuit and the other disconnects the loud speaker in the set when it is desired to use the exterior loud speaker only.

The performance of this set amply justifies the deviation from convention in the circuit arrangement. Whistles due to second channel interference are considerably reduced by the signal frequency stage, and the four tuned circuits in conjunction with the reaction in the I.F. circuits give a high degree of selectivity. Zeesen on long waves is easily tuned in free from

Daventry and Radio Paris, while, in Central London, on medium waves, only two channels are lost, on either side of the Brookmans Park National and Regional stations. The performance as regards selectivity seems to be equal to that of the average four-stage superhet, without having to resort to the use of reaction, which may be kept in reserve for exceptional receiving conditions.



The moving-coil loud speaker and chassis form a single unit in the Varley A.P.46 receiver.



An unconventional feature of the circuit is the omission of valve amplification in the I.F. stage. The selectivity of the I.F. circuits is supplemented by reaction from the second detector.

Quality of reproduction is bright, with an adequate foundation of bass, and transients are noticeably good. Mains hum is negligible.

To summarise, in the Varley A.P.46 we have a receiver at a reasonable price which is original in design and capable of a performance in range and selectivity which is above the average for a superheterodyne of four stages. The only criticism we have to make is that there is room for improvement in the mechanical rigidity of the chassis; but this is of concern more to the service engineer than the user.

Next Week's Set Review

H.M.V. SUPERHET
CONCERT SEVEN
Model 467

READERS' PROBLEMS

Condensers in H.F. Circuits

EVER since non-inductive by-pass condensers appeared, it has been consistently advocated that they should be employed in all H.F. circuits in preference to those of the older type. To ensure that by-pass and decoupling condensers shall be entirely effective in such circuits, it is strongly recommended that attention should be paid to this point.

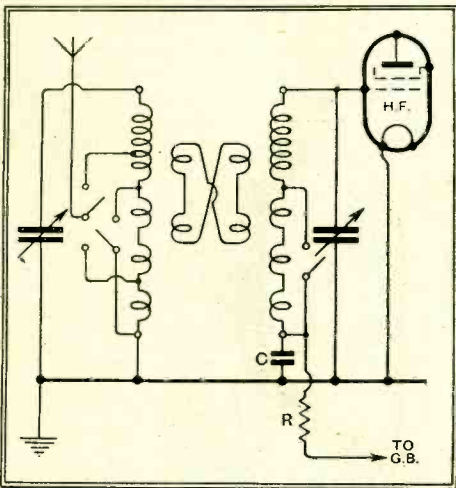


Fig. 1.—The by-pass condenser C is effectively in series with the secondary tuned circuit, and if this condenser has appreciable inductance, the matching of the secondary coil will be affected.

A correspondent, who realises that it would be fatal to employ an inductive condenser in such a position that it would be common to the two component circuits of a band-pass filter, nevertheless seems to think that an old type of condenser might be used satisfactorily for decoupling the H.F. grid circuit of the Modern Battery Four (*Wireless World*, August 11th). This condenser is not common to both filter circuits, and so it is argued that, even if it be slightly inductive, filter coupling will not be affected.

All this is true enough, but our correspondent has overlooked the fact that the condenser in question is in series with the second tuned circuit, and therefore, if it happens to have an appreciable inductance, it will upset the matching of the two coils. Any inductance in the condenser will be additive to that of the secondary winding; this is made clear in Fig. 1.

Gilding the Lily

IT has been asked whether it would be worth while going to the trouble of fitting a band-pass input circuit for the New Monodial superheterodyne; a second reader words his question rather differently by asking whether the quality of the receiver would be improved by such an addition.

Although it cannot be denied that an additional tuned circuit is bound to lead to increased immunity from second-channel interference, the benefits to be derived from such an addition are not considered to be sufficient to warrant the extra complication and cost involved. So far as quality is con-

cerned, no improvement would result from this addition, as the loss of side bands which inevitably takes place in a single-tuned input circuit was taken into account in the design of the tone-correction system.

Car Sets Afloat

IT has occurred to a reader that one of the recently introduced motor car sets would be almost ideal for installation on board his cabin cruiser, where space is at a premium. The engine is fitted with 12-volt electrical system and a large battery. We are asked to say whether any unsuspected difficulties are likely to arise in operating the set, and, indeed, to criticise the proposal in general.

Although we have not yet had any personal experience of the use of car sets for this purpose, we can see no reason why they should not be entirely satisfactory for motor boats or motor yachts, provided that a suitable converter or battery be fitted. It is understood that these specialised receivers are installed on board many motor cruisers in America.

Limitations of Multiple Valves

THE user of a "straight" H.F.-det-L.F. three-valve set asks whether it would be satisfactory to replace the present detector valve by a double-diode-triode, and, with the help of this valve, to obtain automatic volume control without loss of sensitivity and without adding to the number of valves in the receiver.

Although these new valves provide an excellent solution of the problem of adding A.V.C. to a "2-H.F." set, we fear that our present querist may be dissatisfied if he makes the proposed alterations. All "1-H.F." sets depend largely on reaction for their sensitivity, but this invaluable aid to long-distance reception must be forfeited if one of the new valves be fitted.

A.V.C. Without Alteration

ANOTHER query dealing with the addition of A.V.C. to an existing receiver comes from a reader who wishes to fit an "amplified and delayed" automatic control to his "2-H.F." A.C. receiver without making any internal alterations. It is stipulated that the control valve shall be entirely mains-operated.

Were it not for this latter stipulation, we would suggest the A.V.C. unit described in *The Wireless World* of March 31st. The

The Wireless World INFORMATION BUREAU

THE service is intended primarily for readers meeting with difficulties in the construction, adjustment, operation, or maintenance of wireless receivers described in *The Wireless World*, or those of commercial design which from time to time are reviewed in the pages of *The Wireless World*. Every endeavour will be made to deal with queries on all wireless matters, provided that they are of such a nature that they can be dealt with satisfactorily in a letter.

Communications should be addressed to *The Wireless World* Information Bureau, Dorset House, Stamford Street, London, S.E.1, and must be accompanied by a remittance of 5s. to cover the cost of the service. The enquirer's name and address should be written in block letters at the top of all communications.

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.

threshold value of signal strength at which the control exercised by this unit comes into operation may be adjusted to any desired extent; further, the system is an "amplified" one, as the control valve acts as a D.C. amplifier of voltage changes appearing on the anode of the detector valve. Although not impossible, it would be difficult to arrange the unit for "all-mains" feed, but our correspondent might like to effect a compromise by supplying the anode of the valve from the mains through a separate rectifier, a battery being used for grid bias purposes.

True Selectivity

PROBABLY the most common question propounded to the Information Department deals with the improvement of selectivity of existing receivers. In replying to such questions, it is comparatively easy to suggest methods whereby the signal input from the aerial, or the H.F. magnification of the set, may be reduced, and thus an apparent improvement in selectivity be obtained. But this improvement will always be at the expense of sensitivity; none of the popular "losser" methods can do anything towards improving the true selectivity of a receiver.

This can only be done by improving the "goodness" of the tuned circuits in the set or by adding to their number. The first alternative is generally impracticable, but the second can generally be put into effect by adding an external tuned aerial circuit to receivers which do not already include a band-pass input.

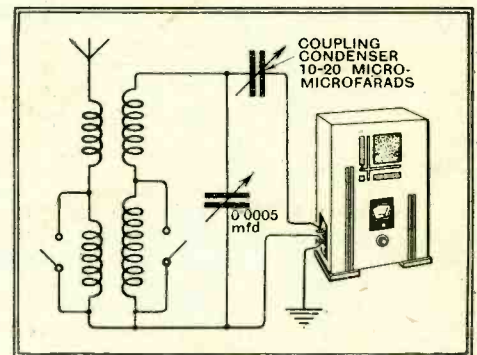
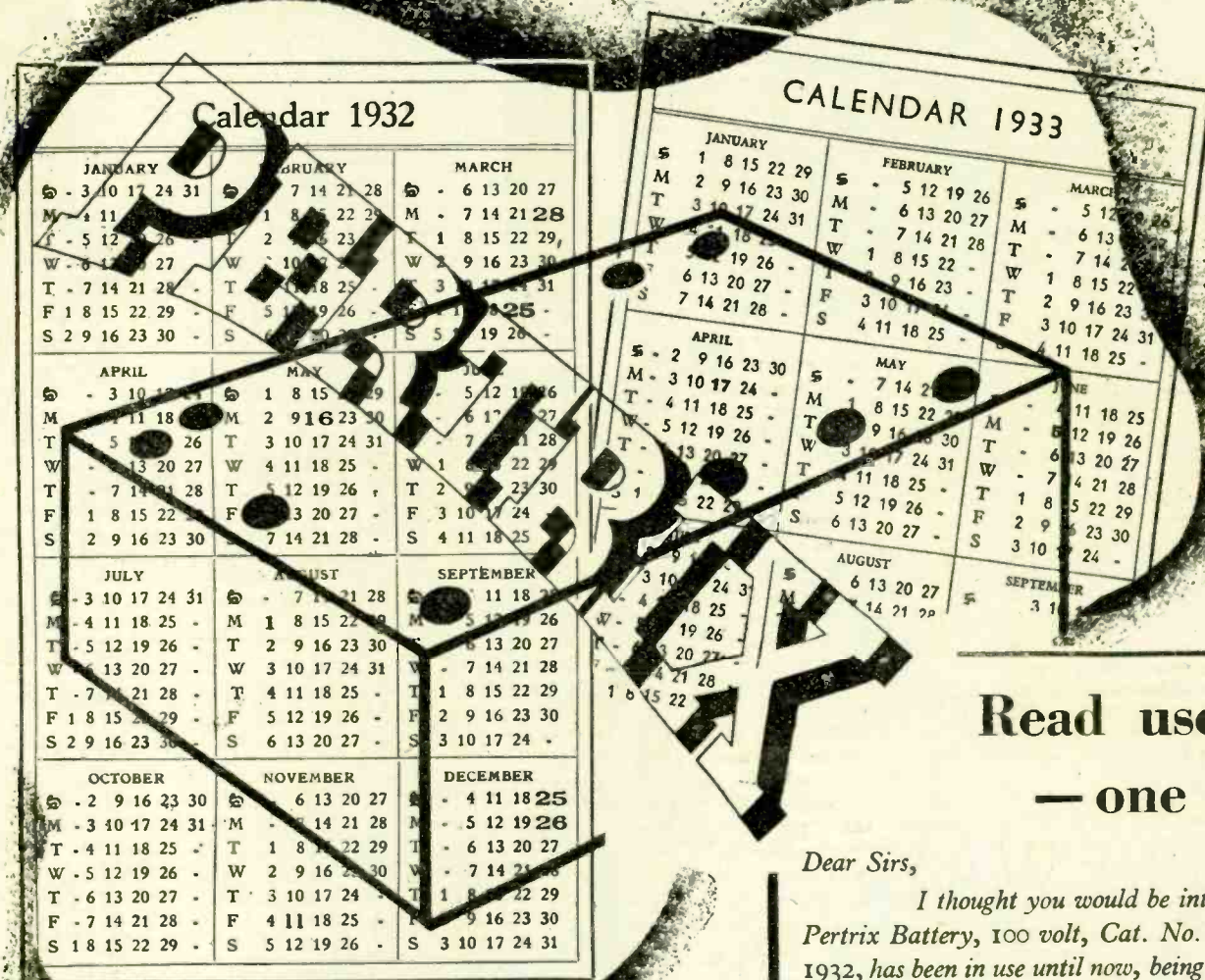


Fig. 2.—The most practical method of adding an extra tuned circuit, and thereby improving true selectivity.

Accordingly, this is the plan that is usually recommended, and for the benefit of several readers who have written on the subject, the circuit diagram of a satisfactory arrangement is reproduced in Fig. 2. The necessary apparatus is, of course, mounted externally to the receiver, and may be accommodated in a small box. Any reasonably effective standard coil assembly may be used, and particular care should be taken to see that the coupling condenser has a really small minimum capacity. It is worth while mentioning that the new iron-cored tuning coils are suitable for this purpose, and also that the addition of a separate aerial tuner may necessitate the need for "reganging" the original input circuit of the receiver.

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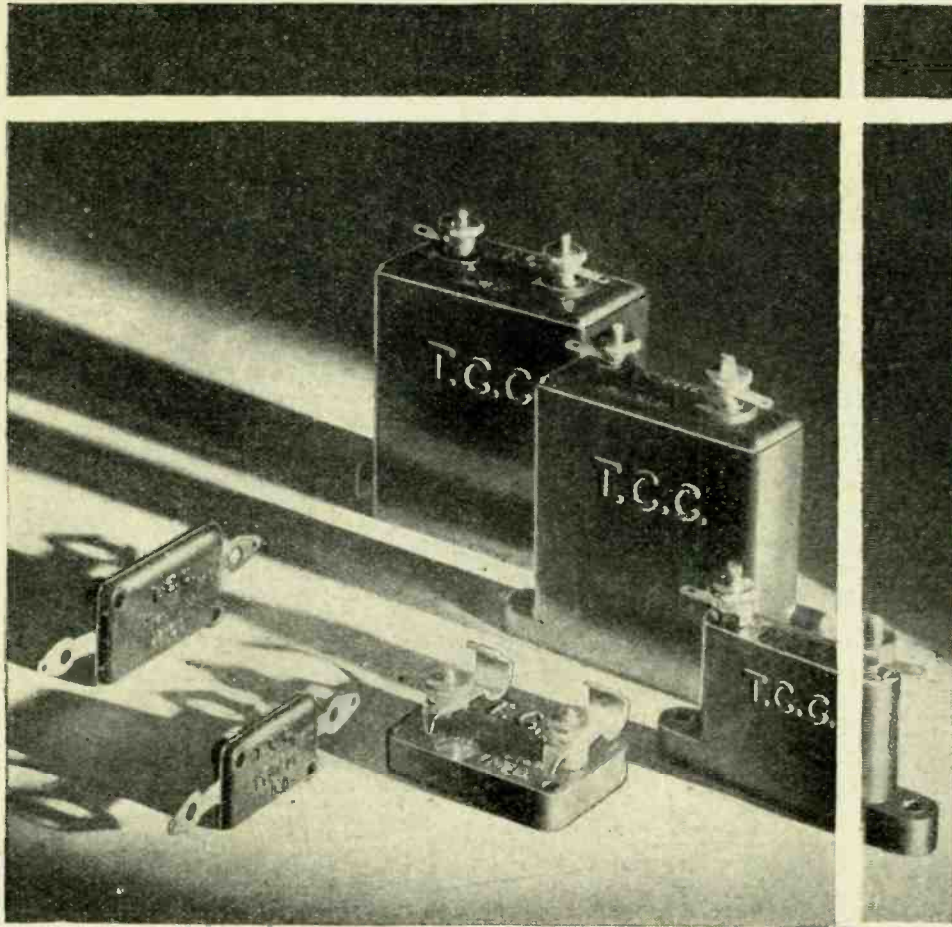
sive process going on inside any Pertrix. Its power is not turned against itself. There is no "shorting" between the zinc cells. A Pertrix will give the same number of hours' service, whether you use your set every day or intermittently. These amazing batteries recover power overnight—preparing for the next day's programme. H.T., L.T., or G.B.—there is a Pertrix that fits your set.



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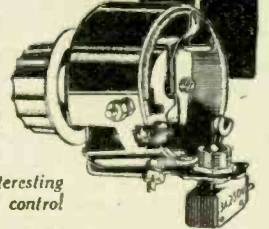
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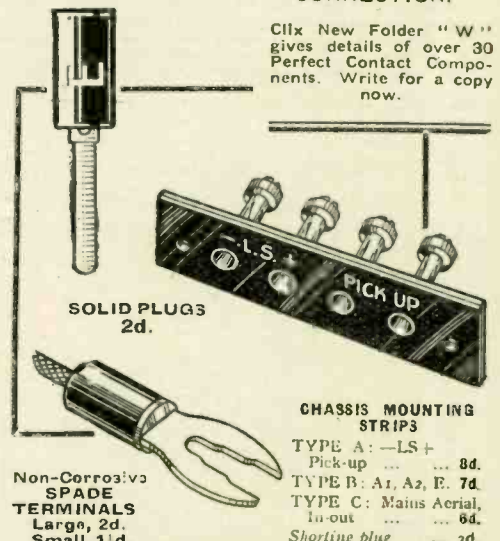
M.C.92

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Readers who hesitate to send money to advertisers in these columns may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Wireless World," both parties are advised of its receipt.

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Mains Equipment.—Contd.

N.P. Chargers for A.C. mains. Trade list free.
N.P. Have Most Efficient Chargers from 62/6, complete ready for use.
N.P. Have one or two Chargers Slightly Soiled at Bargain Prices. List.
N.P. Chargers, 5 circuits to charge 12x2 volt batteries on each 12-amp. amp., variable resistances from £9; chargers to do 36x2 volt cells in series up to 2 amps., £5. 75 volts 3 circuits 6 amps. total £13/15; trade list.
N.P. Have a Special Bargain This Week for Large Station; 150 volt 10 amps. A.C. charging plant, may be seen working; cost £35, sacrifice £15, or offer.—Nash Products, Ltd., Stechford, Birmingham 9.
N.P. Will Send You Full Details of Small or Large Battery Charging Plants with Photographs; no wiring necessary, plug into your mains and switch on; now is the time to increase your business.—Nash Products, Ltd., Stechford, Birmingham 9. [3480]

V O R T E X I O N, Wimbledon, for 99.9% reliable transformers.
I F You Haven't Tried Them Yet Ask Someone who has, or call and inspect complimentary letters.
A L L Standard Models Delivery by Return; all secondaries centre tapped.
G U A R A N T E E D 12 Months, and within 5% normal and 2 1/2% super models, neat shrouding, with detachable feet, as used by Government Departments, etc., etc.
V O R T E X I O N.—New monodial transformer, 200-250, 50 cycles, 425-0-425, 120 m.a., 4v. C.T. 3a., 4v. C.T. 1a., 4v. C.T. 1a., 4v. C.T. 6a., screen primary, open type, 20/-; shrouded, 22/-; super shrouded, 26/-; 10 henry choke, 5/6; 20 henry choke, 8/6.
V O R T E X I O N.—Ferrocart 111, 350-0-350, 60 m.a., 4v. 2.5, C.T., 4v. 3.5, C.T.; open type 13/6, shrouded 16/-; post 9d.
V O R T E X I O N.—250-0-250, 4v. 1 to 2a., 4v. 2 to 4a.; open type 10/6, shrouded 12/6; post 9d.
V O R T E X I O N.—Super model for H.T. 8 or 9 or 10, 4v. 1 to 2, 4v. 2 to 4; open type 14/6, shrouded 16/6; post 1/-.
V O R T E X I O N.—2 1/2-watt Monodial A.V.C. model; open type 14/6, shrouded 16/6; post 1/-.
V O R T E X I O N.—5-watt Monodial A.V.C. model, 400-0-400, 120 m.a., 4v. 6a., 4v. 3 1/2a., 4v. 2, 4v. 1a., super screened; 20/-, shrouded 24/-.
V O R T E X I O N.—350-0-350, 120 m.a., 4v. 2 to 5a., 4v. 2 to 4a., 4v. 2.5a.; open type 14/6, shrouded 16/6.
V O R T E X I O N.—400 or 450 or 500v., 120 m.a., 4v. 2 to 5, 4v. 2 to 5, 4v. 2 to 5; open type 19/-, shrouded 23/-.
V O R T E X I O N.—400 or 450 or 500, 150 m.a., 4v. 4a., 4v. 2.5, 4v. 2, 4v. 2, 4v. 2, core size 2 1/4 in. x 1 1/4 in., a superb job, 2% regulation; 35/-; shrouded with terminals, less terminals, 30/-; open type 26/-; post 1/3.
V O R T E X I O N Auto Transformers to B.E.S.A. Specification, 100, 110, or 120v. to 200, 220 or 240 volts, 60 watts, 7/3, post 9d.; 120 watts, shrouded 12/6, open type 10/6, post 1/-; 200 watts, open 14/6, shrouded 16/6, post 1/-; 500 watts 30/-, 2,000 watts £4/10.
V O R T E X I O N 600-watt Transformers; £4/10, carriage free.
V O R T E X I O N 30h. at 60 m.a. Chokes, 5/6; 40h. at 60 m.a., 8/6; 30h. at 150 m.a.; 200 ohms, 10/6 open type, 12/6 shrouded.
V O R T E X I O N 200v. 30 m.a. Eliminators, 110 or 220 input with 4v. 4a. winding; 37/6.
V O R T E X I O N.—Transformers made to your specification. All standards in stock. Phone all hours.
V O R T E X I O N (S. A. Brown), 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [3117]

These "New Notes"?

Some of our correspondents take us to task for not shouting down fantastic claims made for certain speakers, and ask us to come forward and say more about the HARTLEY TURNER Loud-speaker. A refined voice does not indulge in brawling and, according to those who have bought them, the voice of the HARTLEY TURNER is refined.

"NEW NOTES IN RADIO" sent for a 1½d. stamp does tell you all about the

Hartley Turner Loudspeakers

D.C. MODEL £7.7.0

A.C. MODEL £8.8.0

Demonstrations any time by appointment.

HARTLEY TURNER RADIO LTD.,

Thornbury Road, Isleworth, Middlesex.

Tel.: Hounslow 1854.

THE HARTLEY TURNER LOUDSPEAKER

We are demonstrating this remarkable new moving coil loudspeaker daily between 12 and 3 p.m., and 4 and 6 p.m. Other times by appointment.

Easy Payment Terms for the Hartley Turner Moving Coil Unit, complete with special transformer, carriage paid, are as follows:—

D.C. Model, cash price £7.7.0 or 20/- with order and 11 monthly payments of 12/9.

A.C. Model, cash price £8.8.0 or 26/- with order and 11 monthly payments of 14/-

We supply all other high-grade radio apparatus on convenient easy payment terms. Please send us your enquiries and a quotation will be sent by return.

THE LONDON RADIO SUPPLY CO.

(Established 1925)

11, Oat Lane, Noble Street, London, E.C.2

(off Gresham Street)

Phone: National 1977.

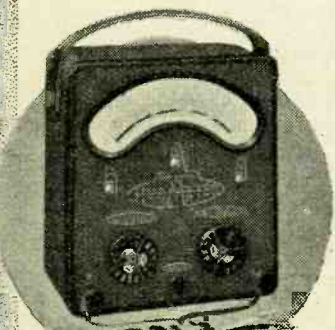
EVERY TEST WITH ONE INSTRUMENT ONLY

D.C. AND A.C.

The Avometer is indispensable to the Service men of leading radio manufacturers as the only instrument which adequately meets their needs. It is the only complete testing instrument giving direct readings in amps, volts and ohms without the necessity for mathematical calculations.

Two models: One for D.C. only, 8 Gns., and the Universal Avometer, giving both D.C. and A.C. readings, 60 cycles 12 Gns. Deferred Terms Indesired.

Fully descriptive pamphlets free on application.



The AVOMETER

REGD. TRADE MARK

THE AUTOMATIC COIL WINDER AND ELECTRICAL EQUIPMENT CO., LTD.,

Winder House, Douglas Street, London, S.W.1.

Phone: Victoria 3405-7.

Mains Equipment.—Contd.

HOYNE'S Transformers and Chokes the Best Obtainable, perfect insulation, regulation and reliability.

HOYNE'S Transformers used by many well-known set manufacturers after testing all others.

HOYNE'S Transformers fitted with tapped and screened primaries, filaments all centre tapped, stout cast aluminium clamps and clearly marked terminal strips are fitted to all models.

HOYNE'S Components are guaranteed for one year; built to your own specification at very competitive prices.

HOYNE'S Components.—The components you will eventually use, start right; a dud cannot pass the Hoyne test.

HOYNE'S New Monodial Super. aluminium chassis, drilled for components, complete with Power Transformer, two chokes, push-pull intervalve transformer and valve holders 51/-, carriage paid.

HOYNE'S New Monodial Transformer, 425-0-425v. 120 m.a., 4v. 3a., 4v. 1a., 4v. 1a., 4v. 6a., 24/-, post 1/3; weight 10lb. 10 henry choke, 6/-, post 6d; 20 henry choke, 7/6, post 6d.

HOYNE'S—250-0-250v. 60 m.a., 4v. 1-2a., 4v. 2-4a., 10/-, post 9d.; with extra 4v. 1-2a. winding, 12/6, post 1/-.

HOYNE'S Ferrocort Model.—350-0-350v. 60-70 m.a., 4v. 2-3a., 4v. 2-4a., 12/6, post 1/-; with extra 4v. 1-2a. winding, 13/6, post 1/-.

HOYNE'S—350-0-350v. 120 m.a., 4v. 2-3a., 4v. 4-6a., 4v. 1a., 4v. 1a., 16/-, post 1/3.

HOYNE'S—500-450-0-450-500v. 140 m.a., 4v. 2-4a., 4v. 4-6a., 4v. 2a., 4v. 2a., 27/6, post 1/3; weight 11lb.

HOYNE'S—0-110-135v. 90 m.a., suitable for H.T. 6 or 7, 7/6, post 9d.; with 4v. 2-4a. winding, 9/6, post 5d.

HOYNE'S—200v. 200 m.a., 4v. 2-4a., 4v. 1-2a., for H.T. 8, 13/6, post 1/-.

HOYNE'S—Auto Transformers, Chokes and Filament Transformers always in stock.

HOYNE'S Components still have no equal.

M. J. HOYNE, Offices and Works, 8a., Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 5303. [3455]

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [3448]

A.C. Charging Plant, unused, cost £18/18, for £6/18/6; write for makers' specification.—Jersey, Cunnor Hill, Oxford. [3424]

POWERITE Mains Transformers, a real engineer's job with 3 years' guarantee, competitive prices; lists free; trade enquiries invited.—Nasco, Wireless Products, Pittville Works, Tower Rd., Aston, Birmingham. [3306]

100 Accumulator Chargers, ½-amp., 2-6v., in ventilated metal case (Arden, 1932), incorporating Westinghouse rectifier, 10/8; 1¼-amp., 21/-; 7 days' trial.—Arden Agency, Wollaston, Wellingborough. [3400]

CABINETS.

RADIO-GRAM Cabinets; fully illustrated list free; remarkable values.—Gilbert, Cabinet Maker, Swindon. [1686]

MANUFACTURER'S Clearance Lines of Cabinets for Radiograms, loud-speakers, and radio sets; hundreds to select from; send postcard for list; special; cabinets for Skyscraper and S.T.400.—H. I. Smith and Co., Ltd., 289, Edgware Rd., London, W.2. [3409]

DYNAMOS, ETC.

CLASS "B" Converter, multi ratio, with P.D.220 and battery; 30/-.—Box 8065. *c/o The Wireless World.* [3462]

ROTARY Converters, E.D.C. Co.'s manufacture, as new, D.C. to A.C., with output of 220 watts.—Apply Electricity Works, Newquay, Cornwall. [3355]

ROTARY Converters, 220 volts D.C. to 200 volts A.C., capacities up to 0.44 K.V.A., cheap.—Milo Engineering Works, Milo Rd., East Dulwich, S.E.22. Sydenham 4422. [3450]

GRAMOPHONES, PICK-UPS, ETC.

GARRARD Induction Motor, A.C. four, 32/-; Auto record changer, £7/10, sealed cartons; Bowyer-Lowe Pickups, Mark 3, 22/6.—K. Treen, Colleshill, Birmingham. [3477]

LOUD-SPEAKERS.

P.M. Speakers: Bargain.

LARGE Quantity 8½in. P.M.C. Speakers, made by well-known manufacturer for set maker, highly sensitive, work off any set, 3-ratio transformer; 12/6, post free; money returned if not satisfactory.—Milton Manufacturing Co., Milton St., Coventry. [3415]

B.T.H. RK 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. D.C., 30/-, also A.C. models.

£2/10; carriage paid, c.o.d. or cash with order; the best value in speakers obtainable to day.—O. H. Seekamp, First Avenue House, High Holborn, London, W.C.1. Phone No.: Holborn 6609. [1425]

EPOCH 99K, £3/10; N. and K., dynamic, 25/-; both new.—May, 51, Graham Mansions, Hackney, E.8. [3474]

10/-.—Lamplugh Silver Ghost, 2,200 ohms, with output transformer, unopened; list 47/6; c.o.d., carriage paid.—Kay, 167, City Rd., London, E.C.1. [3351]

ARMSTRONG 1934 Permanent Magnet Moving Coil Speaker, better than ever this year, transformer matched to your requirements; technical advice willingly given; full size speaker, remarkable performance, 21/-; guaranteed; approval.—Armstrong Co., 100, King's Rd., N.W.1. [3468]

RADIO DATA CHARTS

A SERIES OF ABACS

providing most of the essential Data required in Receiver Design

By

R. T. BEATTY, M.A., B.E., D.Sc.

Reprinted from "The Wireless World"

(1930)

"Radio Data Charts" provide designers of wireless apparatus with a ready and convenient means of solving problems without having recourse to complicated formulæ and mathematics.

By the use of the charts it is possible to tackle all the more familiar problems in radio receiver design, such as, for example, finding the relationship between inductance capacity and frequency, and working out the design of high frequency transformers. All keen amateurs will appreciate this helpful book.

(39 CHARTS and more than 50 Diagrams)

Price 4/6 net

By post 4/10

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ILIFFE & SONS LTD.
Dorset House,
Stamford St., London, S.E.1

W.W.93

Loud-Speakers.—Contd.

30/-!!!—B.T.H., R.K. moving coil speakers, 6in. cone, new and unused, guaranteed; these speakers are the type as used in cinema sound equipment; suitable for public address work; weight 30lb., and are vastly superior to the cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6!!!—6-volt D.C. speakers, as above: £2/7/6 speaker as above for 100-250 volts A.C., complete with field rectifier.

CARRIAGE Paid, cash with order, or c.o.d.; send for list.—Ward, 12, Tredegar Rd., Bow, E.3. Tel.: Advance 3668. [3489]

CHAL ELECTRIC Offer New Boxed Set Manufacturers' Surplus Rola Speakers, all fitted hum buckers, state if Power or Pentode Transformer F6 110-175v. D.C. (2,000 ohms); 90-150v. D.C. (6,500 ohms); 150-200v. D.C. (4,700 ohms); 200-250 D.C. (6,500 ohms), listed at 35/-, at 18/-; F7 voltages as above list, 47/6, at 25/- each; permanent magnets F6P.M., listed at 49/6, at 28/-; F7P.M., listed £3, at 33/-; Ultra 95P.M., a real hefty job with Power-Pentode transformer, listed £4/15, at 47/6; Rola Dual Compensated (2) F6, list £3/10, at £2; (1) F6 and (1) F7, list £4/5, at 47/-; all goods Carriage Paid, Cash with Order, or C.O.D.—Chal Electric, 6, Conduit St., London, W.1. [3221]

VALVES.

ALL Classes of Valves in Stock, including American and non-ringing valves; send for price list.—R. Newman, 309, Roman Rd., London, E.3. [3446]

ALL Types of Valves in Stock, including the following brand new American valves, first-class makes: 247s, 235s, 224s, 236s, 237s, 233s, 245s, 244s, 12/-; 227s, 226s, 280s, 245s, 9/6; 242s, 232s, 11/-; U.X.210s, 15/-; U.X.250s, 7 watts output, 16/-; 281s, 14/6; post paid, cash with order or c.o.d. Send for valve list.—Ward, 12, Tredegar Rd., Bow, E.3. Tel.: Advance 3668. [3488]

COMPONENTS, ETC., FOR SALE.

R. **SELECTED** Parts for Sale, as new; c.o.d. or "Wireless World" deposit system, which we recommend if in doubt as to the splendid value offered; we take risk of damage in transit to our customers; goods tested for callers and guaranteed.

NEW Output Transformers Similar to R. and A., ratio 18/23/32, 6/-; Telsen 0.05 mica condensers, 2/3; T.C.C. 0.01 mica type M, 1/-; new Paxolin formers, 1in., slotted, with guiders, 8d.; T.C.C. 2 mf., 350v. working, 1/6; ditto, 1 mf., 1/3, new; T.C.C. 4x4, 250v. working, 4/9.

VARLEY P.P. Input Transformer, 15/-; pairs new Polar twin S.M. thumb drive, 0.0005, complete, 12/6; Telsen 100h. chokes, 3/-; Westinghouse H.T.4 and A4 rectifiers, with Varley transformer, £2; Clyden 0.0005 double thumb twin extender, 15/6; Clyden single 0.0005 extender, 7/6; Ready Radio 0.0005 extender condensers, new, 5/6; Sound Sales 10h. choke, 9/6; Ormond 65/- type P.M. speaker complete, 37/6.

RADIOPHONE Pots with Switch, 5,000, 10,000, 100,000, 25,000, new, 2/6 each; new type Magna speaker, 2,500 ohm and 5,000 ohm, 42/6 each complete; Sonocorde Senior D.C. with 10-watt field, 30/-, complete.

FERRANTI Resistances, with holder, 3,000, 5,000, 15,000, 20,000, 30,000, 50,000, 100,000, 2/6 each; Varley Power, 500, 1,000, 5,000, 10,000, 40,000, 50,000, 3/- each.

TRANSFORMERS.—Ferranti A.F.4 8/-, A.F.3 12/6, A.F.5 18/6, A.F.5cc 21/6, O.P.M.1c 16/6, O.P.M.2 13/-, O.P.M.4c 16/6; B1 choke, new, 15/-; A.F.6 18/6, A.F.7c 22/6.

EDISON BELL 10,000 Eureka, wire wound, with holders, 1/-; Edison Bell 0.0005 universal log all metal condensers, 1/6, new.

AMPLION Public Address Microphone, £3; Ready Radio Senior Instamatch transformers, new, 10/25-1, 15/9; G.E.C. Senior induction motor, 47/6; set Colvern battery Super Five coils, 10/-; set Colvern single dial super battery coils, 15/-; Mullard H.T. eliminator, complete, 150v., 30 m.a., 240v. input, 30/-; Six-Sixty eliminator, 200v., 25 m.a. and G.B., 32/6; Ekco A.C.25, 47/6; Atlas A.C.244, 39/6.

PAIR Varley Q.P.P. Input and Output, 19/-; Wearite and Lewco superhet coils, 5/-; 3-range oscillators, 7/6; 8-way bases, 4/6; T.C.C. 2,000 mf. electrolytic, 9/-; T.C.C. ditto, 250 mf., 100v., 8/6; Novotone J., 30/-; Jrganic L.F. choke coupling units, 3/9; Lotns new 4-gangs, 15/9.

RYALL'S Mains Condensers, 4 mf., 250v. working, 2/6; 4 mf., 500v. working, 4/6; 4 mf., 750v., 6/6; 2,000v., 17/6; Ryalls condenser blocks, 2.4 mf., 2.2 mf., 500v. working, 8/6; Dubilier 2x2, 500v. working, 2/6.

RYALL'S Mains Transformers, 250v. 60 m.a., 4v. 1 amp., 4v. 3 amp., 10/6; 350v., 12/9; H.T.7, with 4v. 4 amp., 10/6; 4v. 3 amp. only, 6/9; chokes, 25h. at 60 m.a., resistance 260 ohms, 6/9; 20h. at 100 m.a., 8/9; 10h., 8/9, for Monodial; 40h. at 100 m.a., 10/6.

RYALL'S RADIO Offer Reliable Resistances, 1 watt, suitable for all "Wireless World" sets where a 1 watt resistance is specified, in values 100, 500, 1,000, 2,000, 5,000, 6,000, 10,000, 25,000, 30,000, 75,000, 150,000, 250,000, 20,000, all values stated in ohms, 6d. each, guaranteed one year, wire ends, new goods.

WE Hold a Large Stock of First Class Radio Apparatus, meters, resistances, condensers, heavy chokes, and all set requirements, at bargain prices, all modern goods.

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, Saturday 6 p.m.

R. [3456]

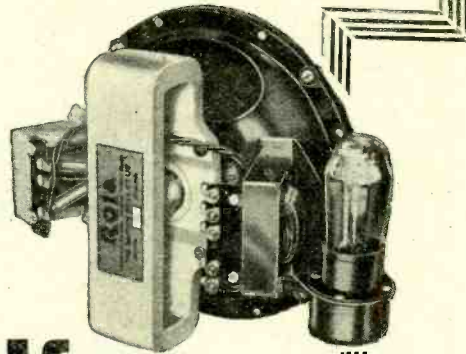
ASURPLUS RADIO, Ponders End, offers the following genuine manufacturers' stocks:—

DOUBLE Smoothing Chokes, mounted, sound, robust job, 120m.a., 14/28 henrys each, usual price 35/-, our price 6/6 each, 9d. postage, single ditto, 4/6 each.

CHOKES, small, iron-covered, 2,000 ohms, for output or choke coupling, 1/6 each, 3d. postage.

(This advertisement continued in third column.)

QUALITY CLASS B... Are you a Battery Set Owner



If so...

do you know that it takes only 5 seconds to fit a

ROLA CLASS B SPEAKER AMPLIFIER Unit

to any battery receiver and increase the volume 5 times.

Rola speakers are used by the large majority of British radio manufacturers and by nearly all "constructor set" designers. For realistic reproduction and impressive volume maintained year after year they occupy a position of unchallengeable supremacy. Write to-day for the Rola folder.

Model A— for MULLARD P.M.2B, B.T.H. P.D220, COSSOR 220B, STANDARD 13B1, HIVAC B220, MARCONIPHONE B21, G.E.C. B.21, CLARION B22.

Model B— for COSSOR 240, FERRANTI HP2, CLARION B24.

PRICE (Both Models) **57/-** without valve) Price with Valve 71/-



the World's Finest Reproducers

THE BRITISH ROLA CO., LTD.,

Minerva Rd., Park Royal, N.W.10. Phone: Willesden 4322-3-4-5.



Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

A.C. H.T. Eliminator, 220v. to 240, with 4 tappings, total output 150v. at 25m.a., for use with D.W.2 or Phillips 1821 valve, or Westinghouse H.T.6 rectifier; full instructions given.

MAINS Transformers; for Eliminators, output 250-0-250 at 60m.a., 4v. at 1 amp.; state input when ordering; price 6/6 each, postage 9d.

14 mfd. Block Condensers, 250v. working, 6-4-2-1-1; 4/- each, postage 6d.

RESISTANCES, wire-wound, finest quality at ridiculous prices:—3,000, 5,000, 8,000, 40,000, 65,000 ohms, all 5 watt, worth 3/6 each; 6d. each, post 3d.

WIRE WOUND Potential Dividers, 60 watt, wound 3 sections, 4,500 ohms, 3,000 ohms, and 2,000 ohms, 1/6 each, postage 4d.; 5 watt ditto, 20,000 ohms, 20,000 ohms, 20,000 ohms, 1/- each, postage 3d.

POTENTIAL Dividers, wound 2 sections, 5 watt, 40,000 and 23,000 ohms, 40,000 and 80,000 ohms, 40,000 and 100,000 ohms, 30,000 and 50,000 ohms; at 1/- each, postage 3d.

POTENTIAL Dividers, wound 5 sections, 5 watt, 250, 165, 100, 100, 100 ohms; 1/6, postage 3d.

TWO Separate Resistances, 60 watt, on one tube, 2,500 ohms and 500 ohms; 1/6 each, postage 4d.

THREE Separate Resistances on One Tube, 2,500 ohms, 1,000 ohms, 80 ohms; 1/- each, postage 3d.

100,000, 200,000, and 300,000 ohms 1 watt type resistances at 4/6 per dozen, postage 3d.

2 Meg., 0.1 meg., 0.5 meg. leaks, 0.001, 0.0001, 0.015 fixed condensers; all 3/- per dozen, postage 3d.

R.C. Coupling Units; 1/- each, postage 3d.

1 mfd. Condensers, 250 volt working, 6d. each, postage 2d.; 4 mfd. condensers, 250 volt working, 1/6 each, postage 4d.

GOODS Order Value 20/- Carriage free

EACH Article is Tested Before Despatch and Guaranteed First Class Manufacture.

CASH With Order; all goods despatched the same day.—Surplus Radio, 32, Queensway, Ponders End, Middlesex. [3461]

PREMIER

PREMIER SUPPLY STORES Offer the following Set Manufacturers' Surplus New Goods at a fraction of the Original Cost, all goods guaranteed perfect, carriage paid over 5/-, under 5/- postage 6d. extra (Ireland, carriage forward).

ELIMINATOR Kits, including transformer, choke, Westinghouse metal rectifier, T.C.C. condensers, resistances and diagram, 120v. 20 m.a., 20/-; trickle charger 8/- extra; 150v. 30 milliamps, with 4v. 2.4 amps. C.T., L.T. 25/-; trickle charger 6/6 extra; 250v. 60 milliamps, with 4v. 3.5 amps. C.T., L.T. 30/-; 200v. 100 milliamps, with 4v. 3.5 amps. C.T., L.T. 49/6; 300v. 60 milliamps, with 4v. 3.5 amps. C.T., L.T. 37/6.

ELLIOTT First Grade Moving Coil Meters in the Following Ranges:—0-10, 0-30, 0-50, 0-100, 0-150 milliamps, also 250v. flush type, 17/6, projecting 15/-.

ROLA Moving Coil Speakers, complete with humbucking coils and output transformer; please state whether power or pentode required; F6, 2,000 or 6,500 ohm, listed 35/-, at 17/6; F7, 2,000 or 6,500 ohm, listed 47/6, at 23/6; A.C. conversion kit for any of above, 10/-.

SPECIAL Offer.—Reisz type microphone with transformer, a really professional job, listed at £12; our price 52/6.

HEAVY Duty Variable Resistances, wound on porcelain, 2,000 ohms 1.4 amp., 5,000 ohms 1.2 amp., 120 ohms 1 amp., all the above values, 3/6 each.

T.C.C. Condensers 750v. working, 2 mf. 3/6, 4 mf. 5/-, 4 mf. 400v. working 4/-, 250v. working 1 mf. 1/-, 2 mf. 1/9, 4 mf. 2/6, 1,500v. working Standoff insulators .5 mfd. 1/6, 2 mfd. 6/-, aqueous electrolytic 440v. working, 4 mf. 3/-, 8 mf. 3/6.

DUBILIER Condensers.—.01 mica 6d., .01 mica 1,000v. working 1/-.

ALL the Following Lines 6d. each or 5/- per dozen: 4 and 5 pin chassis mounting valve holders; shielded screen grid or pentode leads 1-watt wire end resistances, any value; T.C.C. .1 condensers; hum dingers; on-off switches pushpull; polar ganging devices.

FERRANTI Condenser Blocks 300v. working 4-4-2-2, all separate, 5/-.

POLAR 3-gang 0.0005 Condensers, split end vanes, totally screened, disc drive; 6/11.

AMSCO Triple-gang 0.0005 Condensers, with trimmers, 4/11.

ORMOND 0.0005 Condensers, 1/3; 2-gang semi shielded, 2/6.

WESTERN ELECTRIC Mains Transformers, input 200-250 volt, output 500-0-500 volt, at 150 milliamps, 4v. 4a., 4v. 2.5a., 4v. 2a., 4v. 1a., 4v. 1a., massive job; 19/6.

T.C.C. Electrolytic Condensers, 10 mfd., 100 volts working, 1/-; 15 mfd. 1/3.

SPECIAL Offer of Mains Transformers manufactured by Philips, input 100-115v. or 200-250v., output 180-0-180 volts, 40 m.a., 4v. 1a., and 4v. 3a., 4/6; 200-0-200v., 4v. 1a., 4v. 3a., 4/6.

ALL Premier Guaranteed Mains Transformers have engraved terminal strips with terminal connections, input 20-250 volts, 40-100 cycles, all windings paper interleaved.

PREMIER H.T.8 Transformer, 250v. 60 m.a., rectified, with 4v. 3.5a. c.t. L.T., and screened primary, 15/-; with Westinghouse rectifier, 25/-.

(This advertisement continued on next page.)



Let this Handbook help you on Mains Problems

Containing many circuit diagrams for the construction of mains units, battery chargers and a unit for energising the field-coil of M.C. speakers...

Mr. Address W.W.

F. C. HEYBERD & CO., 10, FINSBURY STREET, E.C.2



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ELECTRADIX BARGAINS

Write for New Sale List "W"

ELECTRADIX RADIOS, 218, Upper Thames Street, E.C.4.

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.) PREMIER H.T.9 Transformer, 300v. 60 m.a., rectified, with 4v. 3-5a. c.t. L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER Chokes, 40 m.a., 25 hys. 4/-; 65 m.a., 30 hys. 6/-; 150 m.a., 30 hys., 10/6.

PYE Chokes, 20 or 32 hys., 4/-; Premier multi-ratio output transformers, giving 15 different ratios 7/6.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles, A.C., incorporating Westinghouse metal rectifiers, output 250v. 60 m.a., S.G. and 120v. taps, 42/6; with 4v. 4a. c.t. L.T., 7/6 extra.

BRITISH RADIOPHONE Wire Wound Potentiometers, with mains switch incorporated, 5,000 ohms, 10,000 ohms, 50,000 ohms, 100,000 ohms, 250,000 ohms, any value; 3/6.

PREMIER Eliminators, output 150v. at 30 m.a., S.G., and 100v. taps, with 4v. 3-4a. c.t. L.T., 37/6; or with trickle charger, 42/6.

PREMIER Eliminators, output 120v. at 20 m.a., S.G., and 100v. taps, 27/6; with L.T. trickle charger incorporated, 35/-.

PREMIER D.C. Eliminators, output 120v. at 20 m.a., S.G. and 100v. taps; 15/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse metal rectifiers; 2, 4, and 6v. at 1/2 amp., 12/6; 2, 4, and 6v. at 1 amp., 17/6; 12v. 1a., 27/6; 6v. 2a., 35/-; 12v. 2a., 35/-; 12v. 1.5a., 30/-; 6v. 3a., 33/6; 30v. 3a., 42/6.

AMPLION High Inductance Chokes, resistance 2,500 ohms, 80 henries 60 m.a.; 5/6.

WESTINGHOUSE Metal Rectifiers: 120v. at 20 m.a., 6/6; 180v. at 30 m.a., 8/6; 8v. at 1/2 amp., 6/6; 6v. at 1 amp., 9/6.

KOLSTER BRANDES Electric Gramophone Motors, complete with turntables and automatic stop, 100-250v., A.C. and D.C.; list price £5, to clear £2.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250v.; 30/- complete.

AMPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms (100 and 200v.), with output transformer, 12/6; A.C. conversion kit for this speaker, 10/- extra.

WESTERN ELECTRIC Condensers, 250v. working, 1 mfd. 6d., 2 mfd. 1/-; 500v. working, 1 mfd., 1/-.

T.C.C. Condensers, 250v. working, 4x4x1 mfd., 3/6; 300v. working, 4x4x2x2x2 mfd., 6/-; 6x4x2x2x2 mfd., 37s. working, 6/11; 4x4x1, 6/-.

SPECIAL Offer of Wire Wound Resistances.—4 watts, any value up to 10,000 ohms. 1/-; 8 watts, any value up to 15,000 ohms, 1/6; 15 watts, any value up to 50,000 ohms, 2/-; 25 watts, any value up to 50,000 ohms, 2/6; 50 watts, any value up to 50,000 ohms, 3/6.

WIRE Wound Potentiometers, 15,000 ohms, 1/6; Centralab Potentiometer volume controls, 50,000 ohms, 2/-; wire wound Clarostat Potentiometer, 50,000 ohms, 2/6; Colverstats, logarithmically wound Potentiometers, 6,000 ohms, 1/9.

FOR Callers only.—The following valves, guaranteed new:—

THE Last Few Western Electric 3211-D Valves, 10v. 3a. filament, 750-1,000v. plate, 50-65 m.a., impedance 3,500 ohms, amplification factor 12; cost £5; to clear at 15/-.

PHILIPS 328 Valves for L.T. Charging, 5/6; 329 Barretter lamps, 2/-.

HARLEY Pick-ups with arm and volume control; 12/6.

PREMIER SUPPLY STORES, 20-22, High St., Clapham, S.W.4. Macaulay 2188. Closed 1 o'clock Wednesdays, open to 9 o'clock Saturdays. Nearest Station, Clapham North Underground.

PREMIER 13487

GILBERT INDUSTRIES' Parcels.

"A" "B," "D," and Condenser Parcels, as advertised in issues August 4th and August 11th, still available by return of post.

GILBERT INDUSTRIES, Ltd., £19, London Rd., West-cliff-on-Sea. 13283

"UNIVERSAL" HIGH-VOLTAGE VALVES

THE ONLY ones which operate direct from FULL MAINS VOLTAGE, either A.C. or D.C., without the use of transformers or resistances, and greatly reduce the cost of running your set. Do not confuse these with valves which can only be wired in series.

Table listing various valve types and their specifications, including S100, S25, MS18, MS70, D130, PT3, and K3500.

Other types and rectifiers as previously listed all in stock. Details on request. Free Blueprint with first order.

OSTAR-GANZ 'UNIVERSAL' HIGH-VOLTAGE MAINS VALVES

Kits and Special model Sets supplied. Ask for details.

Sole Agent for Great Britain: EUGEN FORBAT, 28-29, Southampton Street, Strand, W.C.2. Telephone: Temple Bar 8608.

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OVER 100 Models of Mains Transformers and Power Chokes fully described.

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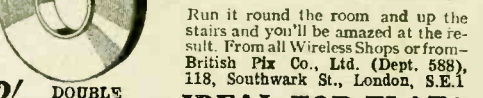
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Phone: Enfield 0777. Sole Distributors I.F.S.: KELLY & SHIEL LTD., 47, Fleet St., Dublin, C.4.

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2/- DOUBLE LENGTH 3/6. IDEAL FOR FLATS

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Mention of "The Wireless World," when writing to advertisers, will ensure prompt attention.

Components, etc., for Sale.—Contd.

MILDMAY RADIO Exchange Offers the following Sound and Perfect.

LOUDESPAKERS.—Bakers Super D.C. 50/-; Epoch 99K De Luxe, £3; Epoch 66P.M., 40/-; B.T.H. Senior P.M. 50/-; Rola F6 S.T.400, 20/-; Farrard Indicator, 30/-; Voltge Speaker Unit only £6/10, 200 or 400 volts D.C.

AC. MOTORS.—Garrard, Collaro, etc., from 20/-.

ALL Post Paid.

CLOSED Saturday, open Thursday all day.

PHONE: Clissold 5001.

24, Mildmay Grove, London, N.1. [3452]

SOUTHERN RADIO Wireless Bargains.—Set manufacturer's guaranteed surplus:—

VARIABLE Condensers.—British Radiophone 4-gang superhet type, fully screened and trimmers, 0.0005, 8/9 (list 45/-). Same type, complete with dial knob and escutcheon, 12/9 (list 50/-). Hydra block condensers, new, 16 mfd., 2+2+8+2+1+1, 1,000 volt test (made for Canadian Marconiphone Co.), 7/-; 4 mfd., 2/6; 2 mfd., 1/9; 1 mfd., 1/-; all 750 volt. Polar 3-gang condensers, 0.0005, fully screened, complete trimmers, dial knob, escutcheon, 11/-.

SPEAKERS.—Celestion Soundex permanent magnet, 16/- (list 27/6); Rola F6 permanent magnet, 28/- (list 49/6); D.C. mains energised, 2,500 to 6,500 ohms, complete with humbucking coils and transformers, 16/6 (list 39/6); Peter Grassman dynamic speakers and chassis, 10/6 each (list 35/-); G.E.C. Stork speakers, complete in magnificent cabinet, 19/6 (list £3/15); Ormond speakers, complete in cabinets, 10/- (list 25/-). Dr. Nesper Telag speakers, 11/6 (list 55/-).

CONSTRUCTORS' Kits.—Ready Radio "303" battery 3-valve kits, less valves, 18/- each; complete with 3 Mullard valves (P.M. 11.F., P.M.2, 2D.X.), 33/- each (list 70/-); Ready Radio Meteor screen grid 3-valve kit, less valves, 26/-; with 3 Mullard valves (P.M.12a, P.M.2D.X., P.M.2a.), 49/- (list £5 7/6); Universal Radio 3-valve kits, ready assembled on chassis, 12/6 (list 45/-); 4-valve, metal chassis only, 11in. x 9in. x 3in. (deep), 2/6 each, brand new.

READY RADIO S.T.400 Kits, as specified by Scott Taggart, £2/19/6 each (list £4/17/6).

MULLARD RADIO for Million 3-valve A.C. Kit, complete with 3 Mullard A.C. valves (Pen. 4V. 354V. 84V), £3/10 (list £6/10); Mullard Radio for Million 3-valve battery kits, complete with 3 Mullard valves, £3/3 (list £6/2/6); all kit brand new, in original sealed cartons.

BRITISH General Tuning Units.—Band Pass, 10 k.c., aerial or anode; 5/- (list 14/6); Metro-Vick and Athen resistances, all capacities, 3/9 per doz. assorted; H.M.V. tone controls, 1/6 each (list 12/6).

ALL Goods Guaranteed New and Perfect, and sent carriage paid.

PLEASE Note.—We have opened branches at 271-275, High Rd., Willesden Green, N.W.10, and at 46, Lisle St., W.C.2, where callers are cordially invited to inspect our large stocks of wireless bargains. Please send all post orders to 323, Euston Rd., N.W.1.

SOUTHERN RADIO, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [3481]

MR.D. Co.'s Guaranteed Surplus; carriage paid or call; 10% discount on orders over 10/-.

DUBILIER and Givrite Half-Watt Resistors, as last week, 4d. each, 1/9 half-dozen; Benjamin 5-pin chassis v-holders, 1/3 half-dozen.

POLYMET Mica Fixed Condensers, all sizes, 0.0001 to 0.01, 3d. each, 1/3 half dozen; 1 mfd. 400v. working, 10/4d.

TC.C. 2 mfd. Electrolytics, 100v. working, 9d.; T.C.C. 4x4 mfd., 250v. working, 3/3; T.C.C. 4x4x1x1x1x5 mfd., 250v. working, 3/11.

FORMO 0.0003 reaction, 8d.; Varley 250,000 pots, 1/7; Pye L.F. chokes, 32h. 60 m.a., 4/6.—Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [3483]

PEPPEP Offers the Following Under Usual Money-back Guarantee; carriage paid over £2.

BAKERS 1933 S.P.P.M. Speakers (listed £6/6), complete, £2/15 ditto, 1931 model, £2/3; Magnavox Magna, D.C.142, 2,500 field, boxed, £1/5; Amplion E.M.644, 14/6; Famet, 2,500 mfd., 15/-.

JUNIT Baby-Super Transformer (for H.T.9), 18/6; Westinghouse H.T.9, H.T.10, H.T.11 rectifiers, as new, 10/5 each; H.T.8, H.T.8, 7/6.

ACCUMULATOR Chargers, by Supremus, etc.; 6 volts 1 amp., 12/6; 12 volts 1 amp., 26/-; 24 volts 1 amp., 34/6; 6 volts 1/2 amp., 12/6; 15v. 2 amps., 59/6; above Westinghouse rectified; 28 volts 1.3 amps., complete with meter and valve, £1/18/6.

MARCONI 63/- Pick-ups, as new, 25/6; Limit pick-up heads, 7/11; Igranix Phonovox pick-ups, with arms, 8/11; Bulgin ditto, 12/6; Garrard 11a. motors, with turntable, etc., new, 14/8.

ELIMINATOR Kits (A.C.), smoothed output 500v. 120m.a., Westinghouse rectified, including B.T.H. transformer, etc., £3/10; similar kit, valve rectified, £2/10.

QUANTITY of Lewcos, Wearite, Igranix, etc., volume controls, at half list.

TREVOR PEPPER, 575d, Moseley Rd., Birmingham, 12 [3464]

CAMBRIDGE Unipivot Galvanometer, test certificate, brand new; list £9/10, price £5/10.

FOLLOWING Ferranti's Half List Price: J.T.1, volts 0-10-100-500, milliamps 0-10-100, in case, list £6/10; 0-10-250 volts, 100 milliamps, list £3/10; both above moving coil instruments; 0-600 volts Electrostatic, list £3/5; R.T.5 resistance tester, 0-5,000-50,000 ohms, list £4/15.

NO-ROCO Converter, 200-250 D.C. to 200-250 A.C., 90 watts, work 2-valve to 9-valve set; £3/10.—20, Albion Terrace, Blackwood, Mon. [3458]

CHIAL ELECTRIC Offers New Set Manufacturer's Surplus, all carriage paid; cash with order or c.o.d.

VARIABLE Condensers.—J.B.Nu. Gang (3-gang), complete with disc drive, covers, trimmers, escutcheon, light knob, etc., 17/6; 2-gang, fitted as above, 9/6; Polar Star (3-gang 1933), complete, fitted as above, list 30/6, at 18/-; Uniknob 2-gang, fitted as above, complete, 10/-; Utility 2-gang, fitted as above, 8/6.

COLLS (6 sets each only).—Colvern Ferrarct, F1, F2, F3, ganged, 32/-; Varley Ni-core (1), B.P.30 and 2B.P.31, 28/-; Varley sets, B.P., 19 ganged, 25/6.

(This advertisement continued in third column.)

Now the Show is over

and reflection is the order of the day, there is no doubt that the "W.W." **NEW MONODIAL** will be the choice of the radio connoisseur.

IN response to many queries last month, we are again offering our Monodial constructional and servicing facilities to readers in all parts of Great Britain. Consult us NOW! You will benefit by our condensed experience gained in building and servicing sets for "W.W." readers during the last 7 years.

Our Workshops test apparatus has been considerably augmented and we are ready to build for you a de-luxe NEW MONODIAL and if necessary to fit it in a period cabinet, and to supply and instal all necessary associated components. If desired, any apparatus can be supplied for a first deposit of 12½% with the balance over 1 year.

This extract from a letter entirely unsolicited regarding the original Monodial, is illuminating.



"I should like to place on record my appreciation of the excellent job you have made of the Monodial Superhet set which I recently ordered from you. Results have been most pleasing and I am highly satisfied with the whole outfit I shall have great pleasure in recommending your Firm to any of my friends"

SCOTT SESSIONS & CO.,

Radio Engineers and Consultants, MUSWELL HILL, LONDON, N.10

Cables: "Tropiset, London." Contractors to H.M. Government Depts., &c.



There is a model to suit every output.

Prices from 21/- to 70/- Your dealer will demonstrate. REPRODUCERS & AMPLIFIERS, LTD., WOLVERHAMPTON.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

SMOOTHING Condensers.—G.E.C. Murphy, etc., 800 test 250 A.C. working 1 mfd. 1/1; 2 mfd. 1/9, 4 mfd. 2/6; all the following 1,500 D.C. test 500 A.C., working 800 peak, 1 mfd. 1/9, 2 mfd. 2/4, 4 mfd. 4/-; Multiple Banksall, separate tappings, 20 mfd., 4+4+2+2+2+2+1+1 at 11/-, 11 mfd., 4+2+2+2+1, at 6/9.

CHOKES—30 henry 30 m.a. (500 ohms), 6/-; 30 henry 50 m.a. (450 ohms), 6/3; 30 henry 60 m.a. (600 ohms), 6/6; another (300 ohms), 6/9; 30 henry 75 m.a. (300 ohms), 6/9; 50 henry 60 m.a. (850 ohms), 8/6; 20 henry 120 m.a. (325 ohms), 10/6.

MAINS Transformers.—All tapped and screened primaries, L.T. windings C.T.: 500-0-500, at 120 m.a., 4v. 2.5a., 4v. 5a., 4v. 2a., 21/-; 350-0-350 at 120 m.a., 4v. 2.5a., 4v. 4a., 4v. 1a., 19/-; 250-0-250 at 75 m.a., 4v. 1a., 4v. 5a., 12/6; 250-0-250, 60 m.a., 4v. 1a., 4v. 3a., 4v. 1a., at 12/-. Note.—All transformers, chokes and condensers guaranteed against breakdown for 12 months.

RADIO Gramophone Cabinets, Marconiphone 535, walnut, 40½x19½x16, take chassis up to 39½x18½x14½, cost to make £8, at £2/12/6.

ASK for Special Quotation for Anything You May Need.—Chal-Electric, No. 6, Conduit St., London, W.1. [3442]

EBURY BRIDGE RADIO Co. Offer the Following Stupendous Bankrupt and Set Manufacturers' Surplus Bargains.

AC. H.T. Eliminators, 200/250v. input, 150v. 30 m.a. output, 2 pos. tappings, one fixed, one variable, Westinghouse rectified, finest components, guaranteed, special summer price, 25/-; 3 pos. tappings, for S.G., 28/6, post 1/3; also in 100/110v.

DC. Mains High Tension Eliminators, 200/250v. input, output 150 volts 30 m.a., 2 pos. tappings, one variable, 10/-; 3 positive tappings, for S.G., 12/6; post 9d.

GENUINE Reiss P.A. Microphones for all Amplifiers up to 60 Watts, straight line response, 52/6; transformer, 5/-; nickel plated stand, with rubber suspension, cxy base, 12/6; post 1/-.

EX Ekco Mains Transformers, suitable Ferrarct III, tapped input 200/250v. 50c., outputs 350-0-350v. 70 m.a., 4v. 2a., 4v. 3.4a. C.T.; 9/6, post 9d. a real bargain; few only.

EX Ekco Smoothing Chokes, 50h. 50 m.a., C.I.; 5/6; post 6d.; few only left.

PHILLIPS Mains Transformers, at ridiculous prices, input 200/250v., outputs 200-0-200v. 40 m.a., 4v. 1a., 4v. 3-4a.; 4/6; post 9d.

PHILLIPS Heavy Duty Smoothing Chokes, 50h. 75 m.a.; 4/6; post 9d.

SPECIAL Summer Offer of Ebury Electric Clock Movements, 200/250v. 50 cycles; special slow speed motor; write for full details; 16/6; post 6d.; this offer soon closing.

CONDENSERS.—T.C.C.'s 3 M.F., 800v. working, 5/-, post 6d.; 4 M.F., 500v., 2/3, post 3d.; 15 M.F., 100v. working, for auto G.B., 1/3, post 3d.; 9 M.F. (4+4+1) 500v., 5/-, post 6d.; Wego's 9 M.F. (4+2+2+1) 500v. 3/6, post 6d.; 2 M.F., 1,000v. 2/-, post 3d.; in perfect condition.

CHASSIS Mounting Valve Holders, 4- and 5-pin, 3d. each, 2/6 doz, post 1½d. and 2½d.; Dubilier resistances, vacuum, 5 watt, 50,000 and 100,000 ohms, 1/- each, post 1½d.; Pye ½ watt wire wound 10,000, 7,500 ohms, 4½d.; Globar metallized 500 ohm, 2 watt, 6d., post 1½d.

ROLA F6 Moving Coil Speakers, 6,500 ohms, pentode; R 14/-; A.C. mains, 24/-; post 1/3.

MARCONI 2-valve A.C. Mains Amplifier, 5 Watts output, 100/250v. input, 500v. H.T. screening covers; a real bargain, 60/-; few only.

BT.H. Universal Gramophone Motor, auto stop, £3/3; K.B. Kebra 3-valve A.C. all mains set, housed in fine cabinet, £6/6; in perfect order.

CELESTION Soundex P.M.-M.C. Speakers, 13/6, post 1/3; Celestion Soundex cabinet speakers, P.M., 25/-, post 1/3; Lamplough Silver Ghost, D.C. mains, M.C. speakers, 2,200 and 6,500 ohms, 10/-; post 1/-; Blue Spot 100U inductor speakers, new, boxed, 13/11, post 1/3; Lamplough inductor speakers, list £3/10, 27/6, post 1/3.

READY Radio Short Wave Coils, 1/6, post 6d.; twin lead cable, 1/100d., 11/6 50 yard coil.

MARCONI 531 Radio Iron Cabinets, few only, £4/4; Atlas Console cabinets, take set, batteries, and speaker, 9/11; post 1/3.

SOVEREIGN 3-valve Battery Set, complete with speaker, 5 valves and batteries; complete, £3/3.

FERRANTI 7-valve Superhet, station indicated; list 23 guineas, 10 guineas; in perfect order; send for our bargain lists; all goods 3 days approval, against cash or c.o.d., your safeguard.

EBURY BRIDGE RADIO Co., 33, Ebury Bridge Rd., S.W.1 (near Victoria Station), No. 11 bus to Ebury Bridge) Open Saturday all day. Sloane 8407. [3485]

EPTON Leads Again!—Polar 3-gang 0.0005 tub condensers, fully screened, fitted covers, trimmers, split-end vanes; 9/6.

RESISTORS, cabinets, potentiometers, condensers, coils, transformers, etc.; complete list in

EPTON'S RADIO BULLETIN, Epton, 93, New Rd., Chingford, E.4. ('Phone: Silverthorn 1427.) [3490]

30 G.E.C. New 60-watt Battery Operated P.A. Amplifiers, in teak cabinets; actual list price £45 each, to clear, £2/15 each.

FERRANTI Double Channel Push-Pull Amplifiers, each amplifier 60 watts output, in splendid metal racks, using 2 D.O.25 valves in each last stage, bargain, £25, for 110-230v. A.C. mains; 4 Siemens Halske new 30-watt A.C. amplifiers, complete with valves, £6/10 each.

10 D.C. to A.C. Convertors by Crypto, M-L, and Lang Electrical, ranging from 40 to 440 watts; prices on application.

3,000 Siemens Halske Condensers, 0.1 to 10 mfd., from 500 to 3,500v. test; prices on application.

WESTON 0-600v. Moving Coil Voltmeters, model 506, 500 ohms per volt, ditto Turners, price 25/- each; Weston 0-20 amps, model 506, price 7/6 each; Zenith sliding resistance, 6 chms 5 amps., 7/6 each.

GE.C. Smoothing Equipments, comprising of 20h. 200 m.a. choke, ditto, 30h. 50 m.a., four 3 mfd. and two 1 mfd. 800v. working condensers; 22/6 each.

LAST Few Driven and Pull Through Sound Heads by B.T.A., Mihal, B.T.P., some with Taylor Hobson optical systems; prices on application.

H. FRANKS, 42a, St. George St., Commercial Rd., London, E.1. 'Phone: Royal 8546. [3467]

POLAR .0005, 2/6; A.F.3, 10/6; Wearite Oscillator, 4/6; exchange willingly.—Haynes, 29, Lee St., Kingsland Rd., E.8. [3449]

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BIGGER & BETTER THAN EVER

269 ILLUSTRATIONS

More Radio Components than ever are included in this New Season's Catalogue. The Guide to Home Constructors.

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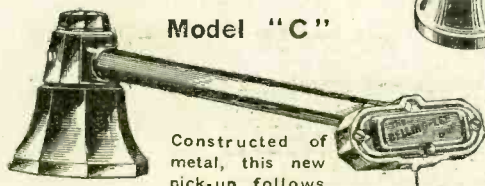
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Telephone: Holborn 2072.

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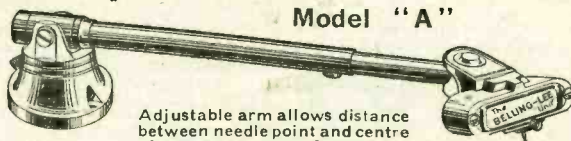


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Constructed of metal, this new pick-up follows modern design in appearance and technique.

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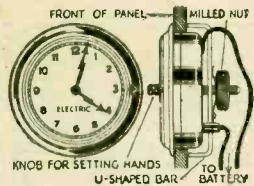
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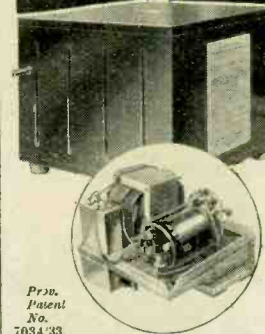
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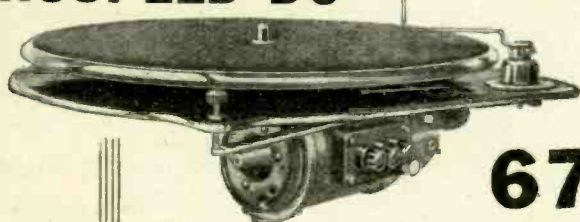
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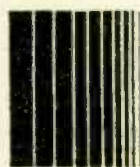
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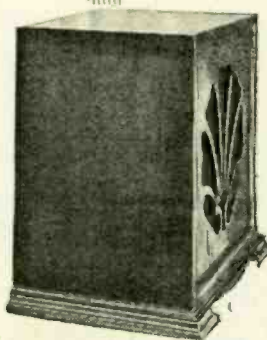
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WEDNESDAY

SEPTEMBER THE TWENTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

- | | |
|-------------------|--|
| NATIONAL | Promenade concert from Queen's Hall. |
| LONDON | Charlot's Hour. |
| REGIONAL | |
| MIDLAND | Gwen Lewis's Entertainers, relayed from Cheltenham Spa. |
| REGIONAL | |
| NORTH | Relay from the Hippodrome, Manchester. |
| REGIONAL | |
| WEST | "Tomos Bartley and those College Boys," from the novel "Rhys Lewis" (Daniel Owen). |
| REGIONAL | |
| SCOTTISH | Orchestral concert. |
| REGIONAL | |
| BELFAST | Variety programme. |
| ABROAD | |
| BARCELONA | 7.0 p.m. Trio concert. |
| BRUSSELS | 6.15 p.m. Baritone song recital, by Daniel Harris. |
| (No. 1) | |
| BRUSSELS | 8.0 p.m. The Station Symphony Orchestra, conducted by Meulemans. |
| (No. 2) | |
| COPENHAGEN | 10.15 p.m. The Station Orchestra, conducted by Lanny Gröndahl. |
| | 8.30 p.m. Symphony concert, conducted by Flament. |
| EIFFEL | |
| TOWER | |
| HILVERSUM | 9.25 p.m. Organ recital, by Bouwmeester. |
| HUIZEN | 7.55 p.m. The Station Orchestra, conducted by De Groot. |
| | 8.45 p.m. Opera: "Ruy Blas," by Marchetti. |
| ROME | 8.0 p.m. Brahms concert. |
| STOCKHOLM | 8.30 p.m. Operetta: "A Waltz Dream," by Oscar Straus. |
| STRASBOURG | |

ATHLONE
725 kc/s, 413 metres; 60 kW. Relayed by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time Signal, Weather Report, Stock Report, and Gramophone Music. 4.0, Concert by the Savoy Instrumental Quartet. Soloist, W. J. Lemass (Songs). 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, German Lesson. 7.30, Time Signal. 7.31, Music by the Station Orchestra. 8.0, Concert by the Caledonian Male Voice Choir. 8.30, Traditional Fiddle Solos. 8.45, Anglo-Irish Songs by Edie O'Dwyer (Soprano). 9.0, Irish Music by the Station String Orchestra. 9.10, Recital of Songs by Irish Composers, by J. O'Neill (Tenor). 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Concert of Light Music: The Frog King's Parade (Marriot); Dance of the Tea Dolls (Schmidt-Hagen); Xylophone Solo, The Blue Danube (Strauss); Shepherd's Hey (Grainger); Cheery Song Memories; Highland Schottische; A Shower of Notes (Steele); Autumn Leaves (Vogelin). 10.0, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of the Hospitals Trust, Ltd.: Signature Tune, Come Back to Erin; Selection from The Gipsy Baron (Strauss); La fiense (Raff); Gavotte in B Flat (St. Denis); Black Eyes (Ferraris); Violin Solo, Souvenir (Drilla); Selection from Lilac Time (Schubert-Berthé); March (France); Signature Tune. 10.29, I.B.C. Goodnight Melody. 10.45, News and Weather Report.

BARCELONA
EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trip Concert: Selection from Don Giovanni (Mozart); Serenade (Van den Eyne); Romantic Piece and Gavotte (Chaminade); Aria from Louise (Chaprentier); Love Song from The Valkyrie (Wagner); Selection from A Masked Ball (Verdi). 8.0, Request Gramophone Music. 8.30, Exchange. 9.0, Gramophone Music and News. 10.0, Chimes from the Cathedral, Weather, Exchange and Market Prices. 10.5, Dance Music, followed by Concert by the Station Orchestra and Relay from the Guildhall. 12 Midnight (approx.), News.

BARI
1,112 kc/s, 269.8 metres; 20 kW.—See Rome.
BASLE.—See Schweizerischer Landessender.

BERLIN
DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—12 Noon, Weather. 12.55 p.m. (approx.), Gramophone Concert. 12.55, Time Signal. 1.45, News. 2.0, Gramophone Concert: Overture, Rosamund (Schubert); Anitra's Dance (Grieg); Arabian Dance (Grieg); Carnival roman (Berlioz); Melodies from The Cousin from Nowhere (Künneke); Selection from Wiener Blut (Strauss); Waltz, Die Werber (Lanner); Waltz, Hofballtänze (Lanner); Tanz der Schornsteinfeger (Glahe); English Hornpipe; Song from Die Fledermaus (Joh. Strauss). 3.0, Concert of Light Music. In the interval at 3.30, Weather and Exchange. 4.0, Reading from Fortunatus. 4.15, Concert from Hamburg. 5.0, In a Fashion Studio. 5.20, Chopin Song and Pianoforte Recital: Else Krauss (Pianoforte) and Margarete Vogt-Gelhardt (Soprano); Pianoforte Solos: (a) Two Preludes, (b) Nocturne in C Minor, (c) Two Mazurkas, (d) Songs; Six Songs from the Polish Songs. Op. 74; Pianoforte Solos: (a) Scherzo in C Sharp Minor, (b) Waltz in A flat. 6.0, Poems. 6.5, Religious Address. 6.35, Wireless Technical Talk. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations relayed from Stuttgart. 8.0, To-day's Motto. 8.5 (approx.), Wein der Trene—a Radio Play (Else Kraft-Stramm). 9.10, See Heilsberg. In the intervals at 10.15, Weather and News, and 10.45, Weather. 12 Midnight, Close Down.

BERLIN
FUNKSTUNDE, 715 kc/s, 419.5 metres; 15 kW.—4.30 p.m., Military Band Concert, relayed from the Spreegarten, Treptow: Conductor: Paul Müller; March, loch Rheinland (Anzer); Overture, The Caliph of Bagdad (Boieldieu); Waltz on Airs from Zeller's Operettas (Thiele); Potpourri, Rheinischer Song (Hammann); Scottish Caprice, Echo des Bastions (Kling); Tannenbergmarsch (Wachlin); March, Erinnerung an Dänemark (Janssen); Waltz, O Frühling we bist du so schön (Lincke). 5.25, Talk: Education under the New Régime. 5.45, Parfita in E for Violin (Bach), by Grete Eweler. 6.5, See Berlin (Deutschlandsender). 6.40, The Funkstunde informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.5, Programme from Munich. 9.0, Community Singing. 9.30, Radio Report from A Watchmakers' Work Shop. 10.0, Weather and News. 10.10 (approx.), Dance Music by the Kernbach Band, relayed from the Spreegarten, Treptow. In an interval at 11.0, Talk. 12 Midnight (approx.), Close Down.

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

BORDEAUX-LAFAYETTE
986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.45, News. 8.0, Concert of Gramophone Music. 9.0 Symphony Concert.

BRATISLAVA
1,076 kc/s, 279 metres; 14 kW.—6.25 p.m., Gramophone Concert. 7.0, See Prague. 10.50 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU
923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,184 kc/s, 253 metres.—2.5 p.m. (from Gleiwitz), Song Recital by Margarete Franz (Soprano). 2.35, Dance Music on Gramophone Records. 3.0, Market Prices. 3.15, Talk: A German Student in Prague. 3.35, Talk for Parents. 3.55, Talk: Mt. Etna. 4.15, Schubert Pianoforte Recital by Margarete Slawik; Wanderer-Fantasia, Op. 142, No. 2; Moment Musical, Op. 94, No. 5. 5.5, Zither and Lute Recital. 5.45, Market Prices. 5.50 (approx.), Review of the September Number of Der Oberschlesier. 6.5, German Songs of Freedom—by the Upper Silesian Choral Society. 6.50, Meat Market Prices. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, News. 8.10, Topical Talk. 8.25, Pianoforte Concerto in A (Mozart), by Georg Dohrn and the Silesian Philharmonic Orchestra, conducted by Hoesslin. 9.5, Talk: Why are we organising Folk Dancing Lessons? 9.20, The Fourth Symphony in E flat (Bruckner), by the Silesian Philharmonic Orchestra, conducted by Hoesslin. 10.10 (approx.), Programme relayed from Munich. 10.20, Time and News. 10.45, Light Music and Dance Music from the Café Vaterland. 12 Midnight, Close Down.

BRNO
878 kc/s, 342 metres; 35 kW.—2.50 to 10.50 p.m., See Prague.

BRUSSELS (No. 1)
I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Gramophone Music: Acts II and III of La Bohème (Puccini); Potpourri, What's next? (Finck). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Luffin Orchestra. 5.0, Concert by the Station Symphony Orchestra, conducted by Menlemans. Soloist: Théo Delvenne (Violin); Ronde wallonne (Jongen); Divertissement on Transylvanian Airs (Samuel); Elegy for Violin and Orchestra (Bernart); Suite printanière (Dame); La lune et les peupliers (Roger); Orchestral Suite (Kulman). 12 Noon, Talk: Confessions of a Globe-Trotter. 6.15, Baritone Song Recital by Daniel Harris: Serenade from Don Giovanni (Mozart); Prologue to I Pagliacci (Leonavallo); Le secret (Fauré); Les ber-

ceaux (Fauré); D'une prison (Hahn); Negro Spirituals (Burleigh): (a) Every Time, (b) Didn't it rain? (c) Go down Moses, (d) The Gospel Train, (e) Swing low, sweet Chariot. 6.45, Le billet de loterie—Sketch (Lauville). 7.0, Gramophone Concert: Hungaria (Ducet); Schön Rosmarin (Kreisler); La crquette (Clérice); Polka rondo, L'oiseau tapageur (Balleron); The Clock is playing (Blauw). 7.15, Talk for Housewives. 7.30, Talk on Hygiene. 8.0, Extracts from Lilac Time—Operetta (Schubert-Berté), by the Radio Orchestra, conducted by André, and Soloists. 8.45 (approx.), Dramatic Programme: (a) Les méchants spécialistes—Monologue (Tristan Bernard), (b) Un mari qui chasse—Farce (Eugène Clavette).

BRUSSELS (No. 2)
N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Orchestral Concert. 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert. In a Monastery Garden (Ketelbey); Gascon Song, L'Arrenoulat (Bouyer); Andalusian Airs (Gomez); Ombrage (Meyerbeer); Melodies from Auvergne (Debrons); Villanella from the Sonata in G (Pianelli-Salmon); You are my Heart's Delight from The Land of Smiles (Lehar); Two Airs from Sylvia (Delibes). 5.0, Dance Music relayed from the St. Sauveur Palais de Danse. 6.15, Talk. 6.30, Grieg Song Recital by Franz Schell. 6.50, Gramophone Music. Toccata (Scriabin); Pastoral with Variations (Mozart); Sonata in F (Händel-Tertis); Scherzo from a Quartet (Rinsky-Korsakov); Iberian Dance (Nin). 7.15, Protestant Address. 7.30, Horticultural Talk. 8.0, Symphony (Tchaikovsky) by the Station Symphony Orchestra, conducted by Meulemans. 8.45, Gramophone Music. Quartet No. 3 (Dalyrac); Nocturne (Schelling). 9.0, Brigade Exchange—Play (Johannsen art. Bevershuis). 10.0, Le Journal Parlé.

BUCHAREST
761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra. March (Dicker); Wiener Bonbons (Strauss); Intermezzo from Tielland (d'Albert); Spinning Chorus and Ballad from The Flying Dutchman (Wagner); Selection from La Bohème (Puccini). 6.0, Radio Journal. 6.15, Concert (contd.). Potpourri, Fortissimo (Kálmán); Characteristic Piece (Manfeld); Intermezzo (Tellier). 7.0, Educational Programme. In the interval at 7.20, Gramophone Music. 8.0, Viola Recital by L. Mendelssohn. Suite (Alfred Mendelssohn); Arioso and Presto in Romanian Style (Golestan). 8.30, Talk. 8.45, Carnival Suite (Schumann) by Eduard Stein (Pianoforte). 9.15, Cello Solos. 9.45, Radio Journal. 10.0, Light Music relayed from a Restaurant.

BUDAPEST
545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 8.15 p.m. till Close Down.—5.30 p.m., Radio Concert. 6.0, Italian Lesson. 6.30, Concert by the Opera House Orchestra, conducted by Fridl. 7.45, Humorous Programme. 8.15, Light Music by the Mocsanyi-Lakos Band. 8.45, Review of Foreign Affairs. 9.0, Viktor Lanyi and Hugo Kellen Song Recital by Maria Baslides and Andreas Rösler. 10.0, News. 10.15, Concert by the Arpad Toll Cigany Band, relayed from the Patria Café. 11.0, Talk in German: The Tragic Lot of Man. 11.20, Dance Music by the Bachmann Band, relayed from the Café Bodo.

CASSEL.—See Frankfurt.

COPENHAGEN
1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time Signal and Chimes from the Town Hall. 12.2 p.m., Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. 1.15, Broadcast for Schools. 1.35, Interval. 3.0, Gramophone Concert of Variety Music. 3.30, Concert by the Mogens Hansen's Instrumental Ensemble: Romanian Festival Overture (Kéler Béla); Two Melodies (Dohnányi); Waltz, Le retour du printemps (Waldteufel); Song (Chavarrri); Selection from The Mikado (Sullivan); Overture, Le carnaval de Venise (Thomas); Ballet Music from The Cid (Masseuet); Lullaby (Henriques); Overture, La sirène (Auber). In an interval at 4.15 (approx.), Talk for Women. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, French Lesson. 6.45, Weather. 6.54, Announcements. 7.0, News. 7.15, Time Signal. 7.30, Agricultural Talk. 8.0, Time Signal from the Town Hall. 8.1, The Orchestra and its Instruments—Talk with Musical Illustrations. 9.10, Pianoforte Recital of French Music by Folmer Jensen: Chanson triste (Duparc); Song (Lalo); Les différences (Leparra); Corsican Song—Ninina (Romassi); Poème d'un jour (Fauré). 9.30, Religious Address. 10.0, News. 10.15, Concert by the Station Orchestra, conducted by Lanny Gröndahl: Overture, Le roi La dit (Delibes); Two Swedish Folk Melodies (Svensen); Slav Dance in C (Dvorák); Slav Dance in F (Dvorák); Waltz from Faust (Gounod); Ballet Music from Aida (Verdi); Honage March from Sigurd Jorsalfar (Grieg). 11.0, Dance Music, conducted by Jens Wærny, relayed from the Nimb Restaurant. In an interval at 12 Midnight, Time Signal and Chimes from the Town Hall. 12.30 a.m. (Thursday), Close Down.

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

FECAMP
1,328 kc/s, 225.9 metres; 10 kW.—11.0 to 12.0 Noon, Programme in English by the I.B.C. 11.0, The Happy Hour. Part 1—Request Hour: Signature Tune, Cupid's Army (Sievier); The Match Parade (Wette); Poème (Fitch); Her Name is Mary (Sievier); Aloma (Bowers); After the Ball (Harris); Liebestraum (Liszt); Blaze Away (Holzmann). Part 2—Dance Music: Stay out of my Dreams (Washington); I can't remember (Irving); Sweetheart Darlin' (Kahn); When Gimble hits the Cymbal (Gordon); There's a Cabin in the Pines (Hill); Maybe I love you too much (Berlin); Seven Years with the Wrong Woman (Muller); At the Old Pig and Whistle (Butler); Signature Tune. 12.0 Noon, Programme in French. 4.30 to 6.0 p.m., Programme in English by the I.B.C. 4.30, Programme for Children. 5.0, Concert for Portsmouth and Southsea Listeners. Members' Request Half-Hour: Signature Tune, The Night by the Sea; Woodland Peace (Favilla); Love's Old Sweet Song (Molloy); Bells across the Meadow (Ketelbey); Songs that are old live for ever (Warich); Poor Man's Garden (Russell); The Old Rustic Bridge by the Mill (arr. Wood); Trees (Rashach); Moonlight on the Alster (Fetras). 5.30, Organ Recital for Isle of Wight Listeners: Glow Worm Idyll (Lincke); Indian Love Call (Frim); The Kiss Waltz (Burke); Horses carry Tails (Redmond); Somewhere a Voice is calling (Tate); Bouncing Ball (Wark); Thompson's Old Grey Mule (Pickard); Popular Melodies on a Wurlitzer; Signature Tune. 6.0, French Programme. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune, Bells of Normandy; Get Happy (Arlen); Look what I've got; The Shadow Waltz (Warren); Hold me (Little); I'm getting sentimental over you (Baffmann); I've got to sing a Torel Song (Warren); Rock-a-bye (Lang); Let's all be happy together (Thomas); Land of Love and Laughter (Gottler); Piccaninny; Smilin' through (Penn); Sing a New Song (Wever); Bogle Call Rag (Schoebe); Meet me in the Gloaming (Goodhart); My Love Song (Burnaby); That's what life is made of (Noble); Signature Tune. 11.0, Sound Film Music: Signature Tune: Sittin' in the Dark; Selection from The King of Jazz (Whiteman); Live, Laugh and Love (Heymann); Blonde Women (Hollander); There's Magic in the Air; The Moment I say you (Gay); The Birth of the Blues (Henderson); But for you

SEPT. 20th

WEDNESDAY

continued

(Hollander): Maurice Chevalier Potpourri; Signature Tune. 11.30, Club Concert for Workshop Listeners. Part 1—Military Band Music: Signature Tune: The Chum Song; The Gladiator March (Sousa); Le réve passe (Krier); Fire Star; Saxophone Solo: The Huntsman (Nelson); En promenade; Shenandoah (arr. Terry); Loia du bal (Gillet); Ben Hur March. 12.5 a.m. (Thursday), I.B.C. Late News Bulletin in English. 12.10 (approx.). Club Concert. Part 2—Oh, I wish I could sing a Love Song; I lost my Girl from Memphis; I'm yours; The Japanese Sandman; Shoo the Hoodoo away; Signature Tune. 12.30, Dance Music by the Blue Mountaineers (Electrical Transcriptions): Fit as a Fiddle; Taboo, Taboo; All over Italy; When my little Pomeranian: You've got me crying again; Two Buck Tim from Timbuctoo: When it's Lamp-lightin' time; The Language of Love; Won't you stay to Tea; There's a Tiny little Hair upon your shoulder. 1.0, Dance Music: Signature Tune: Bells of Normandy; Twenty Million People; Sweetheart; Moon Song; Can't we meet again; Rose Mia; My Heart's to let; Seven Years with the Wrong Woman; Well! Well! Well!; I cover the Waterfront; The Lady I love; Jack-in-the-Box; Honeysuckle Rose; Adorable: Letting in the Sunshine; Down the Old Ox Road (Caslow); Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

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

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,200 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m., Talk. 6.25, Topical Talk. 6.45, To-day's News. 6.50, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, See Munich. 9.0, A German Motor Factory brings out a New Car—Radio Report from the Works. 9.50, Unfamiliar Music by Schumann—Song and Pianoforte Recital by Hans Kosband and Reinhold Merten, with Commentary by Dr. Karl Geiringer: Three Songs: (a) Sehnsucht, (b) Gesanges Erwachen, (c) An Anna; Pianoforte Duet; Polonaise; Songs: (a) Die Weimede, (b) Kurzes Erwachen, (c) Erinnerung. 10.30, Time and News. 11.0, Dance Music from Heilsberg. 12 Midnight (approx.), Close Down.

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

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—4.0 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz. Overture, William Tell (Rossini); Polkina (Reesen); Idyll (Kaun); Ballet Music from Czar and Carpenter (Lortzing); Selection from Don Cesar (Delinger); Wonntraum (Meyer-Helmuud); Waltz from Der Feldprediger (Müllöcker). 5.0, Old Calendars—Some Amusing Extracts. 5.30, Hamburg, Bremen and Lübeck—Report on Events in the Senates and Houses of Burgesses of the Hanseatic Free Cities. 6.0, Reading (Lulu von Strauss and Torney). 6.30, Talk and Reading (Konradin Kreutzer). 6.45, Frankfurt Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, See Munich. 9.0, Announcements. 9.10 (from Hanover), The Poetry of the Romantic Period in Settings by Max Peters. The Composer (Pianoforte). Curt Huxdorf (Songs) and Harry Moss (Recitations). Poems of Dehmel, Claudius, Liliencron and Storm. 10.0, News. 10.10, Topical Talk. 10.20, Dance Music from Berlin (Funkstunde).

HANOVER.—See Hamburg.

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—1.5 p.m., Gramophone Concert. In the intervals at 1.20 and 2.0, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Agricultural Prices and Exchange. 3.20, Hints for the Housewife. 3.30, Programme for Children. 3.55, Programme for Parents. 4.20, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Die Matrosen (Flotow); Suite, Poems of May (Mouton); Waltz, Grünelbanner (Strauss); Second Italian Suite (Beccce); Selection from Der Nachttag von Granada (Kreutzer). In the interval at 5.0 (approx.), Book Review. 5.50, Talk: Tyrolean Peasant Plays. 6.15, Agricultural Prices. 6.25, Pianoforte Recital by Elisabeth Szage:

Fantasia in C minor (Bach); Symphonic Studies (Schumann); Etude in A minor (Chopin). 6.50, Weather. 7.0, Programme for all German Stations, relayed from Stuttgart. 8.0, Programme of Munich Humour, relayed from the Platzl, Munich. 9.0, Weather and News. 9.10, Light Music and Dance Music by the Small Station Orchestra, conducted by Wilcken and the Börschel Dance Band. In the interval at 10.15, Weather, News, and Sports Notes. 12 Midnight, Close Down.

HILVERSUM

Announced HILVERSUM, 1,013 kc/s, 296.1 metres; 7 kW. (until 5.40 p.m.), and 20 kW. from 5.40 p.m. Programme of the Christian Radio Society (N.C.R.V.). 11.40 a.m., Police Notes. 11.55, Gramophone Music. 12.10, Quartet Concert: Overture, The Tales of Hoffmann (Offenbach); La villanella rapita (Mozart); Doloroso (Oudshorn); Overture, Martha (Flotow); Mädchenlieden (André); Gramophone Music: March, El Capitan (Sousa); Overture, Oberon (Weber); Melody (Hoffmann); Ländler, Alpenveilchen (André); Selection from Die Fledermaus (Joh. Strauss). 1.40, Interval. 1.50, Gramophone Music. 2.40, Bible Reading. 3.10, Concert by the Kunst en Genoegen Girls' Choir, conducted by Ferdman, with Gramophone Interludes. 4.40, Programme for Children. 5.40, Agricultural Talk. 6.10, Talk. 6.40, Police Report. 6.55, Ecclesiastical Notes. 7.10, Talk. 7.40, Concert by the Salvation Army Band, with the Station Orchestra and Choir. 9.10, Gramophone Music. 9.25, Organ Recital by Bouwmeester. In the interval at 9.40, News. 10.25, Gramophone Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk on 50 kw. from 3.40 p.m.—11.40 till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Organ Recital by Jong. 12.10 p.m., Concert by De Fliedersuiters. In the interval, Gramophone Music. 1.10, Concert by the Small Station Orchestra, conducted by de Groot. Selection from A Nous la Liberté (Auric); Brise de mer (Leoncavallo); Poème (Bibich); Waltz from Die geschiedene Frau (Fall); Ridonami la calina (Tosti); Serenade (Heykens); Servus Wien (Stolz); Flirtation (Steck); Little Viennese March (Kreisl); Gramophone Records: Overture, Gri-Gri (Lincke); Mattinata (Leoncavallo); La toupie (Gillet); White Negroes (Berger); Vorrei morire (Tosti); Chinese Tambourine (Kreisl); Wien wird bei Nacht erst schön (Stolz). 2.40, Programme for Children. 5.10, Organ Recital by Steyn. 5.40, Recitation. 5.55, Gramophone Concert. 6.40, Talk. 6.55, Concert by the Small Station Orchestra, conducted by de Groot. Soloist: Jong (Organ). 7.40, S.O.S. Messages. 7.42, News. 7.55, Concert by the Station Orchestra, conducted by de Groot: Overture, Mignon (Thomas); Waltz from The Prophet (Meyerbeer); Prelude to Werther (Massenet); Bacchanal from Samson and Delila (Saint-Saëns); Berceuse from Jocelyn (Godard); March from The Queen of Sheba (Gounod). 8.25, Songs by Lisette Stevens. 8.40, Orchestral Concert (contd.): Selection from Maximilian Robespierre (Litolff); The Secret of the Adige (Carena); The Student passes by (Ibanez); Melody (Gungl); Selection from Hansel and Gretel (Humperdinck). 8.25, Song Recital. 9.30, Song Recital (contd.). 9.40, Gramophone Music. 10.10, Concert by De Fliedersuiters, conducted by Ray Forest. 10.55, Talk. 11.10, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.5 p.m., Talk: Italy. 7.25, Announcements and Gramophone Music. 7.40, See Warsaw. 10.40, Dance Music. 11.0, The Letter Box in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Songs, Choral and Instrumental Music (on Gramophone Records). 1.15 p.m., News. 1.30, Concert by the Station Orchestra, conducted by Werner Göhre: Waltz, Künstlerleben (Strauss); Liebeslied (Schütt); Canzonetta (Schütt); Suite, Aus aller Herren Länder (Moszkowsky); Viennese Dances (Friedman-Gärtner); Potpourri, Pikante Blätter (Komzak). In the interval at 2.0, News. 3.0, Handicrafts Lesson. 3.30, Exchange and

Time Signal. 3.50, Programme for Young People: Ten Cologne Boys travel through East Prussia. 4.30, Topical Talk. 4.40, Talk on Insurance. 5.0, Light Music on Gramophone Records. 5.30, Chamber Music by the Station String Quartet: Quartet in A (Dittersdorf); Divertissement (Michael Haydn); Italian Serenade (Wolf). 6.15, Radio Report from the Fair. 6.35, A Westphalian Legend. 6.45, News. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, General News. 8.5, Concert by the Münster Municipal Orchestra, conducted by Jochum. Soloists: Ilide Göhre (Harpischord) and Karl Spiegel (Bassoon); Symphony in B Flat (Bach); Concerto for Harpischord and Orchestra (Haydn); Concerto for Bassoon and Orchestra (Mozart); Ent'acte and Ballet Music from Rosamunde (Schubert); Overture, Die Fledermaus (Joh. Strauss). In the interval, Talk on Lulu von Strauss and Torney. 10.0, News. 10.20, A Flying Visit. 10.35, Dance Music from Heilsberg. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12 Noon, Weather and Time. 12.5 p.m., Concert by the Leipzig Symphony Orchestra, conducted by Alfred Schiröter, relayed from the Capitol. Soloist: Erich Neumann (Organ). In the interval at 1.0, News. 2.0, News. 2.30, Talk: Motors and Drivers. 3.0, Book Review. 3.20, Swabian Stories on Gramophone Records. 3.35, Market Prices. 4.0, Peter the Cabin-Boy—Radio Play for Young People (Dieffenbach), with Music by Fritzsche. 4.50, Choral Concert relayed from Halle. 5.30, Reading of Animal Stories. 5.50, Weather and Time. 6.0, Talk: The Peasants in Thuringia. 6.20, Modern German Songs by the Eintracht Male Voice Choral Society: Wach auf, du deutsches Land (Walther-Khab); Das neue Lied (Lürmann); Deutscher Frühling naht (Lürmann); Von Freiheit und Vaterland (Goepfert); Heimat, liebe Heimat (Prelh); Ich kenn' ein' hellen Edelstein. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, See Munich. 9.0, Concert of Scandinavian Music. The Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloists: Lena Eichler (Soprano), Fritz Weitzmann (Pianoforte) and Friedbert Sammler (Celeste). Norwegian Suite (Schjelderup). Songs (Schjelderup): (a) Ein Blumenstrauß, (b) Verräter der Liebe. (c) Wiegenlied. Pianoforte Concerto No. 2 Op. 33, The River (Palmgren). 10.5, News. 10.30, Serenades on Gramophone Records. 11.0, Dance Music, relayed from Heilsberg. 12 Midnight, Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—10.30 to 11.0 p.m., Programme in English by the I.B.C. 10.30, International Broadcasting Club Concert: You loving me; Little Yvonne; Flower of Spain; Ziganette; Why be so unkind to me; We all wanna know why; Selection from The Count of Luxembourg (Lehár).

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Die Felsenmühle (Reissiger); Selection from Faust (Gounod); Lullaby (Reger); Serenade (Tarenghi); Suite, Greenland (Frederiksen); Sur le lac (Gard-Salabert); Selection from Casanova (Lincke). 1.30, Gramophone Concert. 7.30 till Close Down, Luxembourg Programme. 7.30, Concert by School Children. 8.20, Concert by the Station Orchestra: Overture, Mignon (Thomas); Selection from Samson and Delilah (Saint-Saëns); Selection from La Bohème (Puccini). 8.50, News in French. 9.0, Song Recital by Nicholas Schuh; Songs from: (a) Carmen (Bizet), (b) Herodiade (Massenet), and (c) Mignon (Thomas); Enfant, si j'étais roi (Liszt); Cavatina from La dame blanche (Boieldieu). 9.30, Variety Concert by the Station Orchestra: Prince Jean (Mertens); Dickiana (Kahnt). 9.50, News in German. 10.0, Variety Concert (contd.): Suite, Il menestrello (Amadei); In the Steppes of Central Asia (Borodin); Ballet égyptien (Luigini). 10.30, Dance Music on Gramophone Records.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kw.—7.30 p.m., Radio Gazette for Lyons and the South East. 8.30, Concert Version of The Barber of Seville—Opera (Rossini). After the Programme, News Bulletin.

MADRID

ARANJUEZ. EAQ, 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m., Popular Concert. In the interval at 11.45, Radio Chronicle. 12.40 a.m. (Thursday), Light Music. 1.0 (approx.), Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal, Programme for Women, Gramophone Records, and Dance Music. 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time Signal, and Topical Review. 11.20 (approx.), La locandera—Play (Goldoni), arranged for Radio. 1.15 a.m. (Thursday), Topical Review and News. 1.30, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 to 10.50 p.m., See Prague.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres and Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m., Orchestral Concert, conducted by Karl List: Soloist: Walter Heinze (Oboe); Hungarian March (Fueck); Comedy Overture (Scheimpflug); Oboe Concerto (Haydn); Selection (Maasz); Serenade in D (Dräsecke); Chromatischer Galopp (Liszt). 5.45, A Discussion with Two Workmen—Mechanics in a Motor Factory. 6.5, Sonata in B minor for Cello and Piano-forte (Kuhn), by Willy Esterl and Thea Bischoff. 6.25, Talk: On the Volga. 6.45, Time, Weather and Agricultural Report. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Humorous Munich Programme, relayed from the Platzl. 9.0, Concert of Folk Music. 10.0, Austria. 10.20, Time and News. 11.0 Dance Music relayed from Stuttgart. 12 Midnight, Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.30 p.m., Concert by the Station Ensemble, relayed from Bergen, 824 kc/s, 364 metres: Overture, Orplius in the Underworld (Offenbach); Waltz, Künstlerleben (Joh. Strauss); Russian Dance, Livonie (Bach); Ritorna (Carosio); Selection from The Czarevitch (Lehár); Goodbye (Tosti); Norwegian Dances (Grieg). 6.30, Programme for Girls. 7.0, News. 7.30, Talk on the Norwegian Language. 8.0, Time Signal. 8.1, Concert by the Station Orchestra, conducted by Hugo Kramm: Elegiac Suite for Strings (Rangström); Pianoforte Concerto in G minor, Op. 22 (Saint-Saëns); Andante from Symphony No. 5 (Beethoven); Suite erotique (Lurim); Largo from the Symphony, From the New World (Dvorak); Spanish Rhapsody (Chabrier); Overture, Patrie (Bizet). 9.30, Market Prices. 9.40, News. 10.0, Topical Talk. 10.15, Programme to be announced. 10.45, Dance Music on Gramophone Records. 11.30 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. 8.20, Gramophone Music. In the interval at 8.30, Time and Announcements. 8.45, Concert: Slav Dance (Dvorák); Nocturne (Martucci); Introduction and Wedding Procession (Rimsky-Korsakov); Violin Solos: Two Caprices (Paganini); Soprano Solos: (a) Aria from Ero e Leandro (Bottesini), (b) Aria from Ricordando (Giovane); Pianoforte Solos: Two Preludes (Bach); Violin and Pianoforte Duets: (a) Prelude and Allegro (Pugnani-Kreisl), (b) Paravento giapponese (Arno), (c) Scene infantile (Napoli); Allegro (Schubert); Tambourin (Rameau); Minuet (Debussy); Hungarian Dance No. 5 (Brahms). In the interval, Talk. 10.0 (approx.), Gramophone Music. 11.0 Giornale Radio.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and G-dot Signals)—6.45 p.m., Theatre Talk. 7.0, Le Journal Parlé. 8.30, Symphony Concert, conducted by Flamant: Overture, Fingal's Cave (Mendelssohn); Minuet from Orplius (Gluck); Melody (Stack); Overture and Minuet; Serenade for Strings (Périllon); Pagode au crépuscule (Flamant); Selection from The Barber of Seville (Rossini); Siegfried Idyll (Wagner); Sevilla (Albéniz); Selection from Il Seraglio (Mozart). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 614 kc/s, 328.2 metres; 60 kW.—7.30 p.m., Impression d'Italie (Charpentier) on Gramophone Records. 7.15, Le Journal Parlé. 7.30, Musical and Literary Programme by Dorival and Mayen of the Comédie Française. L'éventail, Words and Music by Frédéric de Vaze-Jozin; Poem, Jean Renaud (Gérard de Nerval), with Music by Gustave Sandré; L'étoile du soir (Alfred de Musset), with Music by Imile Dens. 8.0, Economic Talk. 8.5, Gramophone Music. 8.30, Le Message—Play in Three Acts (Juliette Mylo). 10.30, Dance Music, relayed from the Lido. 11.0, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Music: Les pupilles de la marine (Chic); Flots d'or (Salabert); Stephanie Gavotte (Czibulka); Indian March (Sellenick). 8.0, Weather and Press Review. 12 Noon, Educational Talk. 12.15, Gramophone Music: Toujours ou jamais (Waldteufel); Aria from Die Fledermaus (Strauss); Eine Nacht in Venedig (Strauss); Serenade (Curtis-Matray). 12.30, Art Notes, followed by Organ Recital from the Gaumont Palace. 1.0 p.m., Market Prices, Weather and News. 1.5, Gramophone Music: Jota aragonesa (Sarasate); Marche militaire (Schubert); Andante Pastorale (Taffanel); Chant d'après-midi (Cuvillier); Simple avenu (Thomé); Le cœur de ma mie (Dalerose); Chant sans paroles (Tchaikovsky); Peau d'âne (Darcieux); Fandango (Turina); Lament (Dvorak); Larghetto (Weber-Kreisler); Les myrtes sont fleuries (Faure); La source (Zabel); Matin d'Octobre (Gautier); Mazurka (Chopin); Ronde de nuit (Glinka); Souvenir des bois d'Avron. 2.0, Exchange, News and Weather. 3.45, Exchange. 7.0, Agricultural Notes. 7.10, Gramophone Music: My Ideal (Whiting-Newell-Chase); Saxophobia (Wiedoeff); Les baraqués (Moudez-Gallego); Toccata Dance (Wiener); Messager d'amour (Witmann); La serenata (Braga); Popular Venetian Airs for Harpsichord. Two Quinars. Ballade des gros Dindons (Chabrier). Glockenspiel Solo: Le perce neige, Cavatina (Raff). 7.50, Exchange and News. 8.0, Songs and Gramophone Records: The Skaters' Waltz (Waldteufel); Petite grand-mère; Selection from The Queen of Spades (Tchaikovsky). Songs: (a) Quand je suis loin de toi (Weber-Sylviano). (b) Sans qu'on le veuille (Boyer-Silesu). (c) Little Grey Home in the West (Löhrl). (d) Tango from White Horse Inn (Benatsky). 8.30, News and Weather. 8.40, Fashion Review by Mlle. José. 8.45, Pianoforte Recital by Pierre Fontaine. 9.15, Press Review and News. 9.30, Gramophone Music: La vie gaie a Kiev (Wetchemitz); Rondo brillant (Weber); Aria (Caldara); Legend (Coppola); Two Arab Poems (Coppola); Chanson (Friml); Valencianas (Cristobal); Scherzo-Valse (Chabrier); Overture, Anacreon (Chernin); Impressions of Damascus (Konguell-Desportes); Waltz (Durand).

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayd by W8XK on 48.86 metres and 25.27 metres.—7.30 p.m., Pontiac and Home Forum. 8.0 to 9.30, New York Relay. 8.0, Betty and Bob. 8.15, Utility Hall. 8.30, Contest and Dixie Days. 9.0, Southern Symphonies. 9.30, Frances Ingram. 9.45, News and Market Report. 10.0, Uncle Tom and Betty. 10.15, Tarzan of the Apes. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News and Talk. 11.15, Sports Notes and a Song. 11.30, Pittsburgh Spotlights. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy, from New York. 12.15 a.m. (Thursday), Rhythm Kings. 12.30, Popular Programme. 1.0, Nomads. 1.30 to 3.0, New York Relay. 1.30, Potash and Perlmutter. 1.45, The King's Jesters. 2.0, History American Legion. 2.30, Ortiz Tirado, Mexican Tenor. 3.0, Quest of Perfect Women.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., Concert. 3.50, Aviation Weather Report. 3.55, Exchange. 4.0 to 6.5, Programme relayed from Pilsen. 4.0, Talk: Gymnastics. 4.10, Talk: Excursions in the Pilsen District. 4.20, A Scene from Student Life at Pilsen. 4.50, Concert. 5.20, Programme for Children. 5.50, Reading. 6.5, Agricultural Programme. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Programme for Workers: Talk and Labour Market Report. 7.0, Chimes and News. 7.10, Reading. 7.25, Talk. 7.35, Relay from the Municipal Theatre. 9.45, Soloist Concert. 10.0, This Signal, News, and Sports Notes. 10.15, Variety Programme from Pilsen. 10.35, News in French. 10.50, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 295 kc/s, 760 metres.—6.15 to 6.30 a.m., Gymnastics Lesson. 12.28 p.m., Time

SEPT. 20th

WEDNESDAY

continued

Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.40 (from Geneva), Gramophone Music. 1.0 (from Geneva), Financial Notes. 1.10 (from Geneva), Gramophone Concert. 2.0 to 3.28, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Lausanne), Concert by the Radio Lausanne Orchestra, conducted by Moser. 5.0 to 6.0, Interval. 6.0 (from Lausanne), Programme for Children. 7.0 (from Lausanne), Talk: Natural Silk. 7.25 (from Lausanne), Agricultural Report, News and Announcements. 7.30 (from Lausanne), Tourist Talk. 7.45 (from Lausanne), Talk: The 1933 Walking Tour round Lake Geneva. 8.0 (from Geneva), Talk: Montaigne, his Work and Personality. 8.25, Concert by the Radio-Suisse Romande Orchestra, conducted by Echenard. Soloist: Mme. Nicolaiëff (Songs). Orchestral Suite (Purcell); Songs with Orchestral Accompaniment, Concerto for Three Violins (Vivaldi); Song from Castor et Pollux (Lully); Symphony in E Flat, No. 3 (Haydn). 9.50, News and Weather. 10.0 (from Geneva), Dance Music. 11.0 (approx.), Close Down.

REYKJAVIK

1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.20, Reading. 11.0, Violin Solus by Thorarinn Gudmundsson, followed by Icelandic Songs on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—6.0 p.m., English Lesson. 6.30, Agricultural Talk. 7.0, Weather Report. 7.5, Programme of Operetta Music, Sketches and Songs. In the intervals at 8.0 and 9.0, News and Weather. 9.30, Grand Symphony (Beethoven), on Gramophone Records.

RJUKAN.—See Oslo.

ROME

Call 1R0, 680 kc/s, 441 metres; 50 kW. Relayd by Naples, 941 kc/s, 319 metres; and 2R0, 11,810 kc/s, 25.4 metres, from 5.15 p.m., and Milan (Vigentino), 662 kc/s, 453.2 metres, from 8.45 p.m.—12.30 p.m., Gramophone Music. 1.0, Orchestral Concert. In the interval from 1.30-1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.30, Giornale Radio, Exchange and Report of the Royal Geographical Society. 4.45, Children's Radio Review. 5.10, Weather. 5.15-6.0, Orchestral Concert. 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolavoro Notes and Tourist Report. 6.57, Report of the International Institute of Agriculture (in Italian and English). 7.10, Agricultural Report. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time, Announcements and Gramophone Music. 8.15, Medical Talk. 8.30, Giornale Radio and Sports Notes. 8.45, Ruy Blas—Opera in Three Acts (Marchetti). In the intervals, Talk and Theatre Notes. Giornale Radio after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayd at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—9.0 to 10.0 p.m. (approx.), New York Relay. 9.0, Pop Concert. 9.30, The Mind Age. 9.35, Lady Next Door. 12.45 a.m. (Thursday), Stock Reports and Baseball Scores. 1.0, Standard Brands, from New York. 1.30, Popular Programme. 1.45, Musical Programme. 2.0, Ferde Grofe's Orchestra, from New York. 2.15, Outdoor Girl. 2.30, Popular Programme. 3.0, Variety Programme from New York. 3.30, Slip of Joy, from New York, followed by Programme Resumé.

SCHWEIZERISCHER LANDESENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—6.15 a.m. (from Basle), Gymnastics. 6.35 to 11.59, Interval. 11.59, Time Signal from Neuchâtel Observatory, and Weather. 12 Noon (from Berne), Concert of Chamber Music on Gramophone Records. 12.30 p.m., Time, Weather and News. 12.40 (from Berne), Gramophone Concert of Music by Offenbach, Millbeker, O. Straus, Eysler and Lehár. 1.25 (from Berne), Time, Weather and Exchange. 1.30 to 5.0, Interval. 5.0 (from Berne), Programme for Children. 5.30 (from Berne), Gramophone Music. 6.0 (from Berne), Concert of Chamber Music on Gramophone Records. 6.30 (from Zürich), Talk on Astronomy. 7.0 (from Zürich), Time, Weather and Market Prices. 7.10 (from Zürich), Gramophone Concert. 7.30 (from Zürich), English Lesson. 8.0 (from

Zürich), Maurice Ravel Pianoforte Recital. 8.30, Talk: Travelling Experiences. 9.0, Weather and News. 9.10 (from Zürich), Haydn's Symphonies—a Lecture Recital. 10.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayd by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Musical Programme. 5.35, Reading. 6.0, Gramophone Music. 7.0, Talk: The Practical Corner. 7.15, Weather and News. 7.30, Talk: Finland under the Czars, relayed from Malmö, 1,301 kc/s, 231 metres. 8.0, Brahms Concert, conducted by Vazlav Talich. Soloist, Olof Wihergh (Pianoforte). Academic Festival Overture, Pianoforte Concerto in D Minor; Symphony No. 1 in C. 9.45, Weather and News. 10.0, Dance Music by Enders' Band, relayed from the Bern Hall. 11.0 (approx.), Close Down.

STRASBOURG

669 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Classical Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Light Music on Gramophone Records. 2.0, Interval. 5.0, Talk in German: Street Lighting by Electricity. 5.15, Orchestral Concert, conducted by Roskam: Overture, The Gipsy Baron (Joh. Strauss); Selection from Martha (Flotow); Pianoforte Solo: Plaisir d'amour (Martini); Waltz, Tales of the Vienna Woods (Joh. Strauss); Selection from The Cunning Peasant (Fall); Petite suite, sur le mode mineur (Gabriel-Marie); En relisant vos lettres (Masson-Kieck); March from Casanova (Lincke). 6.0, Concert by the Station Trio, relayed from Lille, 1,130 kc/s, 265.4 metres. 7.0, Talk: Insurance against Hunting Risks. 7.15, Talk in German: The Skilled Trades in the Middle Ages. 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, A Waltz Dream—Operetta in Three Acts (O. Straus). In the interval, Press Review. 10.30, Orchestral Concert, conducted by Jennie, relayed from the Grand Kléber Tavern: Waltz, Très jolie (Waldteufel); Ständchen (Schubert); Selection from Rose-Marie (Friml); Die Spieluhr (Blauw); Selection from Le petit Duc (Lecocq); Hungarian Dances Nos. 5 and 6 (Brahms); Vienna, City of my Dreams (Sieczynski); Soldiers' Songs (Salabert). 11.30 (approx.), Close Down.

STUTTART

MUHLACKER; 832 kc/s, 360.5 metres; 60 kW. Relayd by Freiburg, 527 kc/s, 570 metres.—12 Noon, Concert by the Station Orchestra, conducted by Gustav Göhrich: Overture, Nordische Semifahrt (Gade); Weyland's Lament (Fini Henriques); Lyric Suite (Grieg); Saltarella (Amadei); Farandole (Bizet); Overture, A Night in Venice (Joh. Strauss); Waltz, Herbststimmung (Lincke); Alter Jägermarsch, 1813; Rakoczy Overture (Keler-Pela). 1.15 p.m., Time and News. 1.30, See Langenberg. 2.0, News from Frankfurt. 2.10 to 2.40, Concert arranged by the Post Office, with Gramophone Records. 3.30, Programme for Children. 4.30, See Munich. 5.45, Nature Talk: A Flight from leaves fall. 6.0, Talk: A Fight from Stuttgart to Lake Constance. 6.30, Time and News. 7.0, Transmission for all German Stations: Ferdinand Count Zepelin—a Radio Play in Ten Scenes (Karl Köstlin and Arthur Georg Richter). 8.0, See Munich. 9.0, Talk: What Everybody Should Know. 9.10, Dance Music and Light Music from Greiner's Restaurant. 10.0, See Munich. 10.20, Time and News. 10.40, Dance Music (contd.). 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Accordion Music. 6.30, Popular Orchestral Music. 6.45, Sponsored Programme. 7.15, News, Racing Results, and Market Prices. 7.30, Leonora Overture (Beethoven), by a Symphony Orchestra. 7.45, Operetta Music: Selection from Une nuit au Louvre (Urgel); Les Saltimbanques (Ganne); and Elle est avoué (Yvain). 8.0, Light Orchestral Music. 8.15, Opera Music: Arias from: Sappho (Massenet); Le roi de Lahore (Massenet); and Rigoletto (Verdi). 8.30, Jazz Music. 9.0, Concert by a Mandoline Orchestra: Two-Step (Maciocchi); Prelude in F (Maciocchi); Waltz, Espoirs perdus (Moréti); Selection from La Traviata (Verdi); Barcarolle (Maciocchi); Intermezzo (Rossini); Mercedes (David del Castillo). In the interval, Songs. 10.15, North African News and Local News. 10.30, Concert for Listeners in Morocco: Prelude to Act III of Louise (Charpentier); Songs from Les Noces de Jeannette

(Massé); Selection from Les millions d'Arlequin (Drigo); Chez le tailleur (Each and Laverne); The Sleeping Beauty (Dicker). 11.0, Dance Music. 11.45, Popular Music, Liebestraume (Liszt); Minuet in G (Paderewsky); Selection from Maritana (Wallace). 12 Midnight, News, Weather, and Announcements. 12.5 a.m. (Thursday), Music by a Viennese Orchestra. 12.15, Music by an Argentine Orchestra. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.10 p.m., Concert: Attilio Poluzzi (Flute), Ettore Sigon (Cello), Enrico Martucci (Pianoforte), and Valeria de Poltieri (Soprano): Sonata, Op. 48 (Piermé); Three Songs with Flute, Cello and Pianoforte Accompaniment (Ravel). 6.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayd by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 599 kc/s, 506.8 metres.—5.10 p.m., Song Recital. 6.0-6.5, Weather. 6.40, Giornale Radio, Dopolavoro Announcements and Gramophone Music. 7.0, Time, Tourist Report and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes and Weather. 8.15, Medical Talk. 8.30, A Comedy in Three Acts, followed by Concert. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—11.0 to 11.15 a.m., Religious Information in Spanish. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 100 kW. Relayd by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—12 Noon, Concert by the Wiener Symphoniker, conducted by Josef Holzer: March, Jetzt geht's los (Lehár); Overture, Der Bettelstudent (Millbeker); Violin Solos: (a) Waltz (Hummel); (b) Die Biene (Schubert); Waltz Morgenblätter (Joh. Strauss); Song, Lass dir Zeit; (Zeller); Prelude and Serenade from Der Schneemann (Korngold); Symphonic Polonaise (Bass); Selection from Madame Butterfly (Puccini); March, Wiener Hausfrauen (Jurek); Strauss-Millbeker-Suppé Potpourri (Ziehrer); Song, Am Sommerheidenweg (Silbing); Aufzug der Stadtwahe (Jessel); Song, Gruss mir mein Wien (Kalmán); Waltz, Rundgesänge (Hellmesberger); Potpourri, Hörst und staunst (Dostal). In the interval at 1.0 p.m., Time and News. 3.0, Time and Announcements. 3.20, Talk: The Röntgen Rays. 3.45, Songs on Gramophone Records. 4.15, Talk: Traveling by Raft on Austrian Rivers. 4.40, Educational Talk. 5.5, Concert of Music by Arnold Böhring, with the Composer at the Pianoforte: Wind Instrument Quintet in E flat minor; Last Movement of the String Quartet arranged for Pianoforte Quintet. 5.55, Talk: The Summer Race, 1933. 6.10, Talk on the Broadcasts for Schools. 6.35, Talk. 7.0, The Town—Concert by the Wiener Symphoniker, conducted by Bernhard Paumgartner. In the interval at 7.35, Time and Announcements. 8.30, Topical Talk. 8.45, Der wilde Grabbe—Radio Sequence. 9.45, Announcements. 10.0, Gramophone Music, followed by Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Gramophone Music. In the intervals at 12.25, Press Review and at 12.33, Weather. 12.55, Radio Journal. 1.0, Interval. 2.55, Gramophone Music. In the intervals at 3.5, News, at 3.25, Economic Notes, and at 3.45, News. 5.0, Topical Talk. 5.15, Light Music from the Gastronomia Café. 6.15, Talk: Stefan Gorczyński, Soldier and Poet, on the Centenary of his Death. 6.35, Song Recital by Emma Szabrankska. Je voudrais avec toi (Szopski); Spring (Jobjeko); The Wind (Wielhorski); La Malédiction (Niewiadomski); Brunette (Zelenski); Tu ne t'en iras pas (Maklakiewicz); Prayer from La Favorita (Donizetti); Aria from The Queen of Sheba (Goldmark); Aria from The Queen of Spades (Tchaikovsky). 7.0, Gramophone Music. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Reading. 8.0, Ludomir Roszycki Chamber Music by the Polish Quartet, with the Composer at the Pianoforte. Pianoforte Quintet; Rhapsody for Trio. 8.50, Radio Journal. 9.0, Agricultural Notes. 9.10, Light Music. 10.0, Dance Music from the Oaza Dance Hall. In the intervals at 10.25, Sports Notes, and at 10.35, News, Weather and Police Notes.

ZURICH.—See Schweizerischer Landessender.

ATHLONE

725 kc/s, 413 metres; 60 kW. Relayed by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time, Weather, Stock Report and Gramophone Concert. 4.0, Police Band Concert. Soloist: K. McCully (Soprano). 6.0, Programme for Children. 6.40, News. 7.0, French Lesson. 7.15, Readings. 7.30, Time Signal. 7.32, Pianoforte Recital by Claud Biggs. 8.0, Soprano Solos by Letitia Ennis. 8.20, Traditional Fiddle Solos by Michael O'Maolain. 8.30, The Station Orchestra. 9.0, Programme by the Emer Comedy Company. 9.30 to 10.30, Programme arranged by the I.B.C. (Ireland). Ltd. 9.30, Concert: The Watermelon Fete (Thurban); Slippery Fingers (Steele); The Bumble Bee's Wedding (Clare); The Clock and the Dresden Figures (Ketelbey). 9.45, Organ Recital: Nola (Arndt); In a Persian Market (Griffiths); Bird Songs at Eventide (Coates); A Palace of Dreams (Waller). 10.0, Concert arranged by the International Broadcasting Company (Ireland). Ltd., on behalf of Hospitals Trust, Ltd.: Signature Tune, Come back to Erin; I like Mountain Music (Weldon); Farewell to Arms (Wrubel); What more can I ask? (Noble); Play, Fiddle, Play; Good Morning, Mr. Sun; You've got me crying again; I've got the World on a String; Signature Tune. 10.29, I.B.C. Good-night Melody.

BARCELONA

EAJ1; 560 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trio Concert. 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Music and News. 10.0, Chimes from the Cathedral, Weather, Exchange Quotations, and Market Prices. 10.5, Concert by the Station Orchestra: March (Raymond); Jota, El andarin (Cotó); La lettre de Manon (Gillet); Polonaise from Boris Godunov (Mussorgsky); Selection from Ghismonda (Février); Overture, Euryanthe (Weber). 11.0, La Tonta del Bote—Play in Three Acts (Pilar Millán Astray). In the interval at 12 Midnight, News. 1.0 a.m. (Friday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—See Rome.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—5.0 p.m., Gramophone Music. 6.55, Time and Programme Announcements. 7.0, Gramophone Music. 7.20, Address. 7.50, Violin Recital. 8.30, Arias from Opera. 9.15, Dramatic Programme. 9.30, Symphony Concert. 11.0, Time and News.

BERLIN

DEUTSCHLANDSENDER (Reichssender), 183.5 kc/s, 1,635 metres; 60 kW.—1.45 p.m., News. 2.0, Gramophone Concert. 3.10, Programme for Young People. 3.30, Weather and Exchange. 3.45, Reading. 4.0, See Heilsberg. 5.0, Discussion for Women. 5.20, The German Forests—Literary and Musical Sequence (arr. Gertrud Sonntag). 6.0, Poems. 6.5, Humorous Programme. 6.30, Agricultural Programme. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Today's Motto. 8.5, Mamma—a Peasant Comedy (Unger). 9.15, Musical Programme. 10.0, Weather and News. 10.15 (approx.), Talk: Gymnastics for the Nation. 10.45, Weather for Shipping. 11.0, Dance Music from Hamburg. 12.30 a.m. (Friday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.15 p.m., Talk: A Journey to Rome. 4.30, Orchestral Concert. Soloist: Walter Drwenski (Organ). Organ Concerto in D minor (Handel); Four Sonatas in B flat, Op. 68, E flat, Op. 67, F, Op. 145, and B flat, Op. 212 (Mozart), for Orchestra and Organ; Toccata and Fugue in G Op. 69 for Organ (Bach); Variations and Fugue on a Theme for Organ, from Op. 7 (Drwenski). 5.30, Reading (Rudolf G. Binding). 5.50, Contemporary Song Recital by Fred Drissen (Bartone): An die Nacht (Schaukal); Herbstabend (Schellenberg); Herbst (Enderling); Der Beichtiger (Wetz); Songs (Rasch): (a) Zu guter Letzt. (b) Man wünschte sich herzlich gute Nacht, (c) Wenn ich derneinst. (d) Es flog einmal ein muntres Pflögel. 6.10, Talk on Peasant Customs. 6.30, Talk on Pomerania. 6.40, The Funkstunde informs its Listeners. . . . 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.5, Eine Stunde Lexikon—Dream Play (Günther Eich). 9.0, Light Music and Dance Music. In an interval at 10.0 (approx.), Weather and News. 1.0 a.m. (Friday), Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMUNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.40, Talk arranged by the International Labour Bureau. 7.55, Lottery Results and Charades. 8.0, Talk on Wine. 8.15, News. 8.30, La Gamine—Comedy in Four Acts (P. Vebor).

THURSDAY

SEPTEMBER THE TWENTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON Organ recital. Three plays: "The Safe," "The Proposal," and "The Human Horse."
REGIONAL MIDLAND Variety; a gramophone recital.
NORTH Orchestral and choral concert.
REGIONAL WEST Police Band concert.
SCOTTISH Rosslyn Chapel: Patronal and Dedication Festival.
REGIONAL BELFAST Music of Dutch composers, orchestral concert.

ABROAD

BRNO 7.30 p.m. Opera: "Khovanstchina," by Mussorgsky.
BUCHAREST 8.20 p.m. Symphony concert, by the Station Orchestra, conducted by Rogalski.
COPENHAGEN 8.10 p.m. The Station Symphony Orchestra, conducted by Nicolai Malko.
HAMBURG 8.10 p.m. Operetta: "Der Bettelstudent," by Millocker.
HUIZEN 7.45 p.m. The Wireless Orchestra, conducted by A. van Raalte.
RADIO PARIS STRASBOURG 9.30 p.m. Popular music.
6.30 p.m. Orchestral concert, conducted by M. de Villers.
STUTTGART 8.30 p.m. Serenades: Concert by the Station Orchestra, conducted by Paul Sixt.
8.30 p.m. Opera: "Il Pirata," by Bellini.
TURIN 6.35 p.m. Chamber music.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—2.50 p.m., Concert by the Station Orchestra: Overture, The Cunning Peasant (Dvorak); Melody (Polprecht); Festive Polonaise (Marsik); Suite from L'Arlesienne (Bizet); Homage March from Sigurd Jorsalfar (Grieg). 3.50 to 4.0, See Prague. 5.25, See Brno. 5.45, See Prague. 6.25, Pianoforte Recital by Sylvia Macdzinska: Valse impromptu, Op. 16 (Blumenfeld); Gavotte No. 3 Op. 49 (Glazunov); Paraphrase on Themes from Eugene Onegin (Tchaikovsky-Pahst). 6.55, Talk for Housewives. 7.0, See Prague. 7.25, See Brno. 10.15, See Prague. 11.0 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,184 kc/s, 253 metres.—12.2 p.m. (approx.), Concert by the Silesian Philharmonic Orchestra, conducted by Topitz. 1.45 p.m., Time and News. 2.5, Light Music on Gramophone Records. 2.45, Market Prices. 3.0, Concert by the Station Orchestra, conducted by Rischka: Overture, The Magic Flute (Mozart); Serenade in D Minor (Gütze); Von Glück bis Wagner (Schreiner); Cradle Song (Jänfeldt); Selection from Der Freischütz (Weber); Waltz, Roses from the South (Joh. Strauss); Military March (Schubert). 4.0, Review of Books. 4.20, Talk: Excursions to the Moorland. 4.30, Concert by the Station Orchestra, conducted by Ernst Topitz: Ballet Overture (Gauglberger); Waltz, Die Romantiker (Lanner); Froschkönigs Fackelzug (Kronberger-Marriot); Rumpelstilzchen (Hartenbauer); Annen-Polka (Joh. Strauss, Sen.); Komödianten-Marsch (Smetana); Kaiserwalzer (Joh. Strauss); Selection from The Count of Luxembourg (Lehár). 5.40, Weather for Farmers. 5.45 (approx.), Programme for Children. 6.10, Programme to be announced. 6.30, Talks by Workers and their Leaders. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, News. 8.10, Public Demonstration of Folk Dancing from the Konzerthausaal. 9.10 (from Gleiwitz), Poems and Songs of the Miners' Life. 10.0, News. 10.25, Dance Music from Berlin (Funkstunde). 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.25 p.m., Programme for Children. 5.45, Gramophone Music. 6.25, German Transmission: News and Gramophone Music. 7.0, See Prague. 7.25, Introductory Talk to the following Transmission. 7.30, Khovanstchina—Opera (Mussorgsky), relayed from the National Theatre. 10.15, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R.; 590 kc/s, 509 metres; 15 kW.—12 Noon, Gramophone Concert of Light Music. 1.0 p.m., Le Journal Parlé. 1.10, Concert by

the Small Station Orchestra, conducted by Leemans: Two-Step, Contrabandista valiente (Lacostella); Prelude (Beaume); Strauss Potpourri (Hilmar-Weber); Londonderry Air for Violin (Kreisler); Selection from Dédé (Christiné); Serenade (Padilla); Waltz, Mais quand le cœur dit oui (Sylvain); The Swanee River (Myddleton). 5.0, Concert by the Radio Orchestra, conducted by André: Bacchanale from The Seasons (Glazunov); Selection from Surcouf (Planquette); Fête chez Thérèse (Hahn); Aubade (Caludi); Chant crépusculaire (Brusselmans); Un rêve, for Violin and Cello (Cannis); Ballet Music from Callirhoé (Chaminade); Carnival (Ring). 5.30, Musical Programme. 6.0, Cookery Talk. 6.15, Gramophone Music. 6.30, Concert by the Small Station Orchestra, conducted by Leemans; Turkish March (Mussorgsky); Venetian Barcarolles (Leemans); Bellmaniana—Suite of Popular Swedish Songs (Malm); Andante and Scherzo for Violin and Flute (Rabaud); Spanish Serenade (Glazunov); Norwegian Dances (Grieg). 7.15, Talk for Workers. 7.30, Sports Notes. 8.0, Act I and Finale from Act III of Carmen—Opera (Bizet) on Gramophone Records. 8.45, Talk. 9.0, Concert by the Radio Orchestra, conducted by Franz André: March (Faulk); Cello Solos: (a) Menuet printanier (Desprez), (b) Remembrance (Desprez); Waltz, Tournesol (Michiels); Elves' Serenade (Rayners); Selection from Teresina (O. Straus); Nachtigall im Fliederbusch (Krome); Aubade à l'émir (Demart); Invitation to the Waltz (Weber); Viva Palma (Brocker). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—12.0 Noon, Concert by the Small Station Orchestra, conducted by Leemans. 1.0 p.m., Le Journal Parlé. 1.10, Waltzes and Marches on Gramophone Records. 5.0, Gramophone Records: Overture, The Italian Girl in Algiers (Rossini); Dance of the Hours, from La Gioconda (Ponchielli); Selection from I Pagliacci (Leoncavallo); Mattinata (Leoncavallo); Selection from Madame Butterfly (Puccini); Overture, Gwendoline (Chebrier). 5.45, Programme for Children. 6.25, Gramophone Records: Waltz, Très jolie (Waldteufel); Waltz, Les Patineurs (Waldteufel). 6.33, Programme arranged by the J.V.K.A. 7.12, News. 7.15, Talk: Carnations. 7.30, Programme for Women. 8.0, Concert by the Radio Orchestra, conducted by André; Soloist: Tounel (Baritone); Waltz, Frühlingstimmen (Strauss); Overture, The Gipsy Baron (Strauss); Three Songs (Brahms): (a) Liebestreu, (b) Wiegelielied, (c) Meine Liebe ist grün; Selection from Il Trovatore (Verdi); Songs (Brahms): (a) Wie bist du meine Königin, (b) Miennelied, (c) Juchhe; March, Semper Fidelis (Souza). 8.45, Talk. 9.0, Gramophone Concert with Songs by the Schola Cantorum Choir: Overture, Il Maschere (Mascagni); Seven Popular Irish

Songs: (a) The Lark in the clear air, (b) The Shan Van Vocht, (c) Kathleen O'Mory, (d) Kate Kearney, (e) Loug, long ago, (f) The little red lark, (g) Arranmore Boat Song; Concerto for Bassoon (Mozart); Pianoforte Solos: (a) Perpetuum Mobile (Weber), (b) Pastorale Capriccio (Scarlati); Five Flemish Songs; March from The Prophet (Meyerbeer). 9.55, Evening Prayer. 10.0, Le Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Dinco Orchestra. In the interval at 6.0, Radio Journal. 7.0, Educational Programme. In the interval from 7.20 to 7.40, Light Music on Gramophone Records. 8.0, Song Recital by Mme. Olga Solomoncau. 8.20, Symphony Concert by the Station Orchestra, conducted by Rogalski; Concerto grosso No. 1 in B flat (Handel); Violin Concerto in C (Vivaldi); Concerto for Wind Instrument Quintet and Orchestra (Riatti). In the interval at 9.0, Talk. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 8.0 p.m. till Close Down.—5.30 p.m., Concert by the Lajos Veres Cigany Band. 7.0, Radio Concert. 7.30, English Lesson. 8.0, An Operetta. 10.30, News, followed by Gramophone Music.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time and Chimes from the Town Hall. 12.5 p.m., String Ensemble Concert, relayed from the Hotel d'Angleterre. 2.0, Interval. 2.45, Dance Music by Otto Lington and his Band. In the interval at 3.30 (approx.), Recitation. 4.45, Programme for Boys. 5.30, Exchange and Fish Market Prices. 5.45, Talk in French: Alexandre Dumas (Père). 6.15, Elementary English Lesson. 6.45, Weather and Announcements. 7.0, News. 7.15, Time Signal. 7.16, Talk: Democracy or Dictatorship? 7.45, Danish Lesson. 8.10, Concert, relayed from the State Broadcasting Building: The Station Symphony Orchestra, conducted by Nicolai Malko. Soloist: Margherita Flor (Songs); Concert Overture, The Hebrides (Mendelssohn); Symphonie concertante for Violin, Cello, Oboe and Bassoon (Haydn); Selection from The Loves of the Three Oranges (Prokofiev); Ten Minutes' Interval; Symphonic Poem: Manfred (Tchaikovsky); Songs: (a) Aria from Aida (Verdi), (b) Aria from Mephistopheles (Boito); Polovnitian Dances from Prince Igor (Borodin). 10.15, News. 10.30, Reading. 10.50, Dance Music, relayed from the National Scala. In the interval at 12 Midnight, Time and Chimes from the Town Hall. 12.30 a.m. (Friday), Close Down.

CORK.—See Athlone.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—10.30 to 11.30 a.m., Programme in English by the I.B.C. 10.30 a.m., Happy Hour. Part I: Orchestral Concert. Signature Tune: I do like to be beside the Seaside (Glover); Marching through Georgia; When the Convent Bell is ringing (Trevor); Ke-sa-ko (Chapman); Beautiful (Gillespie); Old Folks at Home (Foster); Once on the Rhine (Ostermann); Valse Septembre (Godin). Part II: Dance Music. Smilin' through; Dancing Butterfly; Rosa Mia; In the Valley of the Moon; My, oh My; A Woman should stick to her Man; Learn to croon; Let's all be happy together; Signature Tune. 11.30 a.m., Programme in French. 4.30 to 6.0 p.m., Programme in English by the I.B.C. 4.30, Programme for Children. 5.0, Concert of Gramophone Records for Working and Littlehampton Listeners. Signature Tune: The Night by the Sea; The Turning of the Tide, by Layton and Johnston; To-day I feel so happy, by Renate Muller; Somebody's waiting for me (Sir Harry Lander); Stars and Stripes (Souza); The Fly on the Turnips (arr. Wheatley); The Match Parade (Whele); Selection from He wanted Adventure (Waller). 5.30, Trio Concert for Brighton and Hove Listeners. Pearl of Mine (Fletcher); Friend o' Mine (Sanderson); Cello Solo, Harlequinade (Squire); Evening (Easthope Martin); Cavatina (Raff); Cello Solo, Saint d'amour (Elgar); Pizzicato from Sylvia (Delibes); Love's Old Sweet Song (Molloy); Signature Tune. 6.0 p.m., French Programme. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music. Signature Tune, Bells of Normandy; Hot Feet; Fiddlin' Joe; My Wishing Song; You did Everything for me; Chansonnette; In the Valley of the Moon; Hold me; At the Old Pig and Whistle; Lover; A Woman should stick to her Man; Castles in the Sand; The Diety Glide; Whispering; Drifting Down the Shalimar; I've got the World on a String; One Tiny Tear; My Darling; Put a Little Spring-Time; Her Name is Mary; Peter, Peter; In the Park in Pares; Signature Tune. 11.0, Talkie Time. Tunes from Talkies: Signature Tune, Sittin' in the Dark; Come out Vienna; Song: Sweetheart Darlin'; Piano-

SEPT. 21st

THURSDAY

continued

forte Solo: Everyone Says I Love You; The Little Company; Selection from The Big Pond (Fain); Happy Ending; Puttin' on the Ritz; Selection from The Kid from Spain; Signature Tune. 11.30, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of Hospitals Trust, Ltd. Signature Tune, Come Back to Erin; What's next? (arr. Finek); The Nightingale in the Lilac Bush (Krome); Selection from The Student Prince (Romberg); The Irish Emigrant; Love in Cloverland (Peter); Terence's Farewell to Katherine (Lady Dufferin); Mon réve (Waldteufel). 12.5 a.m. (Friday), Late News Bulletin. 12.10, Club Concert for Retford Listeners. Signature Tune, The Clum Song; Wherever you are; Steamboat Bill; Aunt Misbelavin'; Beautiful Lady; Hold my Hand; I wanna count sheep; Sylvia; You're telling me; I sigh for you, Rio Rita; The Village Band; Thank Heaven for You; Smilin' through; All over Italy; Signature Tune. 1.0, Dance Music. Signature Tune, Bells of Normandy; Any time, any day, anywhere; Nine Little Miles from Ten-Tennessee; Stay out of my Dreams; Dancing Butterfly; Learn to Croon; In Santa Lucia; The Gold-diggers' Song; I raised my Hat; Contented; Dance, Pretty Lady; Seven Years with the Wrong Woman; Down the Old Ox Road; Twelfth Street Rag; Rosa Mia; Sweetheart Darlin'; Signature Tune. 2.0, I.B.C. Good-night Melody and Close Down.

FLensburg.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—12 Noon, Concert of light Music on Gramophone Records: Folk Songs of Germany: Wohlau noch getrunken (Schumann); Wiegelnied (Brahms); My Homeland (Obermeyer); An der Weser (Pressel); Ich hab dich lieb, weil du ein deutsches Mädchen bist (Neubach); In Rolandsbogen (Beines); O Schwarzwald, o Heimat (Abt); Ich hatte einst ein schönes Vaterland (Lassen); Deutschland, du darfst nicht untergehen (Höser); Deutschland lühe neu auf (Meyer-Helmund); Orchestral Selections: Overture, Hans Heiling (Marschner); Air and Rigadon from The Flute of Saissonci (Graener); Overture, Boccaccio (Suppé); Hungarian Rhapsody No. 6 (Liszt). 1.15 p.m., News and Weather. 1.30, Concert on Gramophone Records: Quintet in A major (Mozart), played by the Leier String Quartet and C. Draper (Clarinet). 2.0, News Bulletin. 2.20, Listen, everybody. 3.0, Weather Reports. 3.10, Time and Economic Notes. 3.30 (from Mannheim). Talk: With a Nautilus through the Ocean Depths. 4.25, Economic Notes. 4.30, Programme from Stuttgart. 5.45, Economic Notes. 6.0, Talk: Free Competition. 6.25, Topical Talk. 6.45, To-day's News. 6.50, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Loewe Ballad Recital by Kurt Wichmann (Baritone). Der alte Dessauer; Das Erkennen; Graf Eberstein; Agnete; Wer ist Bär; Der Blumen Rache; Zaublerlehrling; Die wandelnde Glocke; Totentanz. 9.0, Baden-Baden—Radio Sequence (Hans Kuhn). 9.45, Programme to be announced. 10.15, Time and News. 10.45, (approx.). Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—5.30 p.m., Variety Programme. 6.25, Book Review. 6.45, Frankfurt Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Topical Talk. 8.10, Der Bettelstudent.—Operetta in Three Acts (Müllöcker). In the interval, Announcements. 10.0, News. 10.20, Topical Talk. 10.30, Dance Music by the Small Station Orchestra, conducted by Gerhard Maasz; Soloist, Richard Beckmann (Pianoforte).

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—1.5 p.m., Gramophone Music. In the intervals at 1.20 and 2.0, News. 2.30 (from Danzig), Danzig Exchange. 3.0, Agricultural Prices and Exchange. 3.30 (from Danzig), Programme for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Overture (Verdi); Extracts from the Suite for Undine (Lortzing); Scherzo and Intermezzo (Mussorgsky); Violin Solo: Ballet Scene (Beriot); Selection from Der Tenor

der Herzogin (Künneke); Overture, Gasparone (Müllöcker). In the interval at 5.0 (approx.), Book Review. 5.45, Folk Songs and Dances by a Wind Instrument Quintet: Das deutsche Lied (Kalliwoda); Wanderlied (Schumann); Stolzfels am Rhein (Misser); Waltz, Schön ist die Jugend (Badeke); Polka-Mazurka, Deutsche Frau (Kiesler); Baur-Polka (Reider); Flotte Burschen (Starke); Bavianer Ländler (Huber). 6.15, Agricultural prices. 6.25, Agricultural Talk. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Weather and News. 8.10, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the intervals, Humorous Programme by Paul Schuch: 9.20, Violin Recital by Hugo Kolberg: La follia (Corelli); Romance (Wagner); Sierra Morena (de Monasterio); La Capriciosa (Ries); Bulgarian Rhapsody (Wladigerow). 9.50, Elementary English Lesson. 10.15, Weather and News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW (until 5.40 p.m.) and 20 kW from 5.40 p.m.—11.55 a.m. to 1.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Orchestra, conducted by van 't Woud: La Féria (Lacombe); Malagena (Moszkowsky); La boutique fantasque (Rossini-Respighi); Danse des marionnettes (Gillet); Caravane (Scasola); March, Regimentalkinder (Fucik); Gramophone Records; Modern Ballet Suite (Armandola); Souvenir of Lucern (Blon); My Old Kentucky Home (Busch); Potpourri, Fortissimo (Kalmán). 1.40 till Close Down. Programme of the Christian Radio Society (N.C.R.V.). 1.40, Book-keeping Lesson. 2.40, Programme for Women. 3.10 to 3.40, Interval. 3.40, Bible Reading and Sacred Songs. 4.40, Handicraft Lesson for Young People. 5.10, Song Recital by Bogtman (Baritone); Gramophone Records in the intervals. 6.10, Gramophone Music. 6.25, Dressmaking Lesson. 6.40, Police Notes. 6.55, Religious News. 7.10, Talk. 7.25, Gramophone Music. 7.40, Concert by the Arnhem Orchestra, conducted by Manks: Overture, A Midsummer Night's Dream (Thomas); Selection from Sigurd Jorsalfar (Grieg); Four Paraphrases; Tasso Lamento e Trionfo (Liszt). 8.40, Talk. 9.10, Concert (cont.); Overture, Anacreon (Cherubini); Les petits riens (Mozart); Symphony No. 1 (Beethoven). In the interval at 9.40, News. 10.10, Gramophone Music. 11.10 (approx.). Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk, on 50 kW., from 3.40 p.m. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.10 a.m., Violin Recital by van Gelderen. 11.40, Time Signal. 11.41, Gramophone Music. 11.55, Concert by the Bentmeester Orchestra. 1.55, Recitations. 2.25, Concert. Piet van Egmund (Organ); Hendrik van Oort (Songs); and Jan Felderhof (Violin): Toccata and Fugue in D minor (Bach); Aria from Cantata No. 13—Meine Seufzer (Bach); Aria from Cantata No. 150—Sehet wir gehen hinauf (Bach); Largo (Händel); Andante cantabile (Tchaikovsky); Gebet (Wolf); Schlafendes Jesuskind (Wolf); Calvary (Oort). 3.25, Interval. 3.40, Programme for Hospitals. 4.10, Gramophone Music. 4.40, Play for Children. 5.20, Concert by Kovacs Lajos and his Orchestra. In the interval at 6.10, Sports Talk. 7.10, Dressmaking Lesson. 7.40, Time and News. 7.45, Concert by the Wireless Orchestra, conducted by Albert van Raalte: Suite from Sylvia (Delibes); Songs: (a) Herzwunden (Grieg); (b) Letzter Frühling (Grieg); Selection from Mors et vita (Goumou); Overture, Maritana (Wallace). In the interval, Talk. 8.40, Radio Play. 9.20, Orchestral Concert (cont.): Pianoforte Concerto in F minor (Chopin); Danse macabre (Saint-Saëns); Overture, Les Sallimbanques (Ganne); Valse triste (Sibelius); Waltz, Künstlerleben (Joh. Strauss); French Military March (Saint-Saëns). In the interval at 10.0, Gramophone Records. 10.40, News. 10.50, Gramophone Music. 11.40 (approx.). Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.10 p.m., Sports Talk. 7.25, Announcements and Gramophone Music. 7.40 till Close Down, See Warsaw.

KIEL.—See Hamburg.

KLACENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—1.30 p.m., Orchestral Concert, conducted by Werner

Göhre: Overture, Jean de Paris (Boieldieu); Waltz, Die Werber (Lanner); Finale from Undine (Lortzing); Two Pieces from the Suite, Old China (Niemann); Selection from Wo die Lerche singt (Lehur); Mussian March (Carl). In the interval at 2.0 (approx.), News. 3.0, Programme for Children. 3.30, Market Prices and Time. 3.50, Reports on Scientific Research, with Musical Interludes. 4.20, Political Announcements. 4.30, Joseph von Lauff Memorial Programme. 5.0, Concert by the Fröhliche Fünf. 5.30, Operetta and Sound Film Music on Gramophone Records. 6.15, Recitation. 6.25, Talk: The Technique of Speech. 6.45, Weather, Sports Notes and Market Prices. 7.0, Transmission for all German Stations: Das Deutsche Vaterland (The German Lord's Prayer)—cantata (Kneip); for Soloists, Chorus and orchestra. 8.0, News. 8.5, Gramophone Music: Rhapsody on Goethe's Harzreise (Brahms); Overture, Egmont (Beethoven). 8.30, The Battle of the Marne—Play (Paul Josef Cremers), arr. for the Radio by Gerd Fricke. 10.0, News. 10.20, Concert. 12 Midnight, Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12 Noon, See Munich. 1.15 p.m., News and Programme Announcements. 1.30, Grieg Concert by a Male Voice Choir, Elizabeth Meinel (Soprano), Richard Schmidt (Bass) and Dr. Alf Nestmann (Pianoforte). Choir: (a) Waldwanderung, (b) Zwei branne Augen, (c) Hoffnung; Allegro and Andante molto from the Pianoforte Concerto in E Minor, Op. 7; Five Songs for Soprano: (a) Margaretens Wiegenlied, (b) Die Hütte, (c) Erstes Begegnen, (d) Am schönsten Sommerabend war es, (e) Solveig's Song; Scandinavian Dances and Folk Melodies for Pianoforte; Choir: (a) Im Kahne, (b) Die Prinzessin, (c) Ich liebe dich. 2.15, News. 2.30, Art and Film Review. 2.40, The Forest—Gramophone Music: Wer hat dich, du schöner Wald (Mendelssohn); Waldeszauber (Kollmanek); Waldesamkeit (Reger); Bird Song Trio; Ich lag am Waldessaime (Braunschweig); Nachtgesang im Walde (Schubert). 3.0, Handwork for Children. 3.35, Market Prices. 4.0, Songs and Lyrics of Autumn. 4.30, Review of Books for the Hitler Youth. 5.0, Radio Report from the Sonneberg Toy Show. 5.30, Concert by the Leipzig Symphony Orchestra, conducted by Blumer: Ritornella and Ronde capriccio (Mrazek); Selection from Der Kulturgenie (Kienz); Selection from the Antique Suite (Schroeder); Comedy Overture (Fischer-Frank); Waltz, Aquavellen (Joh. Strauss); Overture, The Bartered Bride (Smetana); Lotti-Walzer (Beck); Operetta Revue (Fetras); Movement from the First Little Suite (Michele). In an interval at 5.50, Exchange, Weather and Time after the Concert. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Readings from the Letters of Hebel, Hölderlin, Nietzsche, Novalis, Stifter and Others. 9.30, Beethoven Pianoforte Recital by Wilhelm Kempff: Sonata in E Flat, Op. 27, No. 1—Quasi una fantasia; The Moonlight Sonata in C Sharp Minor, Op. 27, No. 2. 10.15, News.

LINZ.—See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Variety Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Der Widschütz (Lortzing); Waltz, Erinnerungen an Baden (Konzak); Love Song (Königsberger); Selection from Lakmé (Delibes); Ballad (de Michele); Selection from The Geisha (Jones). 1.30, Gramophone Music. 7.30 till Close Down, German Programme. 7.30, Symphony No. 6 in B Minor—the Pathetic (Tchaikovsky). 8.20, Concert of German Music by the Station Orchestra, conducted by Henri Pensis: Leonora Overture No. 3 (Beethoven); Reigen (Spies); Der sterbende Schwan (Spies); Bilder aus dem Orient (Unger). 8.50, News in French. 9.0, Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Oberon (Weber); Slav Dance No. 4 (Dvorak); Meditation (Glazunov); Selection from The Queen of Spades (Tchaikovsky); Redzi (Caludi); Selection from The Maid of the Black Forest (Jessel). 9.50, News in German. 10.0, Gramophone Records of Kreisler, Menuhin, Thibaud, and Casals. 10.30, Dance Music on Gramophone Records.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Concert by Georges Rambaud (Tenor), Mme. Blanc Dauphin and a String Quintet: Marche parisienne (Ganne); Rustic Waltz (Krone); Tenor Aria from Grisélidis (Massenet); Extracts from Tosca (Puccini); Tenor Aria from Tosca (Puccini); Piece (Rosen); Pieces (Lecocq); Bar-

carolle (Offenbach); Selection from La Fille de Madame Angot (Lecocq); Selection from La vie parisienne (Offenbach). After the Concert, News Bulletin.

MADRID

ARANJUEZ; EAQ; 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m. to 1.0 a.m. (Friday), Programme relayed from Madrid (EAJ7).

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal and Programme for Children. 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time Signal, and Topical Review. 11.20 (approx.), Song Recital by Roman Zorzano (Baritone). 11.30, Municipal Band Concert, conducted by Villa, relayed from Rnsales. 1.15 a.m. (Friday), Topical Review and News. 1.30, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.30 p.m., German Transmission: Talk on Modern Music. 7.0, See Prague. 7.25, See Brno. 10.15, See Prague. 11.0 (approx.), Close Down.

MOSCOW

TRADES UNION; 300 kc/s, 1,000 metres; 100 kW.—11.45 a.m., Weather. 2.45 p.m., Weather. 3.0, Glazunov, Grieg and Couperin Concert. 3.55, Time. 4.0, Topical Talk. 4.30, Radio Play (Schatunovsky). 5.30, Educational Talk. 6.30, Concert relayed from the Radio Theatre. 9.0, News. 9.30, Programme Announcements. 9.55, Chimes from the Red Square. 10.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m., See Stuttgart. 5.45, Agricultural Talk. 6.5, Pianoforte Sonata. 6.25, A Dialogue. 6.45, Time, Weather, and Agricultural Report. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0 (from Nürnberg), Orchestral Concert: Florentine March (Fucik); Overture, The Thieving Magpie (Rossini); Waltz, Estudiantina (Waldteufel); Selection from Undine (Lortzing); Frühling am Rhein (Bren); Intermezzo, Rosen und Falter (Kockert); March (Souss). 9.0, Talk. 9.30, Vienna—Literary Programme (Franz Weichenmayr). 10.20, Time and News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m., Orchestral Concert, conducted by Erling Nielsen. 6.0, Political Talk. 6.30, Studio Service. 7.0, News. 7.30, Recital. 8.0, Time Signal. 8.1, Agricultural Talk. 8.30, Tenor Song Recital by Bjarne Huintz, relayed from Bergen, 824 kc/s, 364 metres. 8.50, Recitations. 9.20, Sponsored Programme. 9.40, News. 10.0, Topical Talk. 10.15, Concert by the Trønder Choir, relayed from Trondheim, 605 kc/s, 495.8 metres. 10.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Agricultural Notes and Giornale Radio. 8.20, Gramophone Music. In the interval at 8.30, Time and Announcements. 8.45, Popular Music. 9.0, Rosalia—Comedy in One Act (Murea). 9.50, Popular Music. 10.0, (edonsi personaggi—Comedy in One Act (Rimini). 10.30, Light Music. 11.0, Giornale Radio.

PARIS

EIFFEL TOWER. Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals).—6.45 p.m., Theatre Talk. 7.0, Le Journal Parlé. 8.30, Gramophone Concert. Part I: Music by Mozart. Part II: Variety Music. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Programme for Children. 7.15, Le Journal Parlé. 7.30, English and Spanish Diets by Anny Reyma and Stenno Tsassi. 8.0, Sponsored Talk. 8.5, Symphonic Poem, Phaeton (Saint-Saëns), on Gramophone Records. 8.30, Sponsored Concert. 9.15, Concert: Overture, Sous la Régence (Brusselmans); La sérénade à ma mie (Casard); Grand Guignol Suite (Gabriel-Marie); Danse d'Orient (Mathé); Ode à Terpsichore

(de Taeye); Pensée énégiante (Ancel); Oriental Suite. Le joyeux postillon, Aziyade (Ryssen); Andalusian Nocturne (Infante); Ballad, Saphantou (Brunel); Quand j'étais jeune (Février); March of the Nutcrackers (Ranzato). 10.10, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Music. 8.0, Weather and News. 12.0 Noon, Protestant Address. 12.30 p.m., Gramophone Concert: Symphony in G (Haydn); Song from The Seasons (Haydn); Serenade from Eine kleine Nachtmusik (Mozart); To Chloe (Mozart); Minuet and Song from Orpheus (Gluck); Overture, Egmont (Beethoven); In questa tomba oscura (Beethoven); Perpetuum mobile (Weber); Cavatina from Norma (Bellini); Allegro molto from the Sonata for Organ, No. 6 (Mendelssohn); On Wings of Song (Mendelssohn); Le carnaval des animaux (Saint-Saëns). In the interval at 1.0, Exchange, Announcements and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Report. 7.10, Songs and Instrumental Music on Gramophone Records: Minuit chrétien (Adam); Noveletta (d'Ambrósio); Charité (Faure); Slav Dance (Dvorak-Kreisl); Melody (Büsser); Schön Rosmarin (Kreisl); Anonymous (Gounod); Jota (Kraus); Air (Lahm); Dance (Konguelt); Two Melodies (Patroni-Casadesu); Valse bluette (Drigo-Auer). 7.50, Commercial Notes and News. 8.0, Gramophone Concert: Overture, La chassée du jeune Henri (Méhul); Violin Solo, Rigaudon (Monsigny); Pianoforte Solos: (a) Prelude in A Minor (Bach), (b) Valse brillante (Chopin); Guitar Solo, Gavotte (Bach); Sonata for Flute and Strings (Scarlatti). 8.30, News, Weather and Sports Notes. 8.45, Modern Music: Chanson intime (de la Presle); Lament and Tarantella for Clarinet (Grovelez); Songs; Piece in C Sharp Minor (Boulangier); Chorus of the Nymphs from La naissance de la lyre (Roussel). 9.15, Press Review and News. 9.30, Gramophone Music: Künstlerleben (Joh. Strauss); Selection from La Mascotte (Audran); Serenade (Toselli); Selection from La Fille de Madame Angot (Lecocq); Extracts from Les Millions d'Arlequin (Drigo); Bonsoir Madame la Lune (Marinier); Overture, The Drum-Major's Daughter (Offenbach); Selection from Monsieur Beaucaire (Messager); Madame Fivart (Offenbach); and Paganini (Leliard); Melody (Leymann); Selection from Maître Pathelin (Bazin); Les Brigands (Offenbach); and Harlequin Doll (Darcy); Moineau (Beydt); España (Chabrier).

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W3XK on 48.85 metres and 25.27 metres.—8.30, Words and Music, from New York. 8.45, Federation of Pennsylvania Women. 9.0, Thursday Special from New York. 9.30, News and Market Report. 9.45, Thursday Special. 10.0, Casino Orchestra, from New York. 10.15, Tarzan of the Apes. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News and Piano Classique. 11.15, Sports Notes and a Song. 11.30, Political Talk. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy, from New York. 12.15 a.m. (Friday), Silver Toppers. 12.30, Concert Footlights, from New York. 12.45, Pathé News of the Air. 1.0 to 2.30, New York Relay. 1.0, Captain Diamond. 1.30, John Fogarty, Tenor. 1.45, The Roll-lickers. 2.0, Death Valley Days. 2.30, Programme to be announced. 3.0, Hands across the Border, from New York.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Bratislava. 3.50, Aviation Weather Report. 3.55, Exchange. 4.0, Interval. 5.25, See Brno. 5.45, Talk. 5.55, Talk. 6.5, Agricultural Programme. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Review of New Publications and Agricultural Programme. 7.0, Chimes and News. 7.10, Talk: Water Divination. 7.25, See Brno. 10.15, News and Sports Notes. 10.30, Concert by the Skalicky Orchestra: Waltz (Rehor); Cradle Song (Kostal); Selection from La Bohème (Puccini); Fox-trot (Tichy); Romance (Tchaikovsky). 11.0, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—6.15-6.30 a.m., Gymnastics. 12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.45 (from Geneva), Variety Items. 1.0, Financial News. 1.10 (from Geneva), Gramophone Concert. 2.0-3.28, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Concert. 4.15 (from Geneva), An Interlude. 4.40 (from Geneva), Gramophone Concert (cont'd.). 5.30-7.0, Interval. 7.0 (from Geneva), Programme for Children. 7.15 (from Geneva), Talk for Mountaineering Enthusiasts. 7.30 (from Geneva), Radio Chronicle. 7.50 (from Geneva), Esperanto Talk. 8.0, Concert by the Radio Suisse Romande Orchestra, conducted by Echenard: Orchestral Suite (Bach-Beethoven);

SEPT. 21st

THURSDAY

continued

Serenade (Iloza); Symphony No. 5 (Schubert). 9.0 (from Lausanne), Organ Recital by Charles Fallier, relayed from Lausanne Cathedral: Passacaglia (Buxtehude); Prelude (Zachon); Benedictus and Trio (Couperin); Choral in A minor, No. 3 (César Franck). 9.35, News and Weather. 9.45 (from Lausanne), Offenbach Song Recital. 10.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Concert by the Station Trio, followed by Arias on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—6.30 p.m., English Lesson. 7.0, Weather Report. 7.5, Concert of Arensky Music: Silhouettes; Trio in D Minor for Pianoforte, Violin, and Cello; Variations on a Theme of Tchaikovsky. 8.0, News. 8.20, Soprano Solos. 8.40, Orchestral Concert: Overture, Lysistrata (Lincke); Waltz, España (Waldteufel); Melody (Meyer-Hellmünd); Musical Telegrams (Ribachi). 9.0, Weather and News. 9.30, Saxophone Solos: Intermezzo (Mascagni); Waltz (Wiedoeft); Liebestraume (Liszt); Air (Bach); Saxena (Wiedoeft).

RJUKAN.—See Oslo.

ROME

Call IRO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres, and 2RO, 11,810 kc/s, 25.4 metres, from 5.15 p.m., and Milan (Vigentino), 662 kc/s, 453.2 metres from 8.45 p.m.—12.30 p.m., Gramophone Music. 1.0, Humorous Items. 1.5 (approx.) to 2.0, Concert of Variety Music, relayed from Turin. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.30, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.0, Announcements. 5.10, Weather. 5.15 to 6.0, Concert by Maria Flori (Violin), Gualda Caputo (Soprano) and Bianca Colombo (Cello); Violin Solos: (a) Andante from the Spanish Symphony (Lalo), (b) Scherzo-Tarantella (Maria Flori); Soprano Solos: (a) Rispetto (Bevenuti), (b) Aria from Il carnevale di Venezia (Petrella); Pieces for Violin, Cello and Pianoforte (Lucietto), with the Composer at the Pianoforte: (a) Contemplazione, (b) Scena villereccia; Soprano Solos: (a) Le uccello (Broggi), (b) Aria from Sicilian Vespers (Verdi). 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolavoro Announcements and Tourist Talk. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.15, Soprano Song Recital. 8.45, Concert of Light Music. In the interval, Talk. 11.0, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—12.45 a.m. (Friday), Stock Reports and Baseball Scores. 1.0, Popular Programme from New York. 2.0, Captain Henry's Show Boat, from New York. 3.0, Variety Programme from New York.

SCHWEIZERISCHER
LANDESENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—6.15 a.m. (from Basle), Gymnastics. 6.35-11.59, Interval. 11.59, Time Signal from Neuchâtel Observatory and Weather. 12 Noon (from Basle), Vocal Duets on Gramophone Records. 12.30 p.m., Time, Weather and News. 12.40 (from Basle), Concert of Viennese Music by the Krems Orchestra. 1.25 (from Basle), Time, Weather and Exchange. 1.30-5.0, Interval. 5.0 (from Zurich), Concert by the Small Station Orchestra. 6.0 (from Berne), Schubert Song Recital on Gramophone Records. 6.30 (from Basle), Talk: Across the Mediterranean in a Collapsible Boat. 7.0 (from Basle), Time, Weather and Announcements. 7.10 (from Basle), Variety Concert on Gramophone Records. 7.45 (from Basle), Italian Lesson. 8.30 (from Basle), Orchestral Concert of Italian Music of the Eighteenth Century. In an interval at 9.5 (approx.), Weather and News. 10.0 (approx.), (from Basle), A Farce in Dialect (E. Bloch). 10.20 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres;

Ostersund, 389 kc/s, 770 metres, and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Talk. 5.30, Programme for Children. 5.45, Gramophone Music. 6.45, Elementary English Lesson, relayed from Jonköping, 1,490 kc/s, 201.3 metres. 7.15, Weather and News. 7.30, Bröllopsvinsten (The Wedding Prize) — Comedy (Thunberg). 9.0, Choral Concert, conducted by Karl Söderberg. 9.30, Radio Report. 9.45, Weather and News. 10.0, Orchestral Concert: Waltz, Seid umschlungen Millionen (Strauss); Variations on Carnival in Venice (Strauss-Ritzau); Four Sketches (Björkander); På fjället i sol (Peterson-Berger); Selection from Die Fledermaus (Joh. Strauss). 11.0 (approx.), Close Down.

STRASBOURG

860 kc/s, 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, Orchestral Concert, conducted by Maurice de Villers: Les préludes (Liszt); Orchestral Suite No. 5 (Ginrand); A Night on the Bare Mountain (Mussorgsky); Four Sketches. 2.0, Programme for Children. 3.0, Interval. 4.0, Popular Music on Gramophone Records. 5.0, French Elocution Lesson. 5.15, Orchestral Concert, conducted by Roskam. 6.0, Talk in German: Romanesque Architecture in Alsace. 6.15, Talk for Women. 6.30, Orchestral Concert, conducted by Maurice de Villers: Overture, Le postillon de Longjumeau (Adam); Valse des brunes (Ganne); Selection from Véronique (Messager); Czardas (Hubay); Orchestral Suite, Bouton d'or (Pierné); Ballet Music, Les papillons (Pugno-Lippacher). 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German. Lottery Results, and Announcements. 8.30, Military Band Concert, relayed from Colmar: Alsace-Lorraine (Tayon); March-Intermezzo (Gilbert); Selection from The Girl in the Taxi (Gilbert); Mascarade (Lacôme); Waltz, Künstlerleben (Joh. Strauss); Ballet Music from Coppélia (Delibes); Le joyeux trompette (Allier). 1.30 (approx.), Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—1.15 p.m., Time and News. 1.30, Suite in B Minor, No. 2 (Bach), by the Concertgebouw Orchestra, conducted by Willem Mengelberg (on Gramophone Records). 2.0, Concert arranged by the Post Office, with Gramophone Music. 2.30, Spanish Lesson. 3.0, Elementary English Lesson. 3.30, Programme for Children from Frankfurt. 4.50, Concert by the Station Orchestra, conducted by Gustav Görlisch: Overture, Berlin wie es weint und lacht (Conradi); Schlagler and Seltlager—Berlin Melodies of the Year 1910 (Lincke); Overture, Berliner Luft (Lincke); March, Wien-Berlin (Schrammel); Fiaker-Marsch (Reidhart); Two Old Viennese Dances; Waltz, Wiener Extrablätter (Translatour); Selection from Lilac Time (Schubert-Berte); March, Wien bleibt Wien (Schrammel). 6.45, Talk: Animals. 6.10, Famous Lovers of Opera—a Talk with Gramophone Record Illustrations. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0 (from Karlsruhe), Discussion: The Labour Service. 8.30, Serenades—Concert by the Station Orchestra, conducted by Paul Sixt: Halfner Serenade (Mozart); Serenade in D (Brahms); Serenade for Wind Instruments (Richard Strauss); Italian Serenade (Hugo Wolf). 9.45, Pianoforte Recital by Helene Renate Lang: Fugue on the Magnificat (Pachelbel); Sonata in B flat (Schubert). 10.30, Time and News. 10.50 to 1.0 a.m. (Friday), Interval. 1.0, Also on Zeesen, 31.38 metres, Concert of Swabian Folk Music. 1.30, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Concert by a Viennese Orchestra. 6.45, Chansonettes. 7.0, Les Préludes (Liszt), by a Symphony Orchestra. 7.15, News, Racing Results and Market Prices. 7.30, Operetta Music: Songs from The Drum Major's Daughter (Offenbach); Elle est à vous (Yvain); Une nuit au Louvre (Urgel). 7.45, Light Orchestral Music. 8.0, Orchestral Concert: Poème (Fibich); Potpourri; Napoléon (Popeski); Gavotte from Mignon (Thomas); Czardas; Valse de Souvenir (Melé). 8.30, Sound Film Music. 8.45, Accordion Music. 9.0, Programme relayed from Clermont Ferrand. In the intervals, Popular Concert and Light Music. 10.15, North African News Bulletin and Local News. 10.30, Concert for Listeners in Morocco: Operetta Potpourri (Misraki); Melody (Tagliadico); Waltz caprice (Wiennawsky); Lullaby from Mignon (Thomas); Invitation to the Waltz (Weber). 11.0, Dance Music. 11.45, Popular Music: An den Frühling (Grieg); Wien bleibt Wien (Schrammel); La dédaigneuse. 12.0 Midnight, News Bulletin, Weather Forecast and

Announcements. 12.5 a.m. (Friday), Popular Music. 12.15, Orchestral Music: Extracts from Alessandro Stradella (Plotow) and The Secret Marriage (Cimarosa). 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.10 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres, and Florence, 599 kc/s, 500.8 metres.—5.10 p.m., Concert. 6.0 to 6.5, Weather. 6.40, Giorno e Radio. Dopolavoro Announcements and Gramophone Music. 7.0, Time, Tourist Report and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes, Weather and Gramophone Music. 8.20, Talk on the following Transmission. 8.30, Il Pirata—Opera (Bellini). After the Opera, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—11.0 to 11.15 a.m., Religious Information in French. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 293 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—12 Noon, Concert by the Wiener Symphoniker, conducted by Josef Holzer: Overture, Des Wanderers Ziel (Suppé); Suite from Les millions d'Arlequin (Drigo); Duet for Two Trumpets, Ich wollt' mein Lieb' (Mendelssohn); Two Polish Folk Dances (Scharwenka); Waltz, Genrebilder (Lanner); Serenade pizzicato (Ganne); Musikalische Vexierbilder (Schreiner); Liedermarsch (Lelard); Slow Waltz, Heures Elysées (Pueck); Polka, Wiener Leben (Jos. Strauss); Waltz, Weana Früchtl'n (Czibulka); Idyll for String Quintet (Blasser); Eysler Potpourri (Ilrudy). In an interval at 1.0 p.m., Time and News. 3.0, Time and Announcements. 3.35, Programme for Children. 3.45, German Opera Music on Gramophone Records. 4.25, Talk: Painting and Photography. 4.40, Talk for Women. 5.5, Sarasate Recital by Ludwig Wittels (Violin): Andalusian Romance, Habanera; Carmen Fantasia; Zapateado; Zigeunerweisen. 5.45, Theatre Notes. 5.55, Talk on Ferdinand Avenarius. 6.10, Talk: Autumn in the Eastern Tyrol. 6.35, Talk: Ourselves and Primitive Races. 7.0, Concert by the Tautenhayn Quartet: Minuet (Haydn); Ecossaises (Schubert); Andante (Mozart); Gavotte (Méhul); Humoresque (Piber); Wiegenlied und Ständchen (Heller); Viennese Suite (Tautenhayn); Schön Rosmarin (Kreisl); Folk Song (Konzack); Waltz, Les deux chats (Varney). In the interval at 7.35, Time and Announcements. 8.0, Undine—Opera in Four Acts (Lortzing). In an interval at 9.20 (approx.), News. 10.20, Descriptive Piece on Gramophone Records, and Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from Torun, for the 700th Anniversary of the Town. 12.5 p.m., Gramophone Music. In the intervals at 12.25, Press Review; and at 12.33, Weather. 12.55, Radio Journal. 1.0, Interval. 2.55, News. 3.0, Gramophone Music. In the intervals at 3.5, News; at 3.25, Economic Notes; at 3.45, Programme for Boy Scouts; and at 4.0, Programme for Children. 5.0, Dialogue. 5.15, Song Recital by Halreich (Soprano) and Hernes (Tenor). 6.15, Talk. 6.35, Chamber Music: Pianoforte Trio in D Minor, Op. 49 (Mendelssohn); Second Part of Pianoforte Trio in G Minor (Chopin). 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Reading. 8.0, Concert by the Station Orchestra. Soloist, Eugene Mui (Baritone). Overture, Der Opernball (Heuberger); Intermezzo from Rigoles (Delibes); An Evening in Hawaii (Filippucci); Songs: (a) Aria from The Queen of Spades (Tchaikovsky); (b) Monologue from Sappho (Verdi); Russian Dance (Tchaikovsky); Chanson sans paroles (Tchaikovsky); Invitation to the Waltz (Weber-Berlioz); Fantastic Dance (Weber-Berlioz). 8.50, Radio Journal. 9.0, Agricultural Notes. 9.10, Concert (cont'd.): Selection from Madame Butterfly (Puccini); Songs: (a) Aria from Verbum Mobile (Minniszko); Serenade from Don Juan (Napravnik); Ballet Music from Coppélia (Delibes); Melody (Lodwigowsky). 10.0, Dance Music from the Adria Dance Hall. In the intervals at 10.25, Sports Notes; and at 10.35, Weather and Police Notes.

ZURICH.—See Schweizerischer Landessender.

FRIDAY

SEPTEMBER THE TWENTY-SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON Music hall programme.
Promenade concert from Queen's Hall.

REGIONAL MIDLAND Band programme.

REGIONAL NORTH A Coleridge-Taylor Orchestral programme.

REGIONAL WEST Choral concert.

REGIONAL SCOTTISH "Fishers' Howff," a gathering of musical and loquacious anglers, relayed from Newhaven.

REGIONAL BELFAST Orchestral concert.

ABROAD

BRUSSELS (No. 2) 8.0 p.m. The Station Symphony Orchestra.

BUDAPEST 10.15 p.m. The Opera House Orchestra, conducted by Komor.

COPENHAGEN 10.10 p.m. Contemporary Danish music, by the Station Symphony Orchestra.

EIFFEL TOWER HEILSBERG 7.50 p.m. Opera: "Romeo and Juliet," by Gounod, relayed from the Opera.

HILVERSUM 8.5 p.m. The Königsberg Opera House Orchestra, conducted by Bruckner.

LANGENBERG 8.40 p.m. The Station Orchestra, conducted by Gerritsen.

POSTE PARISIEN 5.30 p.m. Symphonic dances, by the Station Orchestra, conducted by Kuhn.

TURIN 8.30 p.m. Two operas: "Bonsoir, Voisin," by F. Poisa, and "Paille d'Avoine," by Planquette.

8.15 p.m. Symphony concert, conducted by Daniele Amfitheatrof.

ATHLONE
725 kc/s, 413 metres; 60 kW. Relayd by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m., Time, Weather, Stock Report, and Gramophone Concert. 4.0, Orchestral Concert. Soloist, John Lynskey (Baritone). 6.0, Programme for Children. 6.45, News. 7.0, Gardening Talk. 7.15, Talk: The New Psychology. 7.30, Time Signal. 7.32, The Station Orchestra. 8.0, Baritone Solos by Robert Irwin. 8.15, Violin Solos by Jennie Ballantine. 8.30, The Station Orchestra. 8.50, Contralto Solos by Jean Roper. 9.5, The Station Orchestra. 9.20, Illustrated Lecture Recital: Songs of Wicklow. 9.30 to 10.30, Programme arranged by the I.B.C. (Ireland). Ltd. 9.30, Concert: Humorous Fantasy, Wedded Whimsies (Alford); In a Chinese Temple Garden (Keteibey); Xylophone Solo, The Blue Danube (Strauss); Light of Foot (Latann); A Life on the Ocean (Binding); Xylophone Solo, The Skaters' Waltz (Waldteufel); Quand Madelon (Bousquet); Old Comrades March (Teike). 10.0, Concert arranged by the International Broadcasting Company (Ireland), Ltd. on behalf of the Hospitals Trust, Ltd.: Signature Tune, Come Back to Erin; Waltz from The Gipsy Princess (Kálmán); Intermezzo, Liebesfreud (Kreisler); Xylophone Solo: Overture, Light Cavalry (Suppé); By the Swanee River (Myddleton); Serenade (Moszkovsky); Banjo Solo: Minuet (Bocherini); Waltz from Der Rosenkavalier (R. Strauss). 10.45, News and Weather.

BARCELONA
EAJ1; 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trio Concert: Selection from Sappho (Massenet); Der Erikönig (Schubert); Song (d'Azzurro); Selection from the Rhinegold (Wagner); L'amour printanier (Kalkman); Dance (d'Ambrosio); Selection from Hamlet (Thomas). 8.0, Request Gramophone Music. 8.30, Exchange. 9.0, Gramophone Music and News. 10.0, Chimes from the Cathedral, Weather, Messages to Seamen, Exchange, and Market Prices. 10.10, Concert by the Station Orchestra. 11.15, Literary Talk. 11.30, An Opera on Gramophone Records. In the interval at 12 Midnight, News. 1.0 a.m. (Saturday), Close Down.

BARI
1,112 kc/s, 269.8 metres; 20 kW.—See Rome.

BASLE—See Schweizerischer Landessender.

BERLIN
DEUTSCHLANDSENDER (Reichssender), 183.5 kc/s, 1,635 metres; 60 kW.—12 Noon, Weather. 12.5 p.m. (approx.), Gramophone Concert. After the Concert, Weather. 12.55, Time Signal. 1.45, News. 2.0, Gramophone Concert. 3.0, Talk: Books for Girls. 3.15, Talk for Women. 3.30, Weather and Exchange. 3.54, Reading. 4.0, Concert from Leipzig. 5.0, Stags—a Radio Report. 5.20, Concert. Part I, Brockt Music: Four Serenades by the Station Chamber Orchestra: (a) Festliches Ständchen, (b) Geburtstagsständchen, (c) Frühlingsständchen. (d) Abendständchen. Part II: Music by Buncke: Saxophone and Piano Solo Duets by Emil Manz and Heinz Lamann: Romance in G flat; Intermezzi in G; Intermezzo in A flat; Concert Waltz. 6.0, A Poem. 6.5, The Merciless Microphone—A Discussion between Heinrich Romer and Dr. Friedrich Bubendey. 6.30, Gramophone Music. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, To-day's Motto. 8.5, See Heilsberg. 9.20, Der Klippdachs—a Radio Picture of the South West. 10.0, News, followed by a Dialogue between Christian Sen and Tringard von Bork on the Italian Atlantic Flight. 10.45, Weather. 11.0, Concert. 12 Midnight, Close Down.

BERLIN
FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.0 p.m., A Discussion on the German Theatre. 4.15, Talk: The Care of a Motor Bicycle. 4.30, Military Band Concert, relayed from the Zoo. Conductor: Walter Harmens. 5.10, Aria Recital by Alfred Schäfer (Baritone): Aria from (a) Così fan tutte (Mozart), (b) Ernani (Verdi), (c) The Pearl Fishers (Bizet), (d) The Battle of Legnano (Verdi). 5.30, Autumn Songs—Radio Sequence (Karl Privat). 6.0, Talk: Horst Wessel's Father—a Model German. 6.15, Review of Sound Films. 6.40, The Funkstunde informs its Listeners. . . . 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.5, The History of the Berlin Suburb Friedrichstadt—Musical and Literary Programme. 9.0, The Third Symphony in D Minor (Bruckner), by the Station Orchestra, conducted by Eugen Jochum. 10.0, Weather and News. 10.25 (approx.), Light Music by the Wilfried Krüger Orchestra, relayed from the Traube Restaurant. In the interval at 11.0 (approx.), Theatre and Film Review, 12 Midnight (approx.), Close Down.

BERNE—See Schweizerischer Landessender.

BEROMUNSTER—See Schweizerischer Landessender.

BODEN—See Stockholm.

BODO—See Oslo.

BORDEAUX-LAFAYETTE
986 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.40, News. 7.50, Romeo

and Juliet—Opera (Gounod), relayed from the Opéra, Paris.

BRATISLAVA
1,076 kc/s, 279 metres; 14 kW.—5.45 p.m., Dramatic Programme. 6.45, Sports Talk. 6.55, Talk for Housewives. 7.0, See Prague. 7.10, Reading. 7.25, See Prague. 10.15 (approx.), Close Down.

BREMEN—See Hamburg.

BRUSLAU
923 kc/s, 325 metres; 60 kW. Relayd by Gleiwitz, 1,184 kc/s, 253 metres.—4.5 p.m., Gramophone Concert. 1.45, Time and News. 2.5, Pianoforte Recital by Hanna Horn: Sonata in E (Brahms); Three Pieces (Graener); Sonata No. 2 in A Minor from the Scarlattianna (Niemann). 2.30, Gramophone Music. 3.0, Agricultural Prices. 3.15, Programme for Young People. 3.40, Reading. 4.0, Concert by the Station Orchestra, conducted by Topitz: Overture, Maritana (Wallace); Suite from Coppélia (Delibes); Im Reiche der Venus (Gröschel); Second Rhapsody (Liszt); Traumbilder (Joh. Strauss); Intermezzo (Joh. Strauss); March (Schicke); Alt Heidelberg—Potpourri of Students' Songs (Klose). 5.30, Market Prices. 5.45 (approx.), Reading. 6.0, Programme to be announced. 6.30, Germans outside the Reich—German Settlements in South East Europe. 6.50, Market Prices. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, News. 8.10, Choral Concert. In the intervals, Duets by Käthe Helbig (Soprano) and Herbert Heidrich (Tenor). 9.10, A Monkey on Board—Radio Play (Geyer). 10.10, Time and News. 10.35, Talk: Artillery Fighting around Jeza. 10.55 (from Gleiwitz), Light Music and Dance Music by the Kulnert Orchestra. 12 Midnight, Close Down.

BRNO
878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.15, Talk for Workers. 6.25, German Transmission; News and Talks. 7.0, See Prague. 7.10, Reading. 7.25, See Prague. 10.15 (approx.), Close Down.

BRUSSELS (No. 1)
I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Autumn—Gramophone Concert: Pensée d'Automne (Massenet); Feuilles d'Automne (René); Le cor (Flégier); Shepherd's Hey (Grainger); Le chasseur maudit (César Franck); Melody (Humble); Chrysanthèmes (Goublier); Extracts from the Ballet, The Seasons (Glazunov); Autumn Mist (Kroningsberger); Foxtrot, Autumn Winds (Packay); Mazurka (Paradis); Die Jagd im Schwarzwald (Voelker); Brillants chasseurs (Courtade). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans, and a Vocal Quartet: Overture, Les Hirondelles

(Hirschman); Suite, Jeux d'enfants (Bizet); Songs. Violin Solo: Minuet (Mozart); Selection from Le Jour et la nuit (Lecocq). 5.0, Concert by the Radio Orchestra, conducted by André. Soloist: Misson (Violin): Overture. Cousin de Poperinghe (van Oost); Valse en sourdine (Aekermans); Esquisses flamandes (Brusselsans); Andante from the Third Violin Concerto (Saint-Saëns); Suite (Anduaya); Mozartiana (Tchaikovsky); Italian Songs (de Micheli); Old French Songs (Broustet). 6.0, Talk by the Director of the Prison Schools. 6.35, Request Gramophone Records. 6.30, Song Recital. 7.15, Talk: Tournai. 7.30, Legal Talk and Literary Review. 8.0, Military Programme—Addresses, Military Band Music and Songs. After the Programme: Announcements for Ex-Servicemen. 8.45, Educational Talk: Our World Tour. 9.0, Popular Concert by the Radio Orchestra, conducted by Franz André. 10.0, Le Journal Parlé.

BRUSSELS (No. 2)
N.I.R.; 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Nordische Seemannslieder; Serenade (Saint-Saëns); Ballet Music from Terepsichore (Ganne); Spanish Dance No. 8 (Saragata); Selection from The Carnival Fairy (Kálmán); "Cello Solo, La Cinquantine (Gabriel Marie); Waltz (Abramham); Ein Tango macht verliebt (Komjati); Potpourri of American Melodies (Nichols). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Music. 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Tannhäuser (Wagner); Le Tombeau de Couperin (Ravel); Cortège (Roels); Arabesque (Absil); Dance (Absil); Entr'acte (Absil); Dance (Dupuis). 6.0, Sonata from Jeanforte and Violin (Lekeu). 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Prelude and Cortège from Dejanire (Saint-Saëns); Petite Suite No. 2 (Gilson); Chant sans paroles (Tchaikovsky); Mirolage (Marsick); Parade of the Tin Soldiers. 7.0, Talk with Gramophone Illustrations: East European Folklore. 7.30, Le Journal Parlé. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Symphony No. 2 (Beethoven); Siegfried Idyll (Wagner); Overture, Oberon (Weber). 9.0, Dan Sternefeld Concert by the Station Symphony Orchestra, conducted by Kumps. Soloists: Ina Wassermann and Doris Diels. Extracts from Precieuses ridicules; Minuet from Les Precieuses ridicules; Selection from Antigone; Three Popular Flemish Songs from Wonderdoktoor; Selection from Mary Magdalene and the Nazarenes. 10.0, Le Journal Parlé. 10.10 (approx.), Close Down.

BUCHAREST
761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert of Variety Music by the Jean Marco

Orchestra. 6.0, Radio Journal. 6.15, Concert (contd.). 7.0, Educational Programme. In the intervals from 7.20 to 7.40, Light Music on Gramophone Records. 8.0, The Pearl Fishers—Opera in Three Acts (Bizet). In the intervals, Radio Journal and Talk.

BUDAPEST
545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.40 till Close Down. —5.30 p.m., Light Music by the Szervanszky Orchestra. 6.30, Talk. 7.0, Concert by a Workers' Choir. 7.40, Talk: The Author, Francis Herzog. 8.0, The Black Rider—Play (Herzog). 10.0, News. 10.15, Concert by the Opera House Orchestra, conducted by Komor: Overture, Der Vampyr (Marschner); Indian Suite (Lilting); España (Waldteufel); Operetta Potpourri (Konik); Extract from Gipsy Love (Lehár); March, Vivat Hungaria (Kálmán). 11.0, Light Music by the Lajos Kiss Cigány Band, relayed from the Café Burros.

CASSEL—See Frankfurt.

COPENHAGEN
1,067 kc/s, 281 metres; 0.75 kW. Relayd by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time and Chimes from the Town Hall. 12.5 p.m., String Ensemble Concert, relayed from the Bellevue Strandhotel. 2.0, Interval. 3.0, Concert by the Radio Orchestra, conducted by Launy Gröndahl. Soloist, Oda Petersen (Songs). Overture, Titus (Mozart); Waltz Suite (Schubert); Selection from Masaniello (Auber); Three Pieces from the Indian Suite (Macdowell); Six Songs (Heise); Concert Overture, Hamlet (Gade); Waltz, Cécilie (Lumbye); Movement from the Symphony in B flat (Mozart); Berceuse (Respighi); Selection from La Poupée (Andran); March, Uncle Teddy (Fucik). 5.0, Programme for Children. 5.30, Exchange and Fish Market Prices. 5.45, Talk: King Ferdinand of Bulgaria. 6.15, Elementary German Lesson. 6.45, Weather and Announcements. 7.0, News. 7.15, Time Signal. 7.16, Talk on Unemployment, relayed from the University. 8.0, Chimes from the Town Hall. 8.5, Programme by Per Knutzen. 8.10, Harpsichord Recital: Canzone (Poglietti); Sonata in C Minor (Galuppi). 8.25, The Violin King—Radio Play (Hetsch). 9.25, Gramophone Music. 9.45, Humorous Recitation. 9.55, News. 10.0, Concert of Contemporary Danish Music, by the Station Symphony Orchestra, conducted by Emil Reesen. Soloists: Holger Jespersen (Flute); Knud Lassen (Bassoon); Thorvald Nielsen (Violin); and Sverre Forchhammer (Viola). Symphony No. 2, Op. 41 (Emborg); Flute Concertino, Op. 5 (Sensstius); Sonata for Bassoon, Violin and Viola (Berlioz). 11.10, Dance Music, relayed from the Wives' Restaurant. In the interval at 12 Midnight, Time and Chimes from the Town Hall. 12.30 a.m. (Saturday), Close Down.

CORK—See Athlone.

DANZIG—See Heilsberg.

DRESDEN—See Leipzig.

FECAMP
1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour. Part I, Orchestra Music: Signature Tune; Old Music Hall Memories. Pianoforte Solo: The Squirrel Dance (Smith); Dance of the Raindrops (Reeves); The Devil Dance (Petersen); Crazy Pionette (Frisk). Pianoforte Solo: Melody from Viktoria and her Husar (Abraham); The Wedding of the Birds (Petersen); Sari Waltz (Kálmán). Part II, Request Music: Hawaiian Hotel (Tradition); In the Valley of the Moon (Burke); Lullaby of the Leaves (Petkere); Kilima (Traditional); La Paloma (Yradier); Peter, Peter (Connolly); Silvery Moon (Frazzini); Palukiko Blues (Hackforth); Signature Tune. 12 Noon, Programme in French. 4.30 to 6.0, Programme in English by the I.B.C. 4.30, Programme for Children. 5.0, Concert for Southampton and Winchester Listeners. I.B.C. Members' Request Half Hour: Signature Tune, The Night by the Sea; Veterans of Variety; Air from The Belle of New York (Kerker); The Skaters' Waltz (Waldteufel); Marta (Simons); The Sanctuary of the Heart (Keteibey); Glow-Worm Idyll (Lincke); The Old Rustic Bridge by the Mill (arr. Wood); Black Eyes (Ferraris). 5.30, Concert of Light Music for Bournemouth and Weymouth Listeners: Rhapsody in Blue (Gershwin). Xylophone Solo: Air from Carmen (Bizet). A Letter to my Mother (Gilbert); Jingle Drums (Keteibey); The Ghost Walk; A Boy and Girl were Dancing (Revel); Xylophonia (Green); Song of the Islands (Kerz); Signature Tune. 6.0, Programme in French. 10.0 (approx.), till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune, The Bells of Normandy; At the Old Pig and Whistle; In the Valley of the Moon; You're mine, you; Under my Umbrella; When the Morning rolls around again; Thank Heaven for you; In a Second-hand Store; When Gimble hits the Cymbal. 10.30, Dance Music: A Woman should stick to her Man; The Old Spinning Wheel; Wanderer; Pop Gun; Melody from Forty-Second Street; Maybe I love you too much; Waiters on Parade; My, Oh My!; Hyde Park Corner; Signature Tune. 11.0, Music from Sound Films: Signature Tune, Sittin' in the Dark;

SEPT. 22nd

FRIDAY

continued

Talkie Gems; Heaven will protect an Honest Girl; Melody from Congress Dances; Sergeant Flagg and Sergeant Quirt; I want to cling to Ivy; Sweep; In the Park in Pares; Selection from The Love Parade; Signature Tune. 11.50, Club Concert for Newark Listeners: Signature Tune, The Chum Song; Morning, Noon and Night (Suppé); Down Vauxhall Way (Oliver); Selection from Chin Chin Chow (Norton). Pianoforte Solo: Butterflies in the Rain (Myers); The Song of Songs (Moya); Selection from The Mikado (Sullivan); Song, The Temple Bells (Woodforde-Finden); Around the Volga (Borchert). 12.5 a.m., News Bulletin in English. 12.10 (approx.), Club Concert, Part II: I don't know why (Ahlert); My Silent Love (Suesse); In Sunny Monterey (Nicholls); Bahama Mama (Gilbert); When Work is through (Shermann); Signature Tune. 12.30, Dance Music: I cover the Waterfront; Waltzing in a Dream; They all do the Rumba; That's my Home; I've told every Little Star; Something came and got me in the Spring; Dance. Pretty Lady; Fit as a Fiddle. 1.0, Dance Music: Signature Tune, Bells of Normandy; My Bluebird's singing the Blues; Lover; Peter, Peter; Waltzing in a Dream; That's my Home; Come out Vienna; Letting in the Sunshine; Let's all be happy together; Learn to croon; There's a Cabin in the Pines; He was only a Poor Musician; Somebody stole my Gal; In Old Vienna; The Girl in the Little Green Hat; Sweetheart darlin'; Signature Tune. 2.0, I.B.C. Goodnight Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m. (from Cassel). Concert by the Cassel Kampffund Orchestra, conducted by Ludwig Maurick; Overture, Der Wildschütz (Lortzing); Ballet Music from Rosamund (Schubert); Overture, La dame Blanche (Boieldieu); Piedmontese Dances Nos. 1 and 2 (Sinigaglia); Waltz from Faust (Gounod); Lehár Potpourri; Waltz, Frühlingsstimmen (Joh. Strauss). 5.45, Economic Notes. 6.0, Medical Talk. 6.20 (from Trier), Talk: The Economic Relationship between the Saar District and Germany. 6.45, Today's News. 6.50, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Lothar Winsperger Concert by the Station Orchestra, conducted by Hans Rosshard. Soloist: Max Strub (Violin). Concert Overture in G, Op. 17; Violin Concerto, Op. 39. 8.50, Programme in Memory of the Baden Poet, Samuel Friedrich Sauter. 9.50, Talk with Gramophone Illustrations: The Automatic Organ. 10.20, Time and News. 10.45, Serenade. 12 Midnight (approx.), Close Down.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GOTEBORG.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—6.0 p.m., Variety Programme. 6.25, Talk: German Heroes of the Great War—Wedding of the U Boats. 6.45, Exchange and Market Prices. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, From the Weststein to the Porta-Westfalica—Landscape Pictures (Robert Walter). 10.0, Time and News. 10.20, Topical Talk. 10.30 (from Bremen), The Weather in Music—Orchestral Concert, conducted by Reinhold Krug; Waltz, Zephyr Breezes (Gungl); Brise de mer (Leoncavallo); Overture, A Summer Night in Madrid (Glinka); Waltz, Meeresschein (Zieher); Murrendes (Lütchen (Jensen); Prelude, The Rain Drop (Chopin); Waltz, Winterstürme (Fucik); Adagio from the Moonlight Sonata (Beethoven); Storm (H. Wolf); Regennacht (Niemann); Strandwellen (Lüling); Lockende Dämmerung (Leuschner); Schneeflocken (Thiele).

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—1.5 p.m., Gramophone Concert. In the intervals at 1.20 and 2.0, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Agricultural Prices and Exchange. 3.30, Programme for Children. 4.0, Talk for Women. 4.30 (from Danzig), Concert by a Nazi Band. 5.45 (from Danzig), Rocooco Suite (Zieher) for Voice, Pianoforte, Violin and Cello. 6.15, Agricultural Prices. 6.20, Concert by a Zither Trio: Leopold March (Obermaier); Prelude (Swoboda); Waltz (Bauer);

Polka, La Bohème (Würzinger); Royal March (Wormsbacher). 6.50, Weather. 7.0, Transmission for all German Stations: Fishermen of the Kurisches Haff—Radio Sequence (Burchard-Gerhard-Kaestner). 8.0, Weather and News. 8.5, Concert by the Königsberg Opera House Orchestra, conducted by Bruckner. Introductory Talk by Prof. Dr. Müller-Blattau: Symphony for Chamber Orchestra No. 2 (Schelb); Concerto for Flute, Clarinet, Bassoon Trumpet, Drums and Strings, Op. 106 (Weissmann). 9.20, Humorous Tales from the Argentine. 9.40, News. 9.45, Extracts from Ernani—Opera (Verdi), by the Orchestra and Choir of the Milan Scala (on Gramophone Records). 10.30, Weather, News and Sports Report.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW. (until 5.40 p.m.), and 20 kW. from 5.40 p.m. Programme of the Catholic Radio Society (K.R.O.).—11.40 a.m., Police Notes. 11.55, Concert by the Station Sextet. 1.25-1.40 p.m., Interval. 1.40, Song and Pianoforte Recital. 3.40, Organ Recital by Dreissen. 4.20, Gramophone Music. 5.10, Agricultural Talk. 5.40, Concert by the K.R.O. Boys: The Loudon Fire Brigade (Nicholls); Einmal kommt einer (Guttman); Selection from The Flower of Hawaii (Abraham); Black-Eyed Susan Brown; Ich kann Dir gar nicht sagen (Grün); Delibes Potpourri (Urbach); Please handle with care (Stride); Maluxa (Seutis); Finale. 6.40, Police Report. 6.55, Talk. 7.15, Gramophone Music. 7.25, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Overture, Ruy Blas (Mendelssohn); Lyric Suite No. 1 (Grieg); Piedmontese Dance (Sinigaglia); Glinka Potpourri (Urbach). 8.10, News. 8.15, Violin Recital by Grootegoed: Ave Maria (Schubert-Willelm); Rondino (Beethoven-Kreisler). 8.25, Gramophone Music. 8.40, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Soloist: Grootegoed (Violin); Selection from L'enfant prodige (Debussy); Concertino (Weill); Spanish Serenade (Chaminade-Kreisler); Spanish Dance (Falla-Kreisler). In an interval at 9.10, The Letter—Radio Play in One Act. 9.40, A Radio Play. 9.50, Orchestral Concert (cont'd): The Wedding of the Rose (Jessel); Extracte Gavotte (Gilbert); Weaner Madlen (Zieher); March (Blankenburg). 10.10, News. 10.15, Concert by the K.R.O. Boys, conducted by Lustenhouwer. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk, on 50 kW. from 3.40 p.m.—11.40 a.m., 3.40 p.m., Programme of the Algemeene Vereniging Radio Amroep (A.V.R.A.).—11.40, Time Signal. 11.41, Concert of Light Music. In the interval, Gramophone Music. 1.40, Gramophone Records. 2.10, Recitations. 2.40, Gramophone Music. 3.40, Interval. 3.55-7.40, Programme of the Workers' Radio Society (V.A.R.A.). 3.55, Concert by the Small V.A.R.A. Orchestra, conducted by de Groot. 4.30, Programme for Children. 5.0, Concert by De Notenkrakers Orchestra, conducted by Wins. Czardas (Lebert). 5.40, Gramophone Music. 5.55, Concert by De Viereluiters Orchestra, conducted by Forest. 6.20, Talk. 6.40, Concert by the V.A.R.A. Orchestra, conducted by De Groot: Soloist: Jo Hekkert-van Eyden (Songs); Hungarian Comedy Overture (Keler-Béla); Waltz, Accelerationen (Strauss); Song, Wer uns getraut (Strauss); Spielmannstiel (Nicola); Carnival Suite (Thomé); Waltz, Seid umschlungen Millionen (Strauss); Song (Olmann); Song, Houdt med (Uytenbogaardt); March (Carstens). 7.40-10.40, Programme of the Liberal Protestant Radio Society. 7.40, Talk. 8.10, Cello and Pianoforte Recital, by v.d. Stad and Mlle. Bosmans: Suite in D minor, Op. 13, No. 2 (Reger); Calm Night (Bosmans); Conchita's Dance (Veerenolen); Sonata (Andriessen). In the interval at 8.40, Religious Address. 9.40, Religious Notes and Press Review. 9.55, Talk. 10.25, Gramophone Music. 10.40 till Close Down, V.A.R.A. Programme. 10.40, Organ Recital by J. Jong: love a little Cottage (O'Hara); Turkish March (Mozart); Selection from Madame Butterfly (Puccini); Stormy Weather (Arlen); Selection from Die schöne Galathee (Suppé-Gross). 11.10, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 468 metres; 16 kW.—7.20 p.m., Announcements and Gramophone Music. 7.35, Sports Talk. 7.40, See Warsaw. 10.40, The Letter Box in French.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Concert by the Fröhliche Fünf. 1.15 p.m., News. 1.30, Orchestral Concert, conducted by Eysoldt: Overture, The Gipsy Baron (Joh. Strauss); Selection from Martha (Flotow); Verbotener Gesang (Gastaldon); Für dich allein (Geel); Wanderer-Suite (Knümann); Four Indian Love Lyrics (Woodforde-Finden); Waltz, Donauweibchen (Strauss); Intermezzo, Silver Moon (Darewsky); From the Far West (Demarest); Overture, Pique Dame (Suppé). In an interval at 2.0 (approx.), News. 3.0, Topical Talk. 3.10, Talk for Workers. 3.30, Economic Notes and Time. 3.50, Programme for Young People. 4.30, Famous Voices on Gramophone Records. 4.40, Reading of a War Story (Paul Alverdes). 5.0, Concert; Erdmuth Fiebiger (Contralto), Eghert Grape (Pianoforte), and Walter Schneiderlar (Violin): Pianoforte Solo: Papillons (Schumann); Contralto Solos: (a) Hindu Song (Rimski-Korsakov), (b) Doubt (Glinka), (c) Maiglöckchen (Arenski); Variations on a German Song (Chopin). 5.30, Symphonic Dances by the Station Orchestra, conducted by Kühn: Minuet from the Symphony in E flat (Haydn); Minuet from the Symphony in E flat (Mozart); Second Movement from the Symphonie fantastique (Berlioz); Waltz from the Fifth Symphony (Tchaikovsky). 6.15, To the Fatherland—Reading of Poems by Uhland, Dehmel, Geibel, and Klopstock. 6.25, English Conversation. 6.45, Announcements. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Announcements. 8.5, Poems which became Folk Songs. Concert by the Station Choir, the Children's Choir, and the Station Wind Instrument Orchestra; Soloists, Rolf Pfarr (Baritone) and Wilhelm Strienz (Bass). 9.0, Ferdinand Avenarius Memorial Programme. 10.15, News. 10.40, Forthcoming Events. 10.50, Serenade and Dance Music, conducted by Eysoldt. 11.30 (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 951 kc/s, 319 metres.—12 Noon, Concert by the Emde Orchestra: March (Schneider); Overture (Doppelt); Waltz (Jos. Strauss); Suite, At the Circus (Armandola); Boston Waltz (Milde); Song without Words (Tchaikovsky); Intermezzo (Schmalstich); Melodies from Frau Luna (Lincke); Waltz Intermezzo (Michele); Lied (Krome); Descriptive Piece (Klose); Waltz (Böring); Visione lirica (Mascagni); Selection from Das silbse Mädel (Reinhardt); Florentine Intermezzo (Waghalter); Paraphrase (Rhode); Bedouin March (Oschelt). In an interval at 1.15 p.m., News and Programme Announcements. 2.15 News. 2.30, Art Review. 2.45, Notes for Tax-Payers. 3.0, Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Overture, Im Walde (Brüll); Rossiniana Suite (Rossini-Respighi); Selection from Die toten Augen (d'Albert); Three Pieces for Striungs (Kranz); Slav Rhapsody in G Minor (Dvorak); Waltz from Der Rosenkavalier (Richard Strauss). In an interval at 3.35, Market Prices. 5.0, Reading of Lyrics (Ernst Droem). 5.20, Lute Recital by Hans Neemann: Sarabande in C Minor (Bach); Polonaise (Weiss); Suite (Visée); Legend (Nowowiecki); Romance (Neemann); Melody (Czarnuscha). 6.0, Italian Lesson. 6.25, Talk: Salma Lagerlöf's Native Region. 6.45, Gramophone Records: Selection from the Peer Gynt Suite (Grieg); Im Kalne (Grieg); Rustle of Spring (Sinding). 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Der alte Dessauer—Operetta (Otto Finsden), after Henschel's Play, Die Anna-Liese. 10.15, News. 10.45, See Frankfurt.

LINZ.—See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Variety Music on Gramophone Records. 7.30 till Close Down, Dutch Evening. 7.30, The Fourth Symphony (Tchaikovsky), by the Concertgebouw Orchestra, conducted by Willem Mengelberg (on Gramophone Records). 8.15, Song Recital by Laure Lamby-Tronet: Air from Amadigi (Handel); Four Songs (Schubert): (a) An die Musik, (b) Wanderers Nachtlied, (c) An die Nachtigall, (d) Seligkeit; Ungelorg's Lament from Frithjof-Szenen (Max Bruch); Maria Wiegand (Reger). 8.50, News in French. 9.0, Violin Recital by Jean Bömer: Sonata in A (Vivaldi); Variations on a Theme of Corelli (Tartini-Kreisler); Andante and Finale from the Concerto in C (Vivaldi-Kreisler). 9.45, News in German. 9.55, Concert from the Brasserie of the Pôle du Nord.

LWOW

788 kc/s, 381 metres; 16 kW.—7.20 p.m., Announcements and Gramophone Music. 7.35, Programme Announcements. 7.40, See Warsaw. 10.40, Gramophone Music. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the

South-East. 7.40, Romeo and Juliet—Opera (Gounod), relayed from the Opera, Paris. After the Relay, News.

MADRID

ARANJUEZ, EA0, 10,000 kc/s, 20 metres; 20 kW.—11.30 p.m., Popular Concert. In the interval at 11.45, Radio Chronique. 12.35 a.m. (Saturday), Answers to Correspondents. 12.40, Spanish-American Programme. 1.0 (approx.), Close Down.

MADRID

EAUJ, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal and Request Gramophone Records. 8.15, Topical Review. 9.30-11.0, Interval. 11.0, Chimes, Time Signal and Topical Review. 11.20 (approx.), Symphony Music on Gramophone Records: Overture, Figaro (Mozart); Selection from Goyescas (Granados); Le Chasseur maudit (César Franck); Symphony No. 2 in A (Brahms); Pianoforte Concerto (Chopin). 1.15 a.m. (Saturday), Topical Review, News and Programme Announcements for Listeners Abroad. 1.30, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 p.m., Orchestral Concert, conducted by Plichta: Overture, La Princesse jaune (Saint-Saëns); Jeux d'enfants (Bizet); Ballad (Ondrick); Selection from Little Ida's Flowers (Kienan); Waltz Intermezzo (Nedbal); Slovak Dance (Smatek); March (Kostal). 3.50 to 4.0, See Prague. 5.45, Gramophone Music. 5.55, Talk for Scouts. 6.5, Tourist Report. 6.15, See Prague. 7.10, Gramophone Music. 7.25 to 10.15, See Prague. 10.15 (approx.), Close Down.

MOSCOW

(TRADE UNION), 300 kc/s, 1,000 metres; 100 kW.—11.45 a.m., Weather. 2.45 p.m., Weather. 3.0, Ballakirev, Glinka and Rimski-Korsakov Concert. 3.55, Time. 4.0, Topical Talk. 4.30, Talk: Foreign Revolutions in Literature and Music—The Nazi Revolution in Germany. 5.30, Programme for Children. 6.30, Mussorsky and Glazunov Concert, relayed from the Radio Theatre. 9.0, News. 9.30, Programme Announcements. 9.55, Chimes from the Red Square. 10.5, Press Review.

MOTALA.—See Stockholm.

MÜHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m. (from Nürnberg), Orchestral Concert, conducted by Will Böhm: March, Weidmanns Heil (Reckling); Die Felsenmühle (Reissiger); Waltz, Dorischwalben aus Oesterreich (Joh. Strauss); Flute Serenade (Roland); Potpourri, The Tyrol in Song and Dance (Petras); Paraphrase on the Song, Teure Heimat (Aehl); Siamesische Wachtparade (Lincke); Gallop, Im D-Zug (Blon). 5.40, Talk: The Young People of Germany. 6.0, Quartet Concert: Overture, Flotte Bursche (Suppé); Potpourri, Seligie Wiener Zeiten (Morena); Autumn Song (Bece); Im Märchenwald (Ganglbauer); Waltz, Süsse Madln (Reinhardt); Spiel der Weilen (Rol-recht). 6.45, Time, Weather and Agricultural Report. 7.0, Transmission for all German Stations relayed from Heilsberg. 8.0, Symphony Concert by the Station Orchestra, conducted by Hans Winter. Soloist: Walter von Hoetzlin (Pianoforte). Pianoforte Concerto in D minor (Bach); Jugend-Symphonie (Beethoven). 8.50, Topical Talk. 9.10, Concert by the Small Station Orchestra, conducted by Erich Kloss: Overture, Le Brasseur de Preston (Adam); Three Pieces (Rachmaninov): (a) Elegie, (b) Serenade, (c) Prelude; Selection from Taunhäuser (Wagner); Münchener Kindl-Walzer (Kozzak); Modern Dance Suite (Lautenschläger); Meditation (Scasola); Träume der Nacht (Schmalstich); March Intermezzo, Die kleinen Soldaten (Marks). 10.20, Time and News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m., Gramophone Music. In an interval at 5.40, Programme for Schools. 6.30, Political Talk. 7.0, News. 7.30, Introductory Talk on the following Relay. 7.50, See Paris (Eiffel Tower). In the interval at 8.30, Agricultural Notes. 9.20, News. 9.30, Johan Svendsen Programme. In the interval at 10.10, News. 11.0 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—3.0 p.m., Dopolavoro Announcements, Tourist Talk,

SEPT. 22nd

FRIDAY

continued

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.10 p.m., till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 599 kc/s, 500.8 metres.—5.10 p.m., Chamber Music. 6.0 to 6.5, Weather. 6.40, Giornale Radio, Dopplavoro Notes, and Gramophone Music. 7.0, Time, Report of the Royal Geographical Society, and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes, and Weather. 8.15, Symphony Concert, conducted by Daniele Amfitheatrof. In the interval, Talk. 10.0, Concert. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—11.0 to 11.15 a.m., Religious Information in German. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—12 Noon, Concert by the Wiener Symphoniker, conducted by Josef Holzer: March, Tschimm, tschinn (Morawetz); Overture, Si j'étais Roi (Adam); Waltz from Bruder Lustig (Siegfried Wagner); Selection from Les Cloches de Corneville (Planquette); Waltz, Donaupepler (Vollstedt); Spanish Barcarolle, Kisse mich (Lehar); Polka, Die Libelle (Jos. Strauss); Thors Brautfahrt (Frederiksen); Suite: In the Circus (Armandola); Waltz, Regentropfen (Zielner); Gern geh' ich durch Wien (Flemming); Scenes from the Czardas (Hubay); Potpourri, Aus der Zeit der jungen Liebe (Komzak); Galop, Boholl (Gundel). In the interval at 1.0 p.m., Time and News. 2.0, Interval. 3.0, Time, Weather, Market Prices and Exchange. 3.20, Talk: The Mushroom and Fungi Exhibition in Vienna. 3.30, Talk: Eva Lessing. 3.55, Sound Film Music on Gramophone Records. 4.25, Talk: Russian Turkestan—The Country and People. 4.50, Talk: Neu-Waldlegg. 5.15, Song and Piano-forte Recital by Hertz Glatz (Contralto), and Elvira Jung: Songs (Brahms); (a), Immer leiser wird mein Schummer; (b), Von ewiger Liebe; (c), O lehlliche Wanger; Songs (Wolf); (d), Auf einer Wanderung; (e), In der Frühe; (f), Verborgenheit; Songs (R. Strauss); (a), Georginen; (b), Traum durch die Dämmerung; Phantasie-Etude (Georg Schumann); Silhouette (Rege); Elegance (Vladigero); Cake-Walk (Debussy); Negro Dance (Cyril Scott). 5.55, Tourist Report. 6.10, Talk: The European Championship of the Workers' Football Clubs. 6.25, Weekly Sports Report. 6.35, Talk: Prince Eugen. 7.15, Concert by the Wiener Symphoniker, conducted by Max Schönerer. Soloist: Jan Kiveron (Tenor): Miniature Overture (Telchikovsky); Ländliche Suite (Kormann); Suite from The Taming of the Shrew (Zilcher); Waltz, Vienna—Madrid (Klein). In the interval at 7.45, Time, Weather and Programme Announcements. 8.30, Autumn—Concert by the Wiener Symphoniker, conducted by Anton Kourath, the Opera House Choir, a Viennese Boys' Choir and Soloists: Erika Rokyta (Soprano), Hermann Galos (Tenor), and Karl Etl (Bass): Overture, Im Herbst (Grieg); Herbststorch an Pan (Marx); Der geizige Eremit (Reger); Herbststurm (Unger); Autumn, from The Seasons (Haydn). 10.0, News. 10.15, Dance Music on Gramophone Records. After the Dance Music, News.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Gramophone Music. In the intervals at 12.25, Press Review, and at 12.33, Weather. 12.55, Radio Journal. 1.0, Interval. 2.55, Gramophone Music. In the intervals at 3.5, News, at 3.25, Economic Notes, at 3.45, Aviation Report and Anti-Gas Drill, and at 3.55, Maritime and Colonial Report. 4.0, Concert by the Poznan Opera House Orchestra, conducted by Tylja, relayed from Ciechocinek. Overture, Der Geist des Wojewoden (Grossman); Waltz from Die Puppenfee (Bayer); Selection from Cavalleria rusticana (Mascagni); Hungarian Dances, Nos. 5 and 6 (Brahms); Selection from Polenblut (Nedbal). 5.0, Book Review. 5.15, Gramophone Music. 6.15, Talk: Poland To-day. 6.35, Soprano and Cello Recital by Olga Lada (Soprano) and Altenberg (Cello). Plaisir d'amour (Martini); A quelli begli occhi (Mozart); Scotch Songs (Beethoven); Largo (Handel); Lullaby (Reger); Georgian Song (Rachmaninov); Ave Maria (Symbalinski). 7.30, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Topical Talk. 8.0, Concert by the Station Symphony Orchestra. Soloist: Krongold (Violin). 8.50, Radio Journal. 9.0, Hints for the Week-end. 9.10, Concert (cont'd). 10.0, Dance Music from the Ziemianska Café. In the intervals at 10.25, Sports Notes, and at 10.35, Weather and Price Notes.

ZURICH.—See Schweizerischer Landessender.

Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. 8.20, Gramophone Music. In the interval at 8.30, Time and Announcements. 8.45, Concert of Opera Music, conducted by Russo. In the interval, Talk. 11.0, Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m. (Preliminary and 6-dot Signals)—6.45 p.m., Theatre Talk. 7.0, Le Journal Parlé. 7.50, Romeo and Juliet—Opera (Gounod) relayed from the Opéra. 10.0 (approx.), Close Down.

PARIS

POST PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.5, Sponsored Talk. 7.15, Le Journal Parlé. 7.30, Concert. 8.0, Agricultural Talk. 8.5, Songs on Gramophone Records; Aria from Prince Igor (Borodin); Lullaby from Sadko (Rimsky-Korsakov); Mexican Serenade (Poise). 8.30, Two One-Act Operas: (a) Ecosoir, Voisin (Ferdinand Poise), (b) Paille d'Avoine (Planquette). 10.15, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Music. 8.0, Weather and News. 12 Noon, Jewish Programme: Talk, Songs, and Sacred Music. 12.30 p.m., Military Music on Gramophone Records: Overture, Semiramis (Rossini); Selection from Mascarade (Lacôme); Quadrille from La Mascotte (Audran); Two-Step, Espana (Bianco); Melody (Wittmann); Selection from Les deux pigeons (Messager); The Ride of the Valkyries, from The Valkyries (Wagner); Waltz (Andolf); Triana (Albiniz); Rondo (Weber); Dionysiaques (Schmitt). In the intervals at 1.0, Exchange, Announcements, and Weather, and at 1.30, Exchange. 2.0, Exchange and Announcements. 3.45, Exchange and Market Prices. 7.0, Agricultural Report. 7.10, Assurance Societies Reports. 7.20, Gramophone Music: Rhapsody in Blue (Gershwin); Melody (Spencer); Selection from A Waltz Dream (O. Straus); Pluie de roses (Avignon); Melody (Dain); Nette (van Hoorebeek). 7.50, Romeo and Juliet—Opera (Gounod), relayed from the Opéra. In the intervals, News and Talks.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—8.15 p.m., Utility Hall. 8.30 to 9.30, New York Relay. 8.30, Words and Music. 8.45, Morin Sisters. 9.0, Gene Quaw Orchestra. 9.30, News and Markets Report. 9.45, Arcadians, from New York. 10.0, Uncle Tom and Betty. 10.15, Tarzan of the Apex. 10.30, The Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News-Reeler. 11.15, Sport Notes and a Song. 11.30, Pittsburgh Spotlights. 11.45, Lowell Thomas, from New York. 12 Midnight, Answers to Andy, from New York. 12.15 a.m. (Saturday), Silver Toppers. 12.30 to 1.45, New York Relay. 12.30, Lexington Hotel Orchestra. 1.0, Popular Programme. 1.30, Potash and Perlmutter. 1.45, Bucking Chair Memories. 2.0 to 3.30, New York Relay. 2.0, Let's Listen to Harris. 2.30, Variety Programme. 3.0, First Nighters.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Moravská-Ostrava. 3.50, Aviation Weather Report. 3.55, Exchange. 4.0 to 5.45, Interval. 5.45, Gramophone Music. 5.55, Talk: New Developments in Town-Planning. 6.5, Agricultural Programme and Market Prices. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Talk for Women and Talk on German-Czech Humour. 7.0, Chimes and News. 7.10, Talk. 7.25, Tales of Czechoslovak Soldiers in Russia (arr. Meiger). 8.25, Quartet in B flat, No. 9 (Mozart), by the Andricek Quartet. 9.0, Rozkosny Centenary Concert by the Station Orchestra. 10.0, Time, News, and Sports Notes. 10.15, News in Russian. 10.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—6.15 to 6.30 a.m. (from Lausanne), Gymnastics. 12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.40 (from Geneva), Gramophone Concert. 1.0 (from Geneva), Financial News. 1.10 (from Geneva), Gramophone Concert. 2.0 to 3.28, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Concert. 4.30 (from Geneva), Programme for Women. 5.30 to 7.0, Interval. 7.0 (from Lausanne), Talk. 7.30 (from Lausanne), Announcements and News. 7.35 (from Lausanne), Answers to Correspondents. 8.0, Military Band Concert, relayed from London. 8.40 (from Lausanne), Cello Recital by Gasparini: Sonata in D (Locatelli); Lament (Magrini); Abendlied (Schumann); Spanish Dance (Popper). 9.15 (from Lausanne), Wine Festival Songs—a Lecture-Recital. 9.50, News and Weather. 10.0 (from Lausanne), Jazz Music, relayed

from the Hotel Splendide. 10.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Wind Instrument Quintet (Mozart) on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—6.0 p.m., Old Dance Music by the Y.M.C.A. Orchestra. 6.30, Medical Talk. 7.0, Weather Report. 7.5, Concert by the Station Orchestra, conducted by Medins: Prelude to Le Déluge (Saint-Saëns); Symphony in D minor (C. Franck); Overture, Coriolanus (Beethoven); Piano-forte Concerto in E flat (Beethoven); La Tragédie de Salomé (Fl. Schmitt). In the intervals at 8.0 and 9.0, News and Weather. 9.30, Dance Music. 10.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1R0; 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres, and 2R0, 11,810 kc/s, 25.4 metres, from 5.15 p.m.; and Milan (Vigentino), 662 kc/s, 453.2 metres, from 8.15 p.m. (approx.)—12.30 p.m., Gramophone Music. 1.0 to 2.0 p.m., Concert by the Radio Orchestra. In the intervals from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.30, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Weather. 5.15 to 6.0, Piano-forte and Song Recital by Dario Raucera (Piano-forte), Guglielmo Bordini (Bass), and Margherita de Acutis (Soprano). Piano-forte Solo: The Harmonious Blacksmith (Handel); Bass Solos: (a) Morgen (Richard Strauss), (b) Ballad from Mephistopheles (Boito); Soprano Solos: (a) Togliemmi in vita (Scarlatti), (b) E tanto c'è pericol ch'io vilasci (Wolf-Ferrari), (c) Aria from The Thieving Magpie (Rossini); Piano-forte Solos: (a) Prelude (Bajardi); Vagotte (Sgambati); Etude in F (Chopin). 6.40 (Naples), Shipping and Sports Notes. 6.54, Dopplavoro Announcements and Tourist Talk. 6.57, Report of the International Institute of Agriculture (in Spanish, German, and French). 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time, Announcements, and Sports Notes. 8.15, Sponsored Concert. 9.15, Variety Concert. In the interval, Talk. 11.0, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres and by W2XAD on 19.56 metres.—9.0 p.m., Duets by Haber and Curtis. 9.15, May we present, from New York. 9.30, Talk: The Mind Age. 9.35 to 10.0 (approx.), South Sea Islanders, from New York. 12.45 a.m. (Saturday), Stock Reports and Baseball Scores. 1.0, Concert, from New York. 1.30, WGY Farm Forum. 2.0, Musical Programme, from New York. 2.30, Popular Programme, from New York. 3.0, WGY Players. 3.30, Friday Night Sociable, from New York, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—6.15 a.m. (from Basle), Gymnastics. 6.35 to 11.59, Interval. 11.59, Time Signal from Neuchâtel Observatory, and Weather. 12 noon (from Zurich), Orchestral Concert. In an interval at 12.30 p.m., Time, Weather and News. 1.25 (from Zurich), Time, Weather and Exchange. 1.30 to 5.0, Interval. 5.0 (from Zurich), Programme for Children. 5.30 (from Zurich), Concert by the Small Station Orchestra. 6.30 (from Berne), Talk: Changes in Education during the last century. 7.0 (from Berne), Time, Weather, Market Prices, Tourist Report and Sports Talk. 7.20 (from Berne), Gramophone Concert. 8.0, Concert by the Wireless Military Band, relayed from London. 8.40 (approx.) (from Berne), The Pathfinder—a Radio Sequence (Rudolf Benaro). 9.0, Weather and News. 9.10 (from Berne), Concert of Folk Music by the Löffler Quartet. 10.15 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Programme for Children. 5.25, Provincial Programme, relayed from Eskilstuna, 1,220 kc/s, 245.9 metres. 6.0, Gramophone Music.

6.45, Talk on Swedish Literature, relayed from Uppsala, 662 kc/s, 453.2 metres. 7.15, Weather and News. 7.30, Talk on Foreign Politics. 7.50, See Paris (Eiffel Tower). 9.30, A Visit with the Microphone. 10.0, Concert by the Septiman String Ensemble: March (Peterson-Berger); Overture, The Magic Flute (Mozart); Waltz, Roses from the South (Joh. Strauss); Minuet and Serenade (Schödl); Intermezzo (Ek); Angels (Wennerberg-Reuter); Prayer and Temple Dance from Olav Trygvason (Grieg); Spanish Tango (Wenning). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 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, Orchestral Concert, conducted by Roskam: One-step, C'est la fille du moulin (Gavel); Potpourri of Viennese Waltzes (Morena); Intermezzo (Fetras); Fox-trot, Man trägt rot wenn man verliebt ist; Idylle passionelle (Razigade); Tango, The Old Musical Box; Marta (Simons); Potpourri, Von Wien durch die Welt (Hrubý); Slow Fox-trot, Let's try again (Newman and Jones); Fox-trot, My Sweet Virginia; One-step, I beg your Pardon. 2.0, Interval. 5.0, Literary Talk. 5.15, Orchestral Concert, conducted by Roskam: March (Lincke); Waltz, Deux à deux (Waldteufel); Dance of the Merry Mascots (Kettelhey); Overture, Czar and Carpenter (Lortzing); Selection from La fille de Madame Angot (Lecocq); Intermezzo, Patsy (Myddleton); Ballet Music, Excelsior (Marengo). 6.0, Concert by the Station Trio, relayed from Lille, 1,130 kc/s, 265.4 metres. 6.45, Topical Talk in German. 7.0, Lottery Results and Announcements. 7.30, Time and News. 7.45, Announcements. 7.50, Romeo and Juliet—Opera (Gounod), relayed from Paris. 11.0 (approx.), Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12 Noon, Song Recital by the Don Cossack Choir, on Gramophone Records. 12.30 p.m., Extracts from Otello—Opera (Verdi), on Gramophone Records. 1.15, Time and News. 1.30, Concert from Langenberg. 2.0, Concert arranged by the Post Office. 2.30, Advanced English Lesson. 3.0, Interval. 3.45, Talk: Sunday Excursions. 4.0, Interval. 4.30 (from Badenweiler), Orchestral Concert, conducted by Albert Hitzig: Overture, The Magic Flute (Mozart); Treasure Waltz from The Gipsy Baron (Joh. Strauss); Ballet Music from Rosamund (Schubert); Selection from The Mastersingers (Wagner); Serenade d'Amalfi (Recco); Two Scottish Dances (Langey); Potpourri, Hungaria (Leopold); March (Blauknburg). 5.45, Dialogue: Swabians To-day. 6.10, Legal Talk. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, See Frankfurt. 8.50, Reading from Job-slade (Kortum). 9.20, Georg Schimücke Literary Programme: Dialogue from Engel Hiltensperger; Reading from Das Duell; Recitations. 10.0, Time and News. 10.45, See Frankfurt. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Light Music. 6.30, Operetta Music: Selections from (a) The Chocolate Soldier (O. Straus), (b) The Merry Widow (Lehar), (c) The Land of Smiles (Lehar). 6.45, Accordion Music. 7.0, Payée—Synphonic Poem (Franck), by the Symphony Orchestra. 7.15, News, Racing Results, Commercial Notes and Market Prices. 7.30, Opera Music: Arias from (a) Samson and Delilah (Saint-Saëns), (b) The Valkyrie (Wagner), (c) Il Trovatore (Verdi). 7.45, Music by a Viennese Orchestra: Serenade (Moszkovsky); Selection from The Arabian Nights (Strauss); Waltz (Amadei); Melody (Plessow); Anne Marie (Bochmann); Ballet Waltz (Zoubalov); La nostra Sorrentina (Monti). 8.15, Chansonnettes. 8.30, Military Music. 8.45, Opera Music: Arias from (a) Lakmé (Delibes), (b) Cavalleria rusticana (Mascagni), (c) Tosca (Puccini). 9.0, Symphony Concert by the Casino Orchestra, conducted by Bathon, relayed from the Casino, Biarritz. In the intervals, Operetta Music: Arias from (a) Elle est à vous (Yvain), (b) Déshabillez-vous (Mercier), (c) Paganini (Lehar), (d) Le grand Mogol (Andran). 10.0, Medical Talk. 10.15, North African News and Local News. 10.30, Programme for Listeners in Morocco: Sphärenklänge (Strauss); Waltz (Roster); Sous les toits de Paris (Moretti); In a Clock Shop (Orth); Selection from Carmen (Bizet); March (Barrigouil). 11.0, Music by an Argentine Orchestra. 11.15, Dance Music. 12 Midnight, News, Weather, and Announcements. 12.5 a.m. (Saturday), Orchestral Music: Old Spanish Song (Aubert); The Moldau (Smetana); La poupée d'Arlequin (Darey); Selection from Sicilian Vespers (Verdi); Bourrée fantasque (Chabrier). 12.30, Close Down.

ATHLONE

125 kc/s, 413 metres; 60 kW. Relayed by Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.30 p.m., Time, Weather, Stock Report, and Gramophone Records. 4.0, Artane Band Concert; Soloist, J. C. Doyle (Baritone). 6.0, Gramophone Music. 6.45, News. 7.0, Talk. 7.15, Gaelic Talk. 7.30, Time Signal. 7.32, The Station Orchestra. 8.5, Traditional Fiddle Solos by T. J. Small. 8.20, Tenor Solos by F. Walsh. 8.30, Flute Solos by MacNamara. 8.45, Original Sketches and Songs by John MacDonagh and Company. 9.30 to 10.30, Programme by the I.B.C. (Ireland), Ltd. 9.30, Dance Music: What a Perfect Combination; The Village Band; The Song of the Slave; Hyde Park Corner; Song of the Harp; Tony's Wife; No More Love; Da dar, Da dar. 10.0, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of Hospitals Trust, Ltd.: Signature Tune, Come back to Erin; Waltz, Acclamations (Waldteufel); Ich liebe dich (Grieg); Bells across the Meadows (Kettelbey); Violin Solo, Caprice viennois (Kreisler); Devotion (Kettelbey); Golliwog's Cake Walk (Debussy); Moonlight on the Alster (Fetras); Signature Tune. 10.29, I.B.C. Goodnight Melody.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Trio Concert: Rococo Minuet (Haydn); Song (Filippucci); Selection from Siegfried (Wagner); Pastorale (Loreglio); A Wedding Day on Trollhaugen (Grieg); Larghetto (Delmas); Selection from Cavalleria rusticana (Mascagni). 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Music. 9.15, Anti-War Talk, Gramophone Music and News. 10.0, Chimes from the Cathedral. Weather, Exchange and Market Prices. 9.15, Concert by the Station Orchestra. 11.0, Pianoforte Recital by Rosaura Coma. 11.30, Dance Music, relayed from the Casa Libre. In the interval at 12.0 Midnight, News. 1.0 a.m. (Sunday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—See Rome.
CASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—4.0 p.m., Gramophone Music. 4.45, Orchestral Concert. 6.55, Time Signal and Programme Announcements. 7.0, Address. 7.30, Recital of Yugoslav Songs. 8.3, Dramatic Programme. 8.30, Concert. 10.30, Time and News. 10.40 (approx.), Dance Music on Gramophone Records.

BERLIN

DEUTSCHLANDSENDER (REICHSSENDER), 183.5 kc/s, 1,635 metres; 60 kW. 1.45 p.m., News. 2.0 Gramophone Music. 3.0, Hand-Work for Children. 3.20, Weather and Exchange. 3.45, Reading. 4.0, See Hamburg. 5.0, Review of the Week's Sport. 5.20, Dance Music by Ralph Siegel and his Soloists. 6.0, Poems. 6.5, Dance Music (contd.). 6.15, Topical Talk. 6.30, Week-end Salad—Radio Play. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, To-day's Motto. 8.15 (approx.), Film Magic—Cinema Programme. 10.0, Weather and News. 10.45, Weather for Shipping. 11.0, Dance Music from Leipzig. 12 Midnight, Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.0 p.m., Light Music and Dance Music by a Military Band, relayed from the Krollgarte. In an interval, Talk: Sailing as a Sport. 5.20, Schneidehül—Radio Report on a Frontier Town. 5.50, Community Singing from Schneidehül (on Gramophone Records). 6.0, Extracts from the Sonata in C minor—Op. 13—the Pathetic (Beethoven) by Else Kraus. 6.20, Talk: Folk Customs. 6.40, The Funkstunde informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Munich. 8.5, Bunter Abend. In the interval at 10.0 (approx.), Weather and News. 1.0 a.m. (Sunday), Close Down.

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

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

386 kc/s, 304 metres; 13 kW.—6.15 p.m., Radio Journal. 7.40, Sports Talk. 7.45, News and Market Prices. 8.0, Symphony Concert, relayed from London. 9.30, Gramophone Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—7.0 p.m., See Prague. 7.30, A Sketch in Dialect, relayed from Kosice, 1,022 kc/s, 293 metres. 7.55, See Brno. 8.45, See Prague. 9.20, See Moravská-Ostrava. 10.0, See Prague. 10.15, Concert by the Station Orchestra. 11.30 (approx.), Close Down.

BREMEN.—See Hamburg.

SATURDAY

SEPTEMBER THE TWENTY-THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON Promenade concert from Queen's Hall.
REGIONAL LONDON New Songs for Old, a programme of comparisons.
MIDLAND REGIONAL The Musical Comedies of Ivan Caryll, orchestral programme.
NORTH REGIONAL "The Arcadian Follies," relayed from Morecambe.
WEST REGIONAL "A Cornish Haul," programme for all lovers of Cornwall.
SCOTTISH REGIONAL Concert Party, a miniature musical comedy.
BELFAST Choral concert from the Ulster Hall.

ABROAD

ATHLONE 10.0 p.m. Concert on behalf of Hospitals' Trust Ltd.
BARCELONA 7.0 p.m. Trio concert.
HAMBURG 8.10 p.m. Gala concert, by the Philharmonic Orchestra.
HEILSBURG 4.0 p.m. The Small Station Orchestra, conducted by Eugen Wilcken.
LANGENBERG 5.30 p.m. Violin and Pianoforte recital.
PALERMO 8.45 p.m. Operetta: "The Merry Widow," by Lehár.
ROME 8.45 p.m. Opera: "Il Pirata," by Bellini.
STRASBOURG 5.0 p.m. Orchestral concert, conducted by M. de Villers.
WARSAW 9.30 p.m. Chopin recital.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,184 kc/s, 253 metres.—1.5 p.m., Gramophone Concert. 1.45, Time and News. 2.5, Gramophone Concert. 3.0, Agricultural Prices. 3.15, Talk: Petroleum. 3.35, Book Review. 3.55, Review of Films of the Week. 4.10, Concert by the Station Orchestra, conducted by Topitz. In the interval at 5.0, Reading. 6.5, Programme Announcements. 6.15, Programme to be announced. 6.40, Tales of the National Socialist Movement. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, News. 8.10, Haydn Programme, relayed from the Castle. 8.20, Overture, Lisola disabitata: The Apothecary—Comic Opera; The Children's Symphony, by the Philharmonic Orchestra. 10.0, Austria. 10.20, Time, Weather and News. 10.45, Bunter Abend from Berlin (Funkstunde). 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.45 p.m., Dvorak Song Recital by Marta Zapletalova. 6.25, German Transmission: News and Mandoline Concert: Moment musical (Schubert); In a Persian Market (Kettelbey); Glow-worm Idyll (Lincke); Japanese Lantern Dance (Yoshitomo); Waltz, Künstlerleben (Joh. Strauss). 7.0, See Prague. 7.30, A Sketch in Dialect, relayed from Kosice, 1,022 kc/s, 293 metres. 7.55, Orchestral Concert. 8.45, See Prague. 9.20, See Moravská-Ostrava. 10.0, See Prague. 10.15, See Bratislava. 11.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12.0 Noon, Gramophone Concert: Regimental March (Daudenard); Réve d'Enfant (Ysaye); Two Pieces (van Damme); Popular Song; Piece (van Damme); Le rossignol (Grétry); Hymne à la nuit (Rameau); Le carnaval de Rome (Thomas); Extracts from Véronique (Messager); Overture, Le Caïd (Thomas). 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans: Danse et cortège (Leblanc); Petite suite (Jongen); Andante and finale from Concerto No. 5 (Vieuxtemps); Le mariage des roses (César Franck); Cello Solo: Poem (Barbier); Vieux Noël (César Franck); Mlle. Pieknotte (Wangermée); Cranignons liégeois (Meuron). 5.0, Gramophone Records: Le Sou du départ (Méhul); La retraite (Dupuy); Concerto grosso (Corelli); Hymne à la liberté (Grossec); Petite Suite (Jongens). 6.0, Talk: Walloons. 6.20, Gramophone Music. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Marche, Sambre et Meuse (Planquette); Amabilité (Lagarde); Violin Solo; Scherzo (Delporte); Humorous Pieces (Léonard); Redzi (Caludi); Le danseur de corie (Canivet); Hindu March (Dupuis). 7.15, Walloon News. 7.30, Le Journal Parlé. 8.0, Concert

by the Station Symphony Orchestra, conducted by Meulemans: Fantasia on a Walloon Theme (Ysaye); Piece (Donizetti); Extract from Masaniello (Auber); Wedding March (Quinet); Patrie (Paladilhe); Goodbye (Tosti). 8.45, Talk. 9.0, Concert (contd.); Extracts from Le Maître à danser (Rasse); Wallonia (Guillaume); Scene and March from L'Apothéose de la Wallonie; Finale from Jean Michel (Dupuis). 10.0, Le Journal Parlé.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Concert by the Small Station Orchestra, conducted by Leemans; March solennelle (Tchaikovsky); Waltz Suite from Eva (Lehár); Little Grey Home in the West (Lohr); Selection from Hans the Plute Player (Ganne); Pianoforte Solo: Polonaise (Chopin); Scènes napolitaines (Massenet); Printemps d'amour (Kalkman); Selection from Sunny. 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert. 5.0, Dance Music, relayed from the Saint-Sauveur Palais de Danse. 6.0, Gramophone Records, with Commentary: Le Chasseur Maudit (Franck); L'apprenti sorcier (Dukas). 6.45, Request Gramophone Concert. 7.30, Agricultural Notes. 8.0, Gramophone Records: Baba Yaga (Liadov); Plante (d'Hervelois); Prelude and Napolitaine (d'Hervelois); Scherzo from the Irish Symphony (Hamilton Harty); Londonderry Air (arr. Hamilton Harty). 8.20, Quintet for Wind Instruments (Klughart). 8.45, Recitations. 9.0, Concert of Sixteenth Century Dutch Songs by the Schola Cantorum, conducted by Eugène van der Velde. 9.20, Wind Instrument Quintet (d'Haeyer). 9.40, Choral Concert (contd.). 10.0, Le Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert of Variety Music by the Sibiceanu Orchestra. 6.0, Radio Journal. 6.15, Concert (contd.). 7.0, Educational Programme. In the interval from 7.20 to 7.40, Instrumental Music on Gramophone Records. 8.0, Zither Duets. 8.30, Song Recital by Emilie Gutianu. 9.0, Talk. 9.15, Concert of Popular Rumanian Music by the Fanica Orchestra. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.45 till Close Down.—5.0 p.m., Chopin Pianoforte Recital by Mlle. Marik; Nocturne in F sharp; Etude in B minor; Etude in C sharp; Sonata in B minor. 5.30, Answers to Correspondence. 6.0, Hungarian Folk Song Recital by Nany, accompanied by the Imre Magyari Cigány Band. 7.15, Talk. 7.45, Concert by the Budapest Concert Orchestra, conducted by Fridl; Overture, Mignon (Thomas); Waltz, Dolores (Waldteufel); Potpourri (Huska);

Ballet Suite (Goldmark); Potpourri (Szabados). 9.0, News and Sports Report. 9.15, Variety Concert. 10.15 (in an interval), Weather. 11.0, Concert by the Karl Bura Cigány Band, relayed from the Ketter Restaurant.

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 260 kc/s, 1,153.8 metres.—12 Noon, Time and Chimes from the Town Hall. 12.5 p.m., String Ensemble Concert, relayed from the Wixer Restaurant. 2.0, Interval. 2.30, Gramophone Music. 3.0, Programme for Children. 3.30, Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Karl Poulsen (Songs). March, Entry of the Boyards (Halvorsen); Overture, Alessandro Stradella (Flotow); Waltz, Soir d'été (Waldteufel); Miniature Suite (Rosenberg); Dances from The Bartered Bride (Smetana); French Military March (arr. Reesen); Five Danish Songs; Overture, Romeo and Juliet (Bellini); Fantasia on Jutland Melodies (arr. Reesen); Two Hungarian Dances (Brahms); (a) No. 5 in G Minor, (b) No. 6 in D; Norwegian Bridal Procession (Grieg); Melody from Scènes alsaciennes (Massenet). 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, French Lesson. 6.45, Weather and Announcements. 7.0, News. 7.15, Time Signal. 7.20, Talk: Lord Kitchener. 8.0, Chimes from the Town Hall. 8.5, Modern Music by Louis Prell's Instrumental Ensemble. In the intervals at 8.20 and 9.0, Readings. 9.35, Songs by Fritz Berger. 9.50, Modern Music by Louis Prell's Instrumental Ensemble. 10.10, News. 10.25, Modern Music (contd.). 10.40, Humorous Monologues on Gramophone Records. 10.55, Modern Music (contd.). In the interval at 11.15, The Five Syncopators. 12 Midnight, Time and Chimes from the Town Hall.

CORK.—See Athlone.

DANZIG.—See Heilsberg.

DRESDEN.—See Leipzig.

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—11.0 a.m. to 12 Noon, Programme arranged by the I.B.C. 11.0, Happy Hour: Part I, Orchestral Concert: Signature Tune; Snacks in Bars (Egerer); Chinatown, my Chinatown (Schwartz); When the Lilac blooms again (Rotter); Xylophone Solo, Gold Fishes (Krøger); In the Night (Tate); Vienna, Vienna (Foss); Pianoforte Solo, Butterflies in the Rain (Myers); Valencia (Padilla); Part II, Dance Music: Meet me in the Gloaming; My Love Song; Hold Me; Talking to you about me; You're mine, you; In a Second Hand Store; The Shadow Waltz; Peter, Peter; Signature Tune. 12 Noon, French Programme. 4.30 to 6.30, Programme arranged by the I.B.C. 4.30, Programme for Children. 5.0, Concert for Tunbridge Wells and Thanet Listeners: Members Request Half Hour: Signature Tune, The Night by the Sea; Overture, Zampa (Hérold); Hawaiian Love (Gaston); Song, The Mountains of Mourne (French); Sleepy Valley (Hunley); Song, O dem Golden Slippers (Bland); Waltz from Bitter Sweet (Noel Coward); Song, Father O'Flynn (Trad.); Barcarolle (Offenbach). 5.30, Concert for Dover and Folkestone Listeners: Military Band Music: The Mad Major (Aiford); Song, If I were King (Coslow); Carry on (Dundas); Cupid's Army (Sievier); Signature Tune. 5.45, Concert, Special Requests: Liebesfreund (Kreisler); Réve au gélisque (Godard); Liebesleid (Kreisler). 6.0, French Programme. 11.0 till Close Down. Programme arranged by the I.B.C. 11.0, Talkie Time: Signature Tune, Sittin' in the Dark; Monte Carlo Medley (Robin); Paris, stay the same; City Lights; You are my Heart's delight (Lohr); There's something about a soldier (Gay); Whoops Medley (Kahn); Love Songs of the Nile: Selection from the Show Boat (Kern); Signature Tune. 11.30, Concert arranged by the International Broadcasting Company (Ireland), Ltd., on behalf of Hospitals Trust, Ltd.: Signature Tune, Come back to Erin; Rakoczy March (Berlioz); The Last Rose of Summer (Moore); Prelude and Mazurka from Coppélia (Delibes); Violin Solo, Chanson bohémienne (Boldi); Hungarian Dance No. 6 (Brahms); Morning from Peer Gynt (Grieg); My little Irish Cottage (Summers); Old Spanish Song (Aubert); Signature Tune. 12.15 a.m. (Sunday), Late News Bulletin. 12.10 (approx.), Club Concert for Sutton-in-Ashfield Listeners: Signature Tune, The Chum Song; How are you (Pola); The Lady I Love (Young); Balloons (Magine); My heart's to let (Waller); Roll along Kentucky Moon (Halley); This is the Rhythm for me (Monkman); Hiawatha's Lullaby (Donaldson); Little Miss Muffet (Perritt); Adorable (Marion); Goodnight but not Goodbye (Michael); Just an Echo in the Valley (Woods); Any time, any day, anywhere (Young); Dancing Butterfly (Young); Signature Tune. 1.0, Dance Music: Signature Tune, Bells of Normandy; My Bluebird's singing the Blues (Robin); Let's all be happy together (Thomas); Hold Me (Schuster); Stay out of my dreams (Washington); Peter, Peter (Connolly); The Old Spinning-Wheel (Hill); Farewell to Arms (Wrubel); Spanish Eyes (Kester); Letting in

SEPT. 23rd

SATURDAY

continued

the Sunshine; Drifting Down the Shalimar; A woman should stick to her man; Twelfth Street Rag; Smilin' through; I wish I had Wings (Woods); Meet me in the Gloaming (Goodhart); Signature Tune. 2.0, Good-night Melody and Close Down.

FLENSBURG.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayed by Cassel, 1,220 kc/s, 245.9 metres; and Trier, 1,157 kc/s, 259.3 metres.—12 Noon, Concert on Gramophone Records: Selection from Rigoletto (Verdi); Death of Mimi from La Bohème (Puccini); Aria from I Pagliacci (Leoncavallo); Air from Cavalleria rusticana (Mascagni); Selection from Don Carlos (Verdi); Aria from Der Evangelinam (Kienzl); Aria from La Traviata (Verdi); Ballad from The Flying Dutchman (Wagner); Elizabeth's Prayer from Tannhäuser (Wagner); Air from Madame Butterfly (Puccini). 1.15 p.m., News and Weather. 1.30, Concert, relayed from Langenberg. In an interval at 2.0, News. 2.30, Variety Programme. 3.10, Time and Economic Notes. 3.30, Programme for Young People. 4.30, Concert by the Station Orchestra: Programme of Light Music. 6.6, Talk by Carl Cornelius for the Hundred and Fiftieth Anniversary of the Birth of Peter von Cornelius. 6.25, Time and Announcements. 6.30, Review of the Week. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, Talk on Albrecht Dürer. 8.30, See Stuttgart. 10.0, Topical Talk. 10.20, Time and News. 11.0, Concert from Leipzig.

FREDRIKSSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEWITZ.—See Breslau.

GÖTEBORO.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

806 kc/s, 372 metres; 1.5 kW. Relayed by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,310 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—4.0 p.m., Concert by the Hamburg Philharmonic Orchestra, conducted by Gertraud Maass: Overture, Abu Hassan (Weber); Ballet Music from Undine (Lortzing); Selection from The Merry Wives of Windsor (Nicolaï); March from Le Cid (Cornelius); Overture, The Taming of the Shrew (Goetz); Scherzo. Und wenn die Welt voll Teufel wär (S. Wagner); Overture, Gaudemus (Humperdinck). 5.0, Exciting Stories. 5.20, Variety Programme. 6.30, (from Kiel), Religious Address. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, Political Address. 8.15, Gala Concert by the Hamburg Philharmonic Orchestra, the Male Voice and the Women's Quartet, and Soloists; Introductory Talk by Fritz Pauli. 9.50, Topical Talk. 10.0, Time and News. 10.20, Concert from Berlin (Funkstunde). 1.0 a.m. (Sunday), Close Down.

HANOVER.—See Hamburg.

HEILSBURG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by Danzig, 662 kc/s, 453.2 metres.—11.30 a.m., Concert by the Königsberg Opera House Orchestra, conducted by Georg Wöllner: Auf treue Kameradschaft (Blankenburg); Selection from Zigeunerprimas (Kálmán); Valse chromatique (Kockert); Overture, Gri-Gri (Lincke); On the Banks of the Nile (Platen); Waltz from Faust (Gounod); Potpourri, From A to Z (Geiger); Florentine March (Fucik). 1.5 p.m., Gramophone Concert. In the intervals at 1.20 and 2.0, News. 2.30, Programme arranged by the Post Office with Gramophone Records. 3.0, Agricultural Prices and Exchange Rates. 3.30, Handicrafts for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: March, Deutschland voran (Rust); Overture, Carnival in Rome (Joh. Strauss); Suite, From Southern Spheres (Fresco); Berceuse (Dvorak); Dance (Dvorak); Selection from The Little Dutch Girl (Kálmán); Czardas, Rosza (Hubay); Serenade (Schulenburg); Waltz, Etincelles (Waldteufel); Dubinuschka (Schirmer). In the interval at 4.50 (approx.), A.D.A.C. Road Report. 5.45, Monthly Report of Sports in East Prussia. 6.5, Programme Announcements. 6.15, Agricultural Prices. 6.20, Organ Recital by Walter Hanft, relayed from a Church in Danzig. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, News. 8.10, Variety Programme. 10.10, News. 10.30 (approx.), Dance Music relayed from Berlin (Funkstunde). 12.30 a.m. (Sunday), Close Down.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 7 kW. (until 5.40 p.m.) and 20 kW. from 5.40 p.m. Programme of the Catholic Radio Society (K.R.O.).—11.55 a.m., Concert by the K.R.O. Sextet: Heut' bin ich so vergnügt (Lettow); Aubade (Jomou (Monti)); Waltz, Frühlingsstimmen (Joh. Strauss); Ballet Air (Massenet);

Blumengelächster (Blon); Song of Spring (Stabel); Gramophone Music; Kaveewemarche (Maas); Overture, Light Cavalry (Suppé); Puppenwäzler (Bayer); Melody (Ackermans); Finale. 1.25, Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Gramophone Music. 4.10, Concert by the K.R.O. Orchestra, conducted by Woud: Overture, Carnival im Rom (Strauss); Three Elfin Dances (Waldo-Warner); Andalusia (Popy); Lortzing Potpourri (Urbach); Overture, Paragraph 8 (Suppé); Nachklänge aus Ossian (Gade); Selection from Madame Butterfly (Puccini); Puppenwäzler (Bayer); Suite, The Three Bears (Coates); In a Fairy Realm (Ketelbey); Waltz, Potpourri (Robrecht). In the intervals at 4.55, News in Esperanto, at 6.0, Press Review, and 6.40, Police Report. 7.5, Talk. 7.25, Gramophone Music. 7.30, Talk on the Esperanto Course. 7.40, Gramophone Music. 7.65, Talk. 7.55, Concert by the K.R.O. Boys, conducted by Lustenhouwer: After To-night we say Goodbye (Towers); Selection from Der Geist des Wojewoden (Grossman); Wir sind ja so fidel (Strinsky). 8.10, News. 8.15, Concert (cont'd.): Südliches Feuer (Gronostay); In Grinzing (Sieczynski); Die Mühle im Tale (Riodel). 7.30, Recitations. 8.40, Gramophone Music. 8.55, Concert (cont'd.): Edelweiss (Raymond); Potpourri (Clere); Shadow Waltz (Warren); Melody (Chapuis). 9.25, Recitations. 9.35, Concert (cont'd.): Potpourri of Sound Film and Operetta Music (Dostal). 9.50, Gramophone Music. 10.0, Recitations. 10.10, News. 10.15, Concert (cont'd.): Ein jeder hat mal Glück (Schulenburg); Waltz, Lotoshlumen (Ohlsen); Ich suche Liebe (Buder); So tanzte schon der Grosspapa (Krone); Finale. 10.40, Gramophone Music. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 7 kW. (until 3.40 p.m.). Transmitted from Kootwijk on 50 kW. from 3.40 p.m. Programme of the Workers' Radio Society (V.A.R.A.).—11.40 a.m., Concert by De Notekruers Orchestra, conducted by Wins. Vindobona (Schrammel); Schatzwäzler (Strauss); Non t'amo piu (Tosti); Réve (Leoncavallo); A petits pas (Sudessi); Hallo, hier Wien (Morena); Gramophone Music; Zaragossa (Gredos); Ich hab' einen Mann, der mich liebt (Abraham); Du bist so wunderschön, Dolores (Valerio); Selection from The Czarevitch (Lelár); Gramophone Music; Nocturne (Tchaikovsky); Nur wer die Sehnsucht kennt (Tchaikovsky); Polish Dance (Scharwenka); Two Guitars (Horlick); Gramophone Music; Was die Donau erzählt (Morena). 1.40, Gramophone Music. 2.10, Concert by De Fliereflüiters, conducted by Ray Forest. Soloist: Esther Philippe (Songs). 2.40, Mouth Organ Recital. 2.55, Orchestral Concert (cont'd.). 3.25, Interval. 3.40, Organ and Song Recital by Steyn and Chamon. 3.55, Concert by the V.A.R.A. Mandoline Orchestra, conducted by Kok. 4.10, Organ and Song Recital (cont'd.). 4.25, Concert by a Mandoline Orchestra (cont'd.). 4.40, Programme for Children. 5.0, Literary Talk. 5.40, Concert by the V.A.R.A. Young People's Choir, conducted by Tiggers. 6.10, Concert by Patrogibus Orchestra, conducted by Carlquist. In the interval at 6.40, Gramophone Music. 7.10, Gramophone Music. 7.40, S.O.S. Announcements. 7.42, News and Announcements. 7.55, Concert by the V.A.R.A. Orchestra, conducted by de Groot. Overture, Platte Bursche (Suppé); Die eine Frau (Koungold); Chant sans paroles (Tchaikovsky); Dorkinderwäzler (Kálmán); Een vrolijke boel (Clere); Dreams on the ocean (Gungl); Chineseische Strassenserade (Siede); A petits pas (Sudessi); Selection from Lilac Time (Schubert-Berté). In the interval at 8.25, Gramophone Music. 9.40, Dramatic Programme. 9.55, Concert by the V.A.R.A. Orchestra, conducted by de Groot. In the interval at 10.20, Gramophone Music. 10.55, Gramophone Music. 11.10, Organ Recital by Jong. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.25 p.m., Announcements and Gramophone Music. 7.40, See Warsaw. 9.15, Press Review, relayed from Wilno, 533 kc/s, 563 metres. 9.30, See Warsaw. 11.30, Dance Music.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Broadcast for Schools. 12.30 p.m., Concert by the Fröhliche Fünf. 1.15, News. 1.30, Concert by the Station Orchestra, conducted by Kühn: March, Einig und treu (Stahl); Overture, Czar and Carpenter (Lortzing);

Hungarian Dances (Brahms); Waltz, Nordseebilder (Joh. Strauss); Polonaise from Eugene Onegin (Tchaikovsky); Selection from Eine Nacht in Venedig (Joh. Strauss); March, Junges Deutschland (Bachmann). In the interval at 2.0 (approx.), News. 2.30, Gramophone Concert. 3.30, Economic Notes and Time. 3.50, Talk on Gardening. 4.10, Talk: Excursions in the Rhineland and Westphalia. 4.30, Talk: Is Art Necessary to a People? 5.0, Concert of Folk Songs by the Station Choir and Heinz Schiebisch (Tenor); Conductor, Josef Breuer. 5.30, Violin and Pianoforte Recital by Therese Sarata-Kuermann and Egbert Grape. Two Violin Solos: Two Spanish Dances (Sarasate); Garmen Waltzes and Ländler (Schubert); Mazurka in A flat (Chopin); Minuet (Mozart); Ländler and Waltz (Weber); Impromptu in E flat (Schubert); Mazurka in A flat (Chopin); Die Biene (Schubert); Suite, My Country (Smetana); Wiener Blut (Strauss-Schylt-Grape). 6.15, German for Germans. 6.25, Talk on The Racial Question. 6.45, Announcements. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, Announcements. 8.5, Variety Concert, relayed from the Municipal Concert Hall, Düsseldorf. 10.15, News. 12 Midnight (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—12.55 p.m., Concert by the Station Orchestra, conducted by Blumer. 1.15, News and Programme Announcements. 1.30, Gramophone Concert: Der Zirkus kommt (Rust); Tales from the Vienna Woods (Strauss); Roses from the South (Strauss); Puppe und Kohold (Armandola); Melody (Valentin); Foxtröt (Steele); Parody, Aus Schlagermacherns Werkstatt; Tyrolse Ländler; Tango (Sorge); Tango (Böhmet); Potpourri of Student Songs; Humorous Piece (Lommel); Fensterpronade (Mohr); Der Radfahrer (Mapp); Tyrolse Folk Songs; Gallop, Bain frei (Ed. Strauss). 2.45, Programme for Children. 3.30, Music Review. 3.45, Economic Notes. 4.0, See Hamburg. 5.0, Talk: Animal Pictures. 5.20, Talk: Curious Names and their Meaning. 5.40, Choral Music on Gramophone Records: Chorus from Iphigenia in Aulis (Gluck); Drei Sterne (Weber); Three Choral Pieces (Schein); (a) Je länger, je lieber. (b) Vergissmichnicht. (c) Die Macht der Phyllis; Bleib deutsch, du herrlich Land am Rhein (Hansen); Rüdeshheimer Wein (Hansen); Scheiden (Vollgemuth). 6.0, A Modern Dictionary. 6.20, String Quartet in C. Op. 76 (Haydn), by the Reitz Quartet, relayed from Weimar. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, See Munich. 10.5, News. 10.30 (approx.), Dance Music by the Emde Orchestra. 12 Midnight, Close Down.

LINZ.—See Vienna.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—12.30 p.m., Concert by the Station Orchestra, conducted by Henri Pensis: Overture, Boccaccio (Suppé); Selection from The Tales of Hoffmann (Offenbach); Waltz, Roses from the South (Joh. Strauss); Egyptian Serenade, Amina (Lincke); Intermezzo from Cavalleria Rusticana (Mascagni); Selection from Die Fledermaus (Joh. Strauss); Circus March (Mauz). 1.30, Gramophone Concert. 7.30 till Close Down, French Programme. 7.30, Gramophone Concert of Variety Music. 8.10, Talk on Saint-Saëns. 8.20, Tenor Song Recital by Schockneel: La procession (Franck); Aria from Le roi d'Ys (Lalo); Aria from Marion (Massenet); Si vous l'aviez compris (Deuz); Flower Aria from Carmen (Bizet). 8.50, News in French. 9.0, Concert of French Music by the Station Orchestra, conducted by Henri Pensis. Soloist, Jean Dax (Pianoforte). Pianoforte Concerto No. 3 (Saint-Saëns); Suite No. 2 from L'Arlésienne (Bizet). 9.45, News in German. 9.55, Concert by the Station Orchestra, conducted by Henri Pensis: Waltz, Morgenblätter (Joh. Strauss); Moment musical (Schubert); Hexentanz (MacDowell); The Flight of the Bumble Bee (Rimsky-Korsakov); Selection from White Horse Inn (Stolz-Benatzky). 10.30, Songs on Gramophone Records. 11.0, Dance Music by the Station Jazz Band, conducted by Ferry Jusa.

LOWO.—See Vienna.

788 kc/s, 381 metres; 16 kW.—7.25 p.m., Programme Announcements. 7.30, Announcements and Gramophone Music. 7.45, See Warsaw. 8.0, Gramophone Music. 8.15, Military Programme. 8.45, Programme relayed from Warsaw. 12.0 Midnight (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette for Lyons and the South-East. 8.30, Programme relayed from Paris (Ecole Supérieure), 671 kc/s (447.1 metres). After the Relay, News Bulletin.

MADRID

ARANJUEZ; EAQ; 10,000 kc/s, 30 metres; 20 kW.—7.0 to 9.0 p.m., Programme for Listeners in the Canary Islands, Guinea, and Europe. 7.0, Concert of Popular Music. 8.15, Talk. 8.30, Light Music. 9.0 to 11.30, Interval. 11.30, Popular Concert. In the interval at 11.45, Radio Chronicle. 12.45 a.m. (Sunday), Light Music. 1.0 (approx.), Close Down.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal and Request Gramophone Records. 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time Signal and Topical Review. 11.20 (approx.), El rey que Madio—Musical Comedy (Chapi). In the interval, Literary Talk. 1.15 a.m. (Sunday), Topical Review and News. 1.30, Chimes and Close Down.

MALMO.—See Stockholm.

MILAN.—See Turin.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 p.m., Police Band Concert; March (Hervert); Polka (Poncar); Waltz (Fucik); March (Leopold); Waltz, The Sailor's Return (Petrzika); National Guards' March (Pehlik); Czech Potpourri (Taborsky); My Girl, where are you going? (Voldan). 5.45, Gramophone Music. 5.55, Talk. 6.5, Trio Concert, relayed from Opava. 6.25, Talk: The Care of the Teeth. 6.35, Light Music. 7.0, See Prague. 7.30, A Sketch in Dialect, relayed from Kosice, 1,022 kc/s, 293 metres. 7.55, See Brno. 8.45, See Prague. 9.20, Literary Programme. 10.0, See Prague. 10.15, See Bratislava. 11.30 (approx.), Close Down.

MOSCOW

(TRADES UNION), 300 kc/s, 1,000 metres; 100 kW.—11.45 a.m., Weather. 2.45 p.m., Weather. 3.0, Extracts from Carmen—Opera (Bizet). 3.55, Time. 4.0, Topical Talk. 4.30, Literary Programme. 5.30, Musical Programme by Amateurs. 6.30, Concert of Ballet Music. 9.0, News. 9.30, Programme Announcements. 9.55, Chimes from the Red Square. 10.5, Press Review.

MOTALA.—See Stockholm.

MUHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by Augsburg and Kaiserlautern, 536 kc/s, 560 metres, and Nürnberg, 1,756 kc/s, 239 metres.—4.30 p.m., Concert by the Station Orchestra, conducted by Karl List. Soloist: Josef Machoi (Xylophone). Overture, Si j'étais roi (Adam); The Skaters' Waltz (Waldteufel); Xylophone Solo; Stelldichein (Aelter); Piece for Trombone and Piccolo; Elefant und Mücke (Kling); Waltz, Moonlight on the Alster (Fetras); Xylophone Solo; Hirtenleben auf den Alpen (Kling); Famous Marches. 5.45 (from Nürnberg), Franconia—a Radio Sequence for Young People (Arthur Kuhnert). 6.15, Trio (Klaas), for Piano-forte, Violin and Cello. 6.45, Wireless Talk. 7.0, Transmission for all German Stations. Berechtigsgaden in the Bavarian Alps—Programme relayed from Adolf Hitler's Summer Residence (arr. Kühne-Helmsen). 8.0, Part-Relay from the Munich Autumn Festival. 10.0, Austria. 10.20, Time and News. 11.0, Concert from Leipzig. 12 Midnight (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—4.15 p.m., Concert by the Station Orchestra, conducted by Hugo Kramm: Invitation to the Waltz (Weber); Overture, Die schöne Galathee (Suppé); Rocco Suite (Ralf); Romance (Svendsen); Crescendo (Lasson); Carnival March (Friml). 5.15, Programme for Children. 6.15, Norwegian Melodies by Erling Krogh (Tenor) and Eivind Groven (Hardanger Fiddle). 6.45, Talk on Economics. 7.0, News. 7.30, Interview with a Librarian: What the Public Reads. 8.0, Time Signal. 8.1, Revue, relayed from the Black Cat Theatre. In the intervals, News and Topical Talk. 10.45, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopplavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Sports Talk. 8.25, Gramophone Music. 8.30, Time and Announcements. 8.45, The Merry Widow—Operetta in Three Acts (Lelár). In the intervals: Book Review and Announcements. After the Operetta: Giornale Radio.

PARIS

EIFFEL TOWER, Call FLE. 707.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on 2,650 metres) at 10.26 a.m. and 11.26 p.m.

(Preliminary and 6-dot Signals).—6.45 p.m., Theatre Talk. 7.0, Le Journal Parlé. 8.0, Promenade Concert, relayed from London. 9.30, Les pieds nickelés—Comedy in One Act (Tristan Bernard). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music: Aria from Don Giovanni (Mozart); Melody (Mussorgsky); Hopak (Mussorgsky). 7.15, Le Journal Parlé. 7.30, Film Review. 8.0, Talk: The Event of the Week. 8.30, Concert. 9.10, Dance Music by the Sonora Radio Band, conducted by Fred Hoffmann. 11.0, News.

PARIS

RADIO-PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Music. 8.0, Weather and News. 12.0 Noon, Gramophone Concert: Pluie d'or (Waldteufel); Marquita (Schertzinger); Fascination (Marchetti); Funiculi, Funicula (Denza); Ça c'est Paris (Padilla); Sans rien dire (Legay-Moselle); La Violettera (Padilla); Place blanche (Mele-Graven); Melody (Boyer); Constantinople (Carlton); Singing in the Rain (Herb-Brown); Parlez-moi d'amour (Lenoir); Je sais que vous êtes jolie (Christine); Rose mounse (Bose); It's you (Richard); Ay! Ay! Ay! (Freire); El Relicario (Padilla); La Czarine (Ganne); Scherliarazade (Sternmann); Joulon (Fischer); Dinah (Akst); Dance of the Hours (Privas); Serenade (Toselli); Rammau (Wayne); Valencia (Padilla). In the interval at 1.0, Exchange, Announcements and Weather and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Report. 7.10, Gramophone Concert: March from Signor Jorsalliar (Grieg); Donauwälden (Ivanovic); Rigaudon (Lacome); Honoluh (Yvain); Eincelles (Waldteufel); Melody (Valente); Etude in G Flat (Zouhalov); Melody (Feret); Blonde amie (Carcel); Autour du Moulin (Feret); Pastel (Paradis); Lullaby from Mignon (Thomas); Melody (Kubinstein); La valeur française. 7.50, Commercial Notes and News. 8.0, Gramophone Concert: Vieux airs limousins (Rouchaud); Chinese serenade (Siede); Campana a terra (Billi); Santiago (Corbier); Selection from Le jour et la nuit (Lecocq); Spring Song (Mendelssohn); Gopak (Mussorgsky). 8.30, News, Weather and Sports Notes. 8.40, Le Petit Duc—Operetta (Andran) relayed from the Théâtre de la Porte Saint-Martin. In the interval, News and Announcements.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—7.30 to 11.0 p.m., New York Relay. 7.30, Concert Echoes. 8.0, Words and Music. 8.30, Wealth of Harmony. 9.0, Dance Masters. 9.30, Concert Favourites. 10.0, Casino Orchestra. 10.30, Neil Sisters. 10.45, Orphan Annie. 11.0, News and Piano Classics. 11.15, Sports Notes and a Song. 11.30, A Recreo by Bill and Alex. 11.45 to 12.30 a.m. (Sunday), New York Relay. 11.45, A Century of Progress. 12 Midnight, Ross Pearson. Buritone. 12.15, Ethel Waters. 12.30, Huston Ray's Orchestra. 1.0 to 3.15, New York Relay. 1.0, Jack Denny's Orchestra. 1.30, Brown and Llewellyn. 1.45, Annie, Judy, and Zeke. 2.0, Tales of the Titans. 2.30, Jamboree. 3.15, Behind the Law.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Moravská-Ostrava. 3.55, Aviation Weather Report. 4.0, Interval. 5.45, Talk. 5.55, Talk. 6.5, Agricultural Programme. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Concert for Young People. 7.0, Chimes and News. 7.10, Medical Talk. 7.30, A Sketch in Dialect relayed from Kosice, 1,022 kc/s, 293 metres. 7.55, See Brno. 8.45, Dialogue: An Adventure's Tour (Rossler). 9.20, See Moravská-Ostrava. 10.0, Time Signal. News and Sports Notes. 10.15, See Bratislava. 11.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—6.15 to 6.30 a.m. (from Lausanne). Gymnastics. 11.45, Report on the Start of the Walking Tour round Lake Geneva. 12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News and Weather. 12.40 (from Geneva), Gramophone Music. 1.0 (from Geneva), Financial News. 1.10 (from Geneva), Gramophone Concert. 2.0, Report on the Walking Tour, relayed from Morges. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Music. 5.0, Report on the Walking Tour, relayed from

SEPT. 23rd

SATURDAY

continued

Nyon. 5.30 to 7.0, Interval. 7.0 (from Lausanne), Talk: The Blind. 7.30 (from Geneva), Talk: A Walking Tour round Lake Geneva. 8.0, Concert of Light Music by the Radio Suisse Romande Orchestra, conducted by Echenard. 9.0 (from Lausanne), Opera Arias by Gustave Dutoit (Bass). 9.20 (from Lausanne), Saxophone Solos. 9.50, News and Weather. 10.0 (from Lausanne), Dance Music, relayed from the Hotel Splendide. 10.30 (approx.), Close Down.

REYKJAVIK

1,260 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.50, Reading. 11.0, Concert by the Station Quartet, followed by Choral Music on Gramophone Records. After the Programme, Dance Music. 2.0 a.m. (Sunday), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—4.40 p.m., Faust—Opera (Gounod). In the intervals at 6.10, French Lesson. 6.40, Agricultural Talk and 7.10, Weather Report. 8.0, News. 8.20, Italian Guitar Duets. 8.45, Recital of Latvian Songs by Irma Kalnins. 9.0, Weather and News. 9.15, Humorous Programme. 9.40, Dance Music. 11.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 680 kc/s, 441 metres; 50 kW. Relayed by Naples, 941 kc/s, 319 metres; and 2RO, 11,810 kc/s, 25.4 metres, from 5.15 p.m. (approx.), and Milan (Vigentino), 662 kc/s, 453.2 metres, from 8.45 p.m.—12.30 p.m., Gramophone Records. 1.0, Gramophone Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.30, Giornale Radio and Report of the Royal Geographical Society. 4.45, Children's Radio Review. 5.10, Weather. 5.15 to 6.0, Orchestral Concert. 6.30 (Naples), Shipping and Sports Notes. 6.45, Lesson in Morse and Dopolavoro Notes. 7.0, Tourist Report. 7.10, Agricultural Report. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.15, Violin Recital. 8.30, Giornale Radio and Sports Notes. 8.45, Il Pirata—Opera in Two Acts (Bellini). In the interval, Humorous Talk and Announcements. Giornale Radio after the Programme.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 750 kc/s, 373.5 metres; 50 kW. Relayed at intervals by W2XAF on 31.48 metres, and by W2XAD on 19.56 metres.—12.45 a.m. (Sunday), Stock Reports and Baseball Scores. 1.0 to 4.0, New York Relay. 1.0, Solist. 1.15, The Rollickers. 1.30, Sous les ponts de Paris. 2.0, Antobal's Cribans. 2.30, K-7 Secret Service Spy Story. 3.0, Saturday Night Dancing Party with B. A. Rolfe and his Orchestra. 4.0, Programme Résumé.

SCHWEIZERISCHER
LANDESENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,229 kc/s, 244.1 metres; and Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m., Time Signal from Neuchâtel Observatory and Weather. 12 Noon (from Berne), Slav Music on Gramophone Records. 12.30 p.m., Time, Weather and News. 12.40 (from Berne), Recital of Vodels on Gramophone Records. 1.25, Time, Weather and Exchange. 1.30 (from Basle), The Letter Box. 1.45 (from Basle), Review of Books on Music. 2.15 (from Basle), Folk Songs by a Schoolgirls' Choir. 2.45 (from Basle), Programme of Choir. 2.55 (from Basle), 3.20 to 5.0, Alsatian Music and Poetry. 3.20 to 5.0, Interval. 5.0 (from Basle), Accordion Concert. 5.30 (from Basle), Wind Instrument Concert on Gramophone Records. 6.0 (from Basle), Talk by a Blind Man: From Dark-ness to Light. 6.30 (from Basle), Programme for Women. 7.0, Chimes from Zürich Churches. 7.15 (from Basle), Time, Weather and Announcements. 7.20 (from Basle), Opera and Operetta Music on Gramophone Records. 7.40 (from Basle), Vocal Duets. 8.10 (from Basle), Talk on Wireless. 8.40 (from Basle), Light Music on Gramophone Records. 9.0, Weather and News. 9.10 (from Basle), Amors Guckkasten—Operetta in One Act (J. B. Michaelis). 10.15 (from Basle), Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Östersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—4.0 p.m. (from Göteborg), Orchestral Concert: Overture, Fingal's Cave (Mendelssohn); Waltz from Der Rosenkavalier (R. Strauss); Violin Solo: Serenade, Bimba Mia (Coda); Selection from A Waltz Dream (O. Strauss); Slav Dance No. 10 (Dvorák); Waltz, Tanzrausch (Schmalstich); Tango, Heut' nacht hab ich geträumt von dir (Kálmán). 5.55, Programme for Children. 5.30, Accordion Music from Eskilstuna, 1,220 kc/s, 453.2 metres. 6.0, Dialogue. 6.15, Gramophone Music. 7.15, Weather and News. 7.30, Old Dance Music. 8.15, Talk. 8.45, Musical Programme. 9.45, Weather and News. 10.0, Dance Music. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Variety Music on Gramophone Records. 12.45 p.m., News. 1.0, Time. 1.1, Popular Music on Gramophone Records. 2.0, Legal Talk in German. 2.15, Opera Music on Gramophone Records. 2.45, Talk: Chabrier's Pianoforte Music. 3.0, Interval. 4.0, Operetta Music on Gramophone Records: Selection from Ciboulette (Hahn); Two Airs from La Basoche (Messager); Selection from Les mousquetaires au Convent (Varney); Two Airs from Le petit Duc (Lecocq); Air from Les Saltimbanques (Ganne); Selection from Véronique (Messager); Selection from Rip (Planquette); Two Airs from Ciboulette (Hahn); Selection from Miss Deima (Andran). 5.0, Orchestral Concert, conducted by Maurice de Villers: Entr'acte from Meisidor (Bruneau); Scandinavian Symphony (Casadesu); Symphony for Viola and Orchestra, Harold en Italie (Berlioz); Overture, The Mastersingers (Wagner). 6.15, French Elocution Lesson. 6.30, Gramophone Music. 6.45, Talk on Aviation. 7.0, Agricultural Talk in German. 7.15, Lottery Results and Announcements. 7.30, Time and News. 7.45, Press Review in German and Gramophone Music. 8.0, Promenade Concert, relayed from London. 9.45, Press Review. 9.55, Dance Music on Gramophone Records. 10.30, Dance Music, relayed from the Savoy. 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by Freiburg, 527 kc/s, 573 metres.—12.20 p.m., A Non-Stop Flight round the World—Gramophone Concert. 2.30, Time and News. 2.50, Talk. 3.0, Concert of Swiss Songs: Schweizerpsalm (Zwysig); An das Vaterland (Baumgartner); Schweizer Heimwehtraum (Wälder-Rosow); Potpourri of Swiss Alpine Songs, grüsse aus den Schweizeralpen (Ruh). 3.30 (from Mannheim), Programme for Young People. 4.30, Concert from Munich. 5.45, Talk: A Walk in Transylvania. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Munich. 8.0, Concert. 8.30, Robert and Bertram—Humorous Radio Play with Songs (Raeder). 10.0, See Munich. 10.20, Time and News. 10.30 (approx.), Gramophone Music. 11.0, Dance Music, relayed from Leipzig. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

RADIOPHONIE DU MIDI, 779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Light Orchestral Music. 6.30, Music from Sound Films. 6.45, Opera Music: Hungarian March from The Damnation of Faust (Berlioz); Wedding Scene from Lohengrin (Wagner); Polonaise from Boris Godunov (Mussorgsky). 7.0, Accordion Music. 7.15, News, Racing Results, Market Prices and Exchange. 7.30, Fete du Couronnement de la Muse (Charpentier), by the Symphony Orchestra. 7.45, Music by a Viennese Orchestra. 8.15, Light Music. 8.30, Military Music. 8.45, Opera Music: Arias from (a) Griseldis (Massenet), (b) The Valkyrie (Wagner), (c) Faust (Gounod). 9.0, Mendelssohn Concert: Overture, A Midsummer Night's Dream; Wedding March from A Midsummer Night's Dream; Overture, Fingal's Cave; Spring Song: Song without Words; Scherzo; On Wings of Song; Trio in D Minor; Rondo capriccioso. After the Concert, Tango Songs. 10.0, Organ Music. 10.15, North-African News and Local News. 10.30, Concert for Listeners in Morocco: Souvenirs classiques; Aria from

Louise (Charpentier); Selection from Morning, Noon and Night (Suppé); Ils étaient en pyjama (Borel Clerc); American March (Souza). 11.0, Music from Sound Films. 11.15, Dance Music. 12 Midnight, News, Weather and Announcements. 12.15 a.m. (Sunday), Orchestral Concert: Selection from The Desert Song (Romberg); The Distant Sound of Bagpipes (Weinberger); Spinx (Popy); Selection from La princesse jaune (Saint-Saëns); Ronde villageoise (Chabrier). 12.30, Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.20 p.m. till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres; and Florence, 590 kc/s, 500.8 metres.—5.20 p.m., Gramophone Music. 6.0 to 6.5, Weather. 6.40, Giornale Radio. Talk, Gramophone Music and Dopolavoro Announcements. 7.0, Time, Tourist Report and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.20, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes, Weather and Gramophone Music. 8.25, Talk: Events and Problems. 8.40, Variety Programme. In the interval, Book Review. 11.0, Giornale Radio.

VATICAN CITY

15,129 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—11.0 to 11.15 a.m., Religious Announcements in Various Languages. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 100 kW. Relayed by Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres; and Salzburg, 1,373 kc/s, 218.5 metres.—11.30 a.m., Gramophone Concert. Gesang Weylas (Wolf); Valentine's Aria from Faust (Gounod); Aria from Eugene Onegin (Tchaikovsky); Aria from Tosca (Puccini); Waltz, Op. 42 (Chopin); Aria from The Pearl Fishers (Bizet). 11.55, Weather. 12 Noon, Wind Instrument Concert. 1.0 p.m., Time and News. 1.10, Concert (contd.). 2.0 to 3.0, Interval. 3.0, Time, Weather and Exchange. 3.15, The Liberation of Vienna—A Prize-Winning Radio Play (Decsey and Strobl), with Musical Interludes. 5.45, Talk with Gramophone Illustrations: A Lett Festival. 6.15, Technical Wireless Talk. 6.30, Topical Talk. 7.0, Today's Motto. 7.5, Pianoforte Recital by Dr. Paul Weingarten. 7.50, Time, Weather, Sports Notes and Programme Announcements. 8.0, The Immortal Franz—Four Pictures (Bittner and Decsey), with Music by Schubert: (a) Per aspera, (b) Am Brunnen vor dem Tore, (c) Die schöne Müllerin, (d) Ad astrum. 10.0, News. 10.15, Dance Music, relayed from the Oase. After the Programme, Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from Torma for the 700th Anniversary of the Town. 12.5 p.m., Gramophone Music. In the intervals at 12.25, Press Review, and at 12.33, Weather. 12.55, Radio Journal. 1.0, Interval. 2.55, Gramophone Music. In the intervals at 3.5, News, and at 3.25, Economic Notes. 4.0, Programme for Invalids, relayed from Lwow, 788 kc/s (381 metres). 4.30, Gramophone Records. 5.0, Topical Talk. 5.15, Light Music from the Gastronomica Café. 6.10, Talk: Sobieski and the Castle of Olesk, relayed from Lwow. 6.30, Violin Recital by Lidia Kmita: Reverie (Moniusko-Melecer); Slav Dance in C Minor (Dvorak); Valse joyeuse (Prozansky); Two Pieces (Kreisler): (a) Liebesleid, (b) Schön Rosmarin. 7.0, Miscellaneous Items. 7.15, The Retreat and the Last Post, relayed from a Regimental Celebration at Chelm. 7.40, Programme Announcements. 7.45, Reading from Lord Jim (Conrad). 8.0, Concert by the Station Orchestra: Soloist: Mme. Makowska (Songs); Comedy Overture (Keler Boh); Stephanie Gavotte (Czibulka); Oberkis (Namyrowski); Songs; Overture, Dames et Hussards (Jonota); Boston from Schön ist die Welt (Lehár); Songs; Waltz, Frühlingsstimmen (Strauss); Czardas, from Countess Maritza (Kálmán); Pavane (Mariotti); Mazurka (Namyrowski). 9.5, Radio Journal. 9.15, Press Review, relayed from Wino, 533 kc/s (563 metres). 9.30, Chopin Recital: Sonata in B Minor; Nocturne in G, Op. 15; Waltz in E Minor. 10.0, Dance Music from the Oaza Dance Hall. In the intervals at 10.25, Sports Notes, and at 10.35, Weather and Police Notes.

ZURICH.—See Schweizerischer Landessender.

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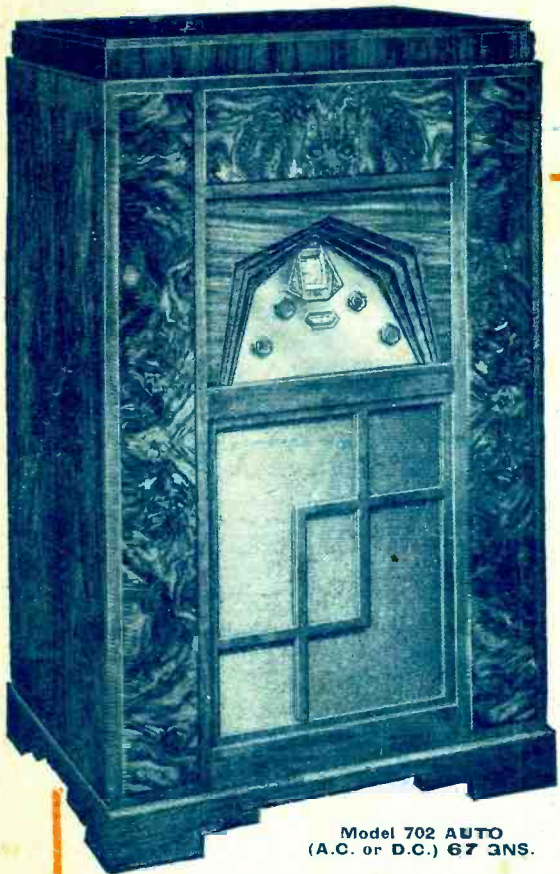
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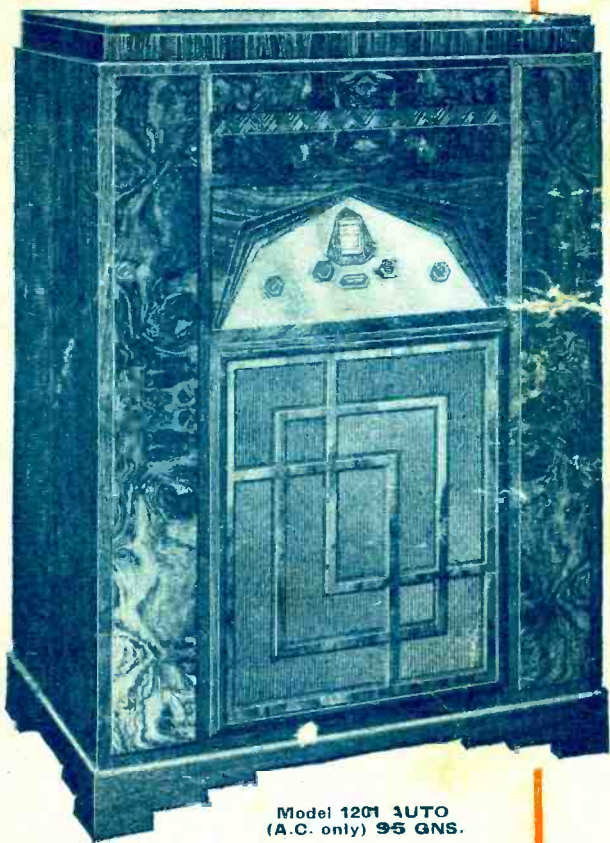


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