

The Wireless World

THE PRACTICAL RADIO JOURNAL
with Complete Foreign Programmes

4^D

Friday, September 1st, 1933.

BURTON CLASS "B" CONVERSION UNIT

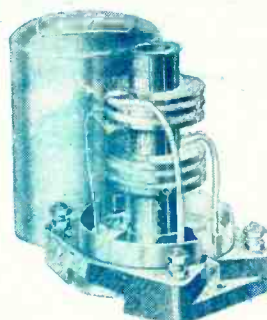
This unit is intended to be added to existing battery sets in order that moving coil reproduction may be obtained. It contains a specially designed driver and output transformer, and the whole unit is housed in a highly polished brown bakelite case. The unit takes an average current of 6 m.a. and is capable of delivering 2 watts output without distortion.

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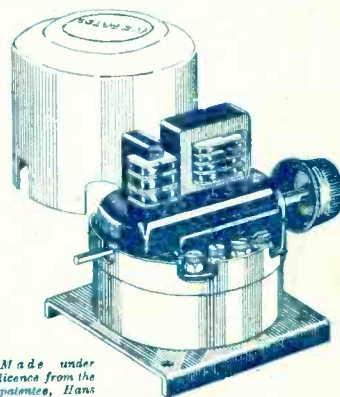
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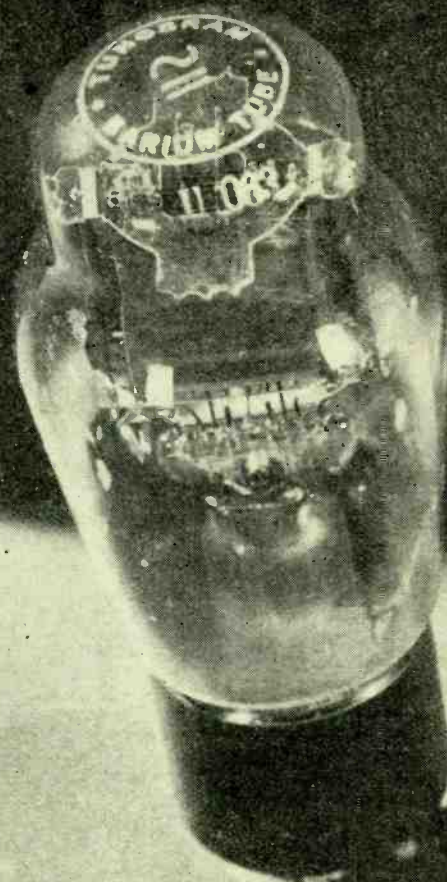
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S. 2018	400	1.2	S.G.H.F. Det.	14/6
S.E. 2018	400	1.4	V/mu S.G.H.F.	10/6
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P. 2018	25	2.5	Power driver	17/-
P.P. 2018	7	2.5	Multigr. Output	17/-
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V. 2018	60		Wave Rect.	
P.V. 4013			Fullwave Rect.	

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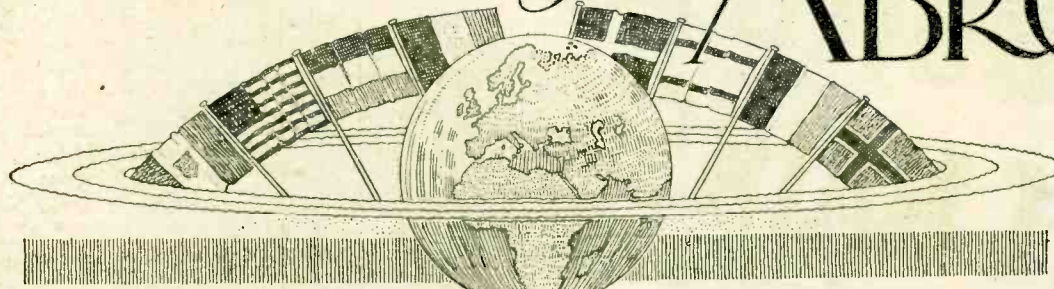
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The Wireless World PROGRAMMES from A BROAD



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	4	Milan (Vigentino) (Italy) (Relays Rome) ..	
1875	160	8.5	Hilversum (Holland) (Kootwyk, experimental, 50 kW., after programme hours) ..		450.3	660	20	Madona (Latvia). (Relays Riga) ..	
1796	167	40	Lahti (Finland) ..		447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Itjukan (0.15 kW.), Notodden (0.08 kW.), Ålesund (0.35 kW.) (Norway) (relays Oslo).	
1725	174	75	Radio Paris, C.F.R. ..		441.2	680	50	Rome, I.R.O. (S.-W. Station, 2 RO on 25.4 m.) ..	
1635	183.5	60	Berlin (Deutschlandsender) (Germany). (S.-W. Stn. D.A. on 31.38 m., D.J.B. on 19.73 m., D.J.C. on 49.83 m., D.J.D. on 25.51 m., D.J.E. on 16.86 m.) ..		435.4	689	55	Stockholm, S.A.S.A. (Sweden) ..	
1554.4	193	30	Daventry National ..		430.4	697	2.5	Belgrade (Yugoslavia) ..	
1538	195	7	Ankara (Angora) (Turkey) ..		424.3	707	2	Madrid, EAJ7 (Union Radio) ..	
1481	202.5	500	Moscow, RV1 (Old Komintern) (Russia) ..		424.3	707	100	Moscow, Imeni Stalina (Russia) ..	
1446	207.5	13	Eiffel Tower, F.L. Paris ..		419.5	715	1.5	Berlin, Funkstunde (Germany) ..	
1412	212.5	120	Warsaw 1 (Poland) ..		416.4	720.5	5	Rabat (Morocco) ..	
1380	217.5	100	Novosibirsk, RV76 I (Russia) ..		413	725	60	Athlone (Irish Free State) ..	
1354.4	221.5	30	Motala (Sweden). (Relays Stockholm) ..		408.7	734	16	Katowitz (Poland) ..	
1350	222	0.5	Tunis-Kasbah (Tunisia) ..		403.8	743	25	Sottens (Radio Suisse Romande) (Switzerland) ..	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia) ..		398.9	752	25	Midland Regional. (Daventry) ..	
1230	244	0.6	Boden (Sweden). (Relays Stockholm) ..		394.2	761	12	Bucharest (Roumania) ..	
1200	250	5	Stamboul (Turkey) ..		389.6	770	120	Leipzig (Germany) ..	
1200	250	21	Reykjavik (Iceland) ..		385.1	779	8	Toulouse (Radiophonie du Midi) (France) ..	
1190	262	200	Luxembourg ..		381	788	16	Stalino, RV26 (Russia) ..	
1170	266	25	Tashkent, RV11 (Russia) ..		376.4	797	50	Lwow (Lemberg) (Poland) ..	
1154	260	75	Kalundborg (Denmark). (Relays Copenhagen) ..		372.2	806	1.5	Scottish Regional (Falkirk) ..	
1154	260	20	Monte Ceneri (Switzerland) ..		370.1	810.5	0.8	Hamburg (Germany) ..	
1117	268.5	40	Moscow, Popoff RV58 (Russia) ..		368.1	815		Radio, L.L. Paris ..	
1083	277	60	Oslo (Norway) ..					Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ4 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (relays Lahti); Kharkov, RV20 (10 kW.) (Russia) ..	
1071	280	35	Tiflis, RV7 (Russia) ..		368.1	815	0.7	Fredrikstad (Norway). (Relays Oslo) ..	
1035	290	36	Kiev, RV9 (Russia) ..		364.1	824	1	Bergen (Norway) ..	
1000	300	100	Moscow RV39 (Russia) (S.-W. Stn. on 50 m.) ..		363.6	825	13	Algiers (Algeria) ..	
938	320	20	Kharkov, RV4 (Russia) ..		360.6	832	60	Mühlacker (Stuttgart) (Germany) ..	
857	350	100	Leningrad (Russia) ..		355.9	843	50	London Regional (Brookmans Park) ..	
840	357	18.5	Budapest (Hungary) ..		352.1	852	7	Graz (Austria). (Relays Vienna) ..	
825	363.6	50	Sverdlovsk, RV5 (Russia) ..		348.8	860	7.6	Barcelona, EAJ1 (Spain) ..	
760	395	1.3	Geneva (Switzerland). (Relays Sottens) ..		348.8	860	10	Leningrad, RV70 (Russia) ..	
720	416.6	20	Moscow, RV2 (Experimental) (Russia) ..		345.2	869	11.5	Strasbourg, PTT (France) ..	
690	434.6	1.5	Oulu (Uleaborg) (Finland) ..		341.7	878	35	Brno (Brunn) (Czechoslovakia) ..	
680	441.2	0.6	Lausanne (Switzerland). (Relays Sottens) ..		338.2	887	15	Brussels II, Velthem (Belgium). (In Flemish) ..	
574.7	522	7	Ljubljana (Yugoslavia) ..		335	896	5	Cadiz (Spain) ..	
569	527	0.25	Freiburg-im-Breisgau (Germany). (Relay Stn.) ..		334.4	897	1.9	Poznan (Poland) ..	
568.1	528	2	Grenoble (France) ..		331.5	905	50	Milan (Italy). (Relays Turin) ..	
563	533	16	Wilno (Poland). (Relay Station) ..		328.2	914	60	Poste Parisien (France) ..	
560	536	0.25	Augsburg (Germany). (Relays Munich) ..		325	923	60	Breslau (Germany) ..	
560	536	1.5	Kaiserslautern (Germany). (Relays Munich) ..		321.9	932	10	Göteborg (Sweden). (Relays Stockholm) ..	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary) ..		318.8	941	0.25	Dresden (Germany). (Relays Leipzig) ..	
542	554	10	Sundsvall (Sweden). (Relays Stockholm) ..		318.8	941	1.5	Naples, INA (Italy). (Relays Rome) ..	
537.6	558	3	Palermo (Italy) ..		315.8	950	1.6	Marseilles, PTT (France) ..	
533	563	60	Munich (Germany) ..		312.8	959	0.7	Radio Vitus (Paris). (S.-W. Stn. on 43.75 m.) ..	
525	571	15	Riga (Latvia) ..		312.8	959	1.7	Cracow (Poland) ..	
517.2	580	100	Vienna (Bismberg) (Austria) ..		312.8	959	10	Genoa, IGE (Italy). (Relays Turin) ..	
509	589	15	Brussels No. 1, Velthem (Belgium). (In French) ..		309.9	968	50	West Regional (Washford Cross) ..	
500.8	599	20	Florence, IFI (Italy). (Relays Turin) ..		307	977	0.75	Zagreb (Yugoslavia) ..	
495.8	605	1.2	Trøndelag (Norway) ..		304	986	13	Bordeaux Lafayette, PTT (France) ..	
488.6	614	120	Prague. (Czechoslovakia) ..		301.5	995	50	North National (Manchester) ..	
480	625	50	North Regional (Manchester) ..		298.8	1004	11	Tallinn (Esthonia) ..	
472.4	635	60	Langenberg (Germany) ..		296.1	1013	20	Huizen (Holland). (7 kW. before 4.40 p.m.) ..	
465.8	644	1.5	Lyons la Doua, PTT (France) ..		293.5	1022	0.7	Limoges, PTT (France) ..	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland) ..		293.5	1022	2.6	Kosice (Czechoslovakia) ..	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (relays Heilsberg); Klagenfurt (0.5 kW.) (Austria) (relays Vienna); Porsgrunn (0.7 kW.) (relays Oslo); Tromsø (0.1 kW.) (Norway) (0.5 kW.) (Norway); Uppsala (0.15 kW.) (Sweden) (relays Stockholm) ..		291	1031	13.2	Viiipuri (Viborg) (Finland). (Relays Helsinki) ..	
453.2	662	0.25	Agen (France) ..		288.3	1040	50	Scottish National (Falkirk) ..	
					288.3	1040	1	Bournemouth (Relay Station) ..	
					286	1049	0.8	Montpellier (France) ..	
					284.8	1053	0.7	Lyons (Radio-Lyon) (France) ..	

BROADCASTING STATIONS ABROAD (In Order of Wavelength)

Metres.	kc/s.	kW.	Station.	Tuning Positions.	Metres.	kc/s.	kW.	Station.	Tuning Positions.
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)		242.3	1238	1	Belfast (N. Ireland)	
283.6	1058	0.5	Innsbruck (Austria). (Relays Vienna)		240.6	1247	0.5	Stavanger (Norway)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (Short-wave Station on 31.25 m.)		238.9	1256	2	Nürnberg (Germany). (Relays Munich)	
281.2	1067	0.75	Copenhagen (Denmark)		237.2	1265	1	Nîmes (France)	
278.8	1076	13.5	Bratislava (Czechoslovakia)		237.2	1265	3	Bordeaux, Sud-Ouest (France)	
276.5	1085	60	Heilsberg (Germany)		235.5	1274	0.5	Kristiansand (Norway)	
273.7	1096	7	Turin (Italy)		235	1283	1.65	Lodz (Poland). (Relay Station)	
271.5	1105	1.3	Rennes, PTT (France)		232.2	1292	0.25	Kiel (Germany). (Relays Hamburg)	
269.8	1112	20	Bari (Italy)		230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhättan.)	
269.8	1112	0.25	Bremen (Germany). (Relays Hamburg)		227.4	1319	0.5	Flensburg (Germany). (Relays Hamburg)	
267.6	1121	0.75	Valencia (Spain)		227.4	1319	1.5	Hanover (Germany). (Relays Hamburg)	
267.4	1122	6.25	Nyireghaza (Hungary). (Relays Budapest)		225.9	1328	10	Fécamp, Radio-Normandie (France)	
265.8	1128.5	1.3	Lille, PTT (France)		224.4	1337	1	Cork (Irish Free State)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)		222.9	1346	0.15	Hälskingsvåg (Sweden)	
261.5	1147	50	London National (Brookmans Park)		219.9	1365	1.5	Béziers (France)	
259.3	1157	17	Frankfurt-a.-M. (Germany)		218.5	1373	0.2	Plymouth	
259.3	1157	2.3	Trier (Germany). (Relays Frankfurt)		218.5	1373	0.5	Salzburg (Austria). (Relays Vienna)	
257.1	1167	10	Hörby (Sweden). (Relays Stockholm)		217	1382	0.5	Königsberg (East Prussia). (Relays Heilsberg)	
255.1	1176	0.7	Toulouse, PTT (France)		217	1382	0.25	Karlstad (Sweden)	
253.1	1185	5	Gleiwitz (Germany). (Relays Breslau)		215.6	1391	0.2	Halmstad (Sweden)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)		214.3	1400	1	Aberdeen	
249.6	1202	0.8	Juan-les-Pins, Nice (France)		211.3	1420	1	Newcastle	
247.7	1211	10	Trieste (Italy). (Relays Turin)		209.8	1430	1.25	Magyaróvár, Miskolc and Pecs (Hungary)	
245.9	1220	—	Berne (0.5 kW.) (Switzerland) (relays Beromünster); Kskilstuna (0.2 kW.). Saffle (0.4 kW.) (Sweden) (relays Stockholm); Cassel (0.25 kW.) (Germany) (relays Frankfurt); Linz (0.5 kW.) (Austria) (relays Vienna); Pietarsaari (0.5 kW.). Turku (Aho) (0.5 kW.) (Finland) (relays Helsinki).		207	1450	0.15	Boras (Sweden)	
244.1	1229	0.5	Basle (Switzerland). (Relays Beromünster)		206	1460	0.2	Ornskölsvik (Sweden)	
					204.1	1470	0.2	Gävle (Sweden)	
					202.7	1480	0.25	Kristinehamn (Sweden)	
					201.3	1490	0.25	Hälsingborg (Sweden)	
					195	1530	0.2	Karlskrona (Sweden)	

PRINCIPAL SHORT-WAVE STATIONS

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

Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.	Metres.	kc/s.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2HO	Rome		39.7	7,556	HKE	Bogota (Colombia). (Westinghouse Labs.)	
73.0	4,110	HCJB	Quito (Ecuador). (Daily 13.30)		39.4	7,612	X26A	Nuevo Laredo (Mexico). (Thurs. 17.00)	
70.2	4,273	RW15	Khabarovsk (Russia). (Daily 10.00-13.00)		38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (Sun. 23.00-23.45)	
62.56	4,795	VE9BY	London, Ont. (Canada). (Sun. 07.00)		37.33	8,936	CNR	Rabat (Morocco). (Sun. 22.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (Fri. 07.00)		34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (Fri. 24.00)	
58.31	5,145	OK1MPT	Prague (Czechoslovakia). (Tues. and Fri. 20.30)		34.68	8,650	VE9BY	London, Ont. (Canada). (Mon. 22.00)	
58.3	5,146	PMY	Bandoeng (Java). (Daily 13.20 and 08.00)		33.50	8,925	TGX	Guatemala City (S. America)	
54.52	5,502	W2NBH	Brooklyn, N.Y. (U.S.A.). (Relays WCGT)		31.6	9,490	SRI	Posen (Poland). (Tues. and Thurs. 18.30)	
52.7	5,690	FIQA	Tananarive, P.T.T. (Madagascar)		31.58	9,500	PRBA	Rio de Janeiro (Brazil). (Daily 22.30)	
51.22	5,714	NDA	Chapultepec (Mexico)		31.55	9,510	VK3ME	Melbourne (Australia). (Wed. and Sat. 11.00)	
50.6	5,930	HJ1ARE	Medellin (Colombia)		31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
50.26	5,970	RVJ	Vatican State, Rome. (Daily 20.00)		31.51	9,520	OXV	Skaanebaek (Denmark). (Relays Copenhagen)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (Wed. 04.00, Sat. 08.30)		31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.). (Relays WGY)	
50.0	6,000	—	Bucharest (Roumania)		31.38	9,560	DJA	Zeese (Germany). (Daily 23.00)	
50.0	6,000	EW59	Moscow. (Relays Trade Union Stn.)		31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (Relays WBZ)	
49.96	6,005	HRB	Barcelona, Radio Club (Spain). (Sat. 21.00)		31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (Sun. 23.00-23.45)	
49.83	6,020	DJC	Tegucigalpa (Honduras). (Daily ex. Sun. 01.00-06.00)		31.29	9,585	GSC	Empire Broadcasting, Zone 3	
49.8	6,023	NEW	Zeese (Germany)		31.28	9,585	W3NAU	Philadelphia, Pa. (U.S.A.). (Relays WCAU)	
49.67	6,042	W2XAL	Mexico City (Mexico). (Daily 02.00)		31.28	9,590	VK2ME	Sydney (Australia). (Sun. 11.00)	
49.67	6,042	W4XB	Coytesville, N.J. (U.S.A.). (Relays WBNY)		31.25	9,598	CT1AA	Lisbon (Portugal). (Tues. and Fri. 23.00-01.00)	
49.6	6,048	W3XAU	Miami Beach, Florida (U.S.A.)		31.10	9,640	HS2PJ	Bangkok (Siam). (Mon. 03.00-06.00)	
49.58	6,050	GSA	Philadelphia, Pa. (U.S.A.). (Relays WCAU)		31.0	9,675	T14NRH	Heredia (Costa Rica). (Daily 23.00 and 03.00)	
49.5	6,060	W97LO	Empire Broadcasting, Zones 4-5		30.0	10,000	EAQ	Aranjuez (Spain). (Daily 22.30, Sat. 18.00)	
49.43	6,069	VE9CS	Nairobi (Kenya Colony). (Daily 17.30)		30.0	10,000	—	Belgrade (Yugoslavia). (Mon. 20.00)	
49.4	6,072	UOR2	Mason, Ohio (U.S.A.). (Relays WLV)		28.98	10,350	LSX	Buenos Aires (Argentina). (Daily 21.30)	
49.34	6,080	W2XCN	Vancouver, B.C. (Canada)		26.83	11,180	CT3AQ	Funchal (Madeira). (Tues. and Thurs. 11.30-13.30)	
49.34	6,080	W9XAA	Vienna. (Temporarily suspended)		25.63	11,705	FYA	Pontoise (France). (Colonial Stn. E-W, daily 20.30)	
49.22	6,095	VE9GW	Kearny, N.J. (U.S.A.). (Relays WOR)		25.6	11,720	VE9JR	Winnipeg (Canada). (Daily ex. Sat. and Sun. 18.45)	
49.2	6,098	ZTJ	Chicago, Ill. (U.S.A.). (Relays WCFB)		25.53	11,750	GSD	Empire Broadcasting, Zones 1 and 4	
49.18	6,100	W3XAL	Bowmanville, Ont. (Canada). (Daily 21.00)		25.5	11,760	NDA	Chapultepec (Mexico). (Daily 21.00)	
49.1	6,110	VUC	Johannesburg (S. Africa). (Weekdays 10.00, 15.00 (Sat. 15.30) and 18.00, Sun. 14.00 and 17.30). (Temporarily suspended)		25.5	11,760	DJD	Zeese (Germany)	
49.02	6,120	PK1WK	Round Brook, N.Y. (Relays WJZ)		25.45	11,790	W1XAL	Boston, Mass. (U.S.A.)	
48.86	6,149	W8XK	Calcutta, India. (Daily 14.00)		25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 and 20.30)	
48.8	6,147	VE9CL	Bandoeng (Java). (Daily 23.45)		25.36	11,830	W2XE	Wayne, N.J. (U.S.A.). (Relays WABC)	
48.65	6,167	XIF	Wayne, N.J. (U.S.A.). (Relays WABC)		25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (Relays WCFB)	
48.35	6,205	HRC	East Pittsburg, Pa. (U.S.A.). (Relays KDKA)		25.28	11,865	GSE	Empire Broadcasting, Zone 2	
48.2	6,220	2HO	Winnipeg (Canada). (Daily ex. Sun. 01.30)		25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (Relays KDKA)	
48.05	6,243	HKD	Mexico City (Mexico)		25.14	11,933	FYA	Pontoise (France). (Colonial Stn. N-S)	
48.0	6,250	CNSMC	Bogota (Colombia). (Daily 16.00)		23.38	12,830	CNR	Rabat (Morocco). (Sun. 12.30)	
47.0	6,382	HC1DR	Rome (Italy)		20.5	14,630	XDA	Chapultepec (Mexico). (Daily 20.30)	
46.69	6,425	W3XL	Barranquilla (Colombia). (Weekdays 24.15)		19.9	15,075	T14NRH	Heredia (Costa Rica). (Sat., Sun., Mon. 17.00 and 22.00)	
46.67	6,426	VE9BY	Casablanca (Morocco). (Relays Rabat)		19.84	15,120	HVJ	Vatican State, Rome. (Daily 11.00)	
45.38	6,611	RW72	Quito, Ecuador. (Daily 02.00)		19.81	15,140	GSE	Empire Broadcasting, Zone 5	
45.0	6,667	FM8KR	Bound Brook, N.J. (U.S.A.). (Relays WJZ regular)		19.73	15,200	DJB	Zeese (Germany). (Daily 16.00-24.00)	
45.0	6,667	TGW	London, Ont. (Canada). (Sat. 02.00, Sun. 03.00)		19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.). (Relays KDKA)	
43.75	6,860	—	Moscow. (Relays Trade Union Stn.)		19.68	15,244	FYA	Pontoise (France). (Colonial Stn. E-W)	
43.0	6,970	EAR110	Constantine (Algeria). (Mon. and Fri. 23.00)		19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.). (Daily 19.00)	
41.7	7,195	VS1AB	Guatemala City (Central America). (Daily 04.00)		16.9	17,750	HSP	Bangkok (Siam). (Sun. and Tues. 22.00)	
41.6	7,211	EAR58	Radio Vitus, Paris. (Daily 20.30)		16.89	17,760	DJE	Zeese (Germany)	
41.5	7,230	HB9D	Madrid. (Tues. and Sat. 23.30)		16.87	17,780	W3XAL	Bound Brook, N.J. (Weekdays 14.00)	
41.0	7,320	HSP2	Singapore (Malay States). (Sun. and Wed. 16.30)		16.86	17,790	GSG	Empire Broadcasting, Zone 2	
40.3	7,443	HBQ	Teneriffe (Radio Club) (Canary Islands)		16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (Relays WCFB)	
			Zurich (Radio Club) (Switzerland). (1st and 3rd Sun.)		14.47	20,730	LSY	Buenos Aires (Argentina). (Sun. 22.00)	
			Bangkok (Siam). (Mon. 15.00)		13.97	21,470	GSH	Empire Broadcasting, Zone 3 (Daylight working)	
			Radio Nations, Prangins (Switzerland). (Sun. 23.00-23.45)		13.92	21,540	W8XK	East Pittsburg. (Relays KDKA)	

FOREIGN SUNDAY PROGRAMMES

SEPTEMBER THE THIRD

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, Bessie O'H. Bourke's Instrumental Trio. 8.50, Music by the Kilnurray Choir. 9.10, The Silver Candlestick—Sketch, by Dorothy Day and Company. 9.40, Tenor Solos by Peter Dunn. 9.55, Instrumental Trio (cont'd.). 10.15, Bass-Baritone Solos by M. O'C. Maguire. 10.30, Traditional Trio Concert. 11.0, Time, News, Weather and Close Down.

BARCELONA

EAJI, 660 kc/s, 348.3 metres; 8 kW.—2.0 p.m., Gramophone Music. 2.30 (in an interval), Theatre Notes. 3.0, Sextet Concert. 4.0, Programme for Hospitals and Benevolent Institutions, with Gramophone Music. 5.0-6.30, Interval. 6.30, Agricultural Talk in Catalan, followed by Gramophone Records. 7.0, Orchestral Concert. 7.30, Song Recital by Ricardo Fusté (Baritone). 8.0, Dance Music from the Casa Llibre. 9.0, Orchestral Music. 9.20, Talk: The Catalan Parliament. 9.30, Song Recital. 10.0, Selection from Musical Plays on Gramophone Records. 11.45, Chess Lesson. 12 Midnight, Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—10.45 a.m., Agricultural Notes. 11.5, Bible Reading. 11.55, Sacred Music, relayed from the Church of San Domenico. 1.0 p.m., Giornale Radio. 1.10 to 2.15, Gramophone Music. In the interval at 1.55, Weather, and at 2.0, Time and Announcements. 5.0, See Turin. 8.0, Sports Notes and Giornale Radio. 8.20, News in Albanian. 8.25, Giornale Radio. 8.30, Time and Announcements. 8.35, Weather. 8.45, Concert of Songs and Operetta Music. In the interval, Art Notes. 10.30, Gramophone Music. 10.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—5.0 p.m., Dance Music on Gramophone Records. 6.55, Time Signal and Programme Announcements. 7.0, Talk. 7.30, Concert by the Radio Quartet. 8.0, Choral Concert. 9.0, Concert by the Station Orchestra. Soloists: Evka Milić (Songs) and Emanuel Böhm (Xylophone). In an interval at 9.45, Time Signal, Sports Notes, and News. 10.45, Cigány Music relayed from the Dva Jelena Restaurant.

BERLIN

DEUTSCHLANDSENDER (Reichsender), 183.5 kc/s, 1,635 metres; 60 kW.—6.0 a.m., Gymnastics, from Berlin (Funkstunde). 6.15, News, followed by the Day's Motto, Morning Hymn and Harbours Concert, from Hamburg. 8.0, Three Talks for Farmers. 8.55, Chimes from the Garrison Church and Concert by the Pratorias Choral Society. 10.5, Weather, from Berlin (Funkstunde). 11.0, Recitation of Poems addressed to Hitler. 11.15, Weather for Shipping. 11.30, See Leipzig. 12 Noon, Parade Marches of German Regiments, on Gramophone Records. 12.55 p.m., Time Signal. 1.0, Concert from Breslau. 2.0, When we are Grown-up—Opera for Schools (Blumenat). 2.25, Hans Hermann Wilhelm reads from his own Works. 3.0, Talk: The Great War in Palestine. 3.30, Political Literature. 4.0, See Breslau. 5.0, Concert from Frankfurt. 6.0, Gramophone Concert of Waltzes by Strauss and Lehár. 7.0, A Merry Zoo—Programme in Verse (Dreus), with Gramophone Illustrations. 7.30, Radio Report: The Opening Ceremony of the International University Sports in Turin (on Gramophone Records). 8.0, Harvest Time—Concert by the Station Orchestra, conducted by Balzer; Soloist, Adelheid Holz (Songs); Vintagers' Dance from Eines Menschen Lied (Siegel); Recitative and Aria from The Seasons (Haydn); Songs (Richard Strauss); (a) Traum durch die Dämmerung, (b) Feindliche Vision, (c) Waldseligkeit; Plauderwäusche (Weingartner); Regenwetterlied (Häas); The Summer Symphony (Haydn). 9.0, See Langenberg. 10.0, Weather and News. In the interval at 10.45, Weather. 12.30 a.m. (Monday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—11.30 a.m. to 2.0 p.m., See Leipzig. 2.0, Talks for Garden City Dwellers. 3.0, Report of Harvest Festival Thanksgiving, from Tegel (on Gramophone Records). 3.30, Radio Report. 4.0, Concert of Light Music. 5.20, Part Relay of the Football Match, Berlin v. Hamburg, from Gesundbrunnen. 5.45, Choral Music. 6.0, Concert of Light Music (cont'd.). 6.30, Radio Report. 7.0, Recital of Contemporary Songs by Fred Drissen (Baritone). 7.25, Harvest Festival Dialogues. 7.55, Sports Notes. 8.5, Im Reiche des Indra—Operetta (Lincke). In the interval from 9.0 to 9.10, Report from the Thousand-Year-Old Town of Tangermünde (on Gramophone Records). 10.0, News. 10.15 (approx.), Dance Music. In the interval from 11.0 to

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL Orchestral concert, relayed from the Kursaal, Ostend.
LONDON Service relayed from Wesley's Chapel, City Road, London.
REGIONAL
MIDLAND Roman Catholic service from the Cathedral of St. Chad, Birmingham.
REGIONAL
NORTH Roman Catholic service from St. Anne's Cathedral, Leeds.
REGIONAL
WEST Programme of favourite selections from the Oratorios.
REGIONAL
SCOTTISH Service from St. Cuthbert's Church, Edinburgh.
REGIONAL
BELFAST Service from Carlisle Memorial Methodist Church, Belfast.

ABROAD

BRUSSELS 5.0 p.m. The Station Orchestra, conducted by Meulemans.
(No. 1)
BRUSSELS 8.0 p.m. Extracts from opera: "Tannhäuser" (Wagner), by the Station Symphony Orchestra.
(No. 2)
BUDAPEST 12.20 p.m. The Opera House Orchestra, conducted by G. Dohnanyi.
HEILSBURG 8.10 p.m. The Königsberg Opera House Orchestra, conducted by Wolfgang Brückner.
HUIZEN 2.40 p.m. The Residence Orchestra, relayed from Scheveningen. 9.10 p.m., The Wireless Orchestra, conducted by Nico Treep.
STRASBOURG 6.30 p.m. Chamber Music.
TURIN 8.40 p.m. Opera: "Le Jongleur de Notre Dame," by Massenet.
VIENNA 7.10 p.m. Schubert song recital.
WARSAW 12.15 p.m. The Station Orchestra, conducted by Oziminski.

11.10, Topical Talk. 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.—12.15 p.m., Concert of Operetta Music. 1.30, See Prague. 1.45 to 1.50, Hydrographic Report. 4.0, See Prague. 6.0, Talk: America—the Film Paradise. 6.15, Humorous Programme, relayed from Kosice, 1,022 kc/s, 293 metres. 6.55, Report. 7.0, See Prague. 7.5, See Brno. 8.5, See Prague. 9.5, See Moravská-Ostrava. 10.0, 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.—12 Noon, Concert by the Silesian Philharmonic Orchestra, conducted by Georg Dohrn. 2.0 p.m., Agricultural Talk. 2.20, Risika Lieder Recital by Magda Pfeiffer (Contralto), with the Composer at the Piano: Kinderlied, Wanderspruch; Goldene Wiegen schwingen; Abendlied; Der Tod; Vigilien; Geistliche Dämmerung; Verklärung. 3.0, Programme for Children. 3.35, Talk: Fatalities on Mount Blanc. 4.0, Concert by the Riesengebirge Choir, relayed from Schreiberhan; Gott du bist meine Zuversicht (Otto); Heidenheimat die wir schauen (Weinzierl); Die Winde rauschen, die Wolken ziehn (Fischer) Der Morgen dämmert; Ich ruhe still im hohen grünen Gras (Wendel); Wie glüht er im Glase (Seidel); Folk Song. Es ist ein Schmitter, der heisst Tod (arr. Geisendorfer); Folk Song, Ich hört ein Vöglein pfeifen (arr. Schaus); Folk Song, Es taget vor dem Walde (arr. Jungst); Folk Song, Kein Feuer, keine Kohle (arr. Wohlgenut); Folk Song, Das Lieben bringt gross' Freud (arr. Lagner); Folk Song, Die Gedanken sind frei (arr. Keldorfer). 5.0, Concert by Fahrbach-Elmki and his Orchestra, relayed from the Café Vaterland. 6.0, German Dentists' Conference, relayed from the University. 6.30, Pianoforte Recital by Willy Kopmann. 6.55, Reading (Hermann von Müller). 7.15, Weather and Sports Notes. 8.0, Radio Report of the People's Festival at Glatz. 8.30, A German Evening—Variety Programme. 10.0, Austria. 10.20, Time and News. 10.45, Dance Music, relayed from Berlin (Funkstunde). 12 Midnight (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.30 p.m., Gramophone Music. 6.0, German Transmission—A Radio Sketch, followed by Popular Concert. 7.0, See Prague. 7.5, Literary Programme. 8.5, Violin Recital: Sérénade mélancolique, Op. 26 (Tchaikovsky); Capriccio (Bachbinder); Perpetuum mobile, Op. 34 (Ries); Zigeunerweisen (Sarasate). 8.35, Czech Humour—Recitations. 8.55, Gramophone Music. 9.5, See Moravská-Ostrava. 10.0, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—9.45 a.m., Gardening Talk. 10.0, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Sous la Régence (Brusselmann); Four Songs without Words (Mendelssohn); Norwegian Wedding Procession (Grieg); Selection from La Favorita (Donizetti); Gramophone Records: (a) Die Lotosblume (Schumann), (b) Rencontre (Fauré); Valse des Fleurs (Tchaikovsky); Torero Ramon (Kostal). 11.0, Gramophone Concert. 12 Noon, Concert by the Radio Orchestra, conducted by Walpot. Soloists: Morel (Tenor) and Platel (Baritone); Overture, Les Héroïdes (Hirschman); Valse des blondes (Ganne); Baritone Solos: Two Symphonic Rhapsodies (Coates); Tenor Solos: Slav Rhapsody No. 2 (Friedemann); Potpourri, Was die Donau erzählt (Morena). 1.0 p.m., Le Journal Parlé. 1.10, Concert, conducted by Fellmann, relayed from the Grand Hotel, Antwerp. In the interval at 1.30, Reading of Fables (La Fontaine) on Gramophone Records. 5.0, Concert by the Station Symphony Orchestra, conducted by Meulemans: Overture, A Life for the Czar (Glinka); Adoration (La Gaye); Rhapsody No. 2 (Liszt); Waltz, Myrthenblüten (Strauss); Gothic Minuet (Boëllmann); Dances villageoises (Grétry); Slav Dances (Dvorak). In the interval at 5.30 (approx.), Football Results. 6.0, Gramophone Music. 6.15, Concert by the Cecilia Vocal Trio. 6.45, Gramophone Music. 7.15, Religious Address. 7.30, Wireless News and Review of Music. 8.0, Concert by the Radio Orchestra, conducted by Walpot: March, Stars and Stripes (Souza); Waltz Potpourri (Hofrecht); Overture, Les Saltimbanques (Ganne); Souvenir de Spa (Meurice); Selection from Phi-Phi (Christiné); March, Samhre et Meuse (Planquette). 8.40, Revelation—Sketch (Tristan Bernard). 8.45, Baba Yaga (Ladov) on Gramophone Records. 8.50, Expedition nocturne—Sketch (Tristan Bernard). 9.0, Concert, relayed from the Kursaal, Ostend. After the Con-

cert, Le Journal Parlé, followed by Dance Music, relayed from the Kursaal, Ostend.

BRUSSELS (No. 2)

N.I.R., 587 kc/s, 338.2 metres; 15 kW. — Programme in Flemish. — 10.0 a.m., Gramophone Concert. Sonata Appassionata (Beethoven); Allegretto, from Sonata, Op. 31, No. 2, Finlandia (Sibelius); Three Pieces from La Mer (Debussy). 11.0, Concert by the Small Station Orchestra, conducted by Leemans. 12 Noon, Concert, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Radio Orchestra, conducted by Walpot. Soloists: Morel (Tenor), and Platel (Baritone); Overture, La Belle Hélène (Offenbach); Baritone Solos. Selection from Good News (de Sylva-Brown); Tenor Solos; Potpourri of Flemish Songs (Walpot). 5.0, Dance music, relayed from the Kursaal, Ostend. 5.30, Sports Notes. 6.30, Concert by the Small Station Orchestra, conducted by Leemans. 7.15, Religious Talk. 7.30, Musical Review. 8.0, Extracts from Tannhäuser—Opera (Wagner), by the Station Symphony Orchestra, conducted by Meulemans and Mme. Briffaux (Soprano), and De Quick (Baritone). 8.45, A Sketch (Van Zyl). 9.10, Concert by the Symphony Orchestra, conducted by Meulemans. 10.0, Le Journal Parlé. 10.10, Dance Music, relayed from the Casino, Knocke.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Marco Orchestra. In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Dance Music on Gramophone Records. 7.40, Educational Talk. 8.0, Saxophone Solos by Seidmann. 8.20, Concert by the Kreuzer Schrammel Quartet. 8.50, Talk. 9.5, Popular Romanian Music by the Fanica Luca Orchestra. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.15 p.m. till Close Down.—9.15 a.m., News. 10.0, Catholic Service. 11.15, Protestant Service. After the Service, Time and Weather. 12.20 p.m. (approx.), Concert by the Opera House Orchestra, conducted by Ernst Dohnanyi; Soloist, Alexander Vegh (Violin): Overture to The Hebrides Suite (Mendelssohn); Fantasia in F minor (Schubert-Dohnanyi); Violin Concerto (R. Strauss); Symphony No. 11 (Beethoven). 2.0 p.m., Gramophone Music. 3.0, Agricultural Talk. 3.45, Music by the Lajos Veres Cigány Band. 4.45, Talk on Turgenyev. 5.15, Concert by a Workers' Choral Society. 6.0, Humorous Talk. 6.30, Concert relayed from the Luna Park. 7.15, Ein Taugeichtes—A Good-for-Nothing Operetta (Marthon). 9.45, News. 10.0, Piano-forte Recital by Stefanini: Chaconne (Bach-Busoni); Variations on a Theme of Bach (Liszt); Symphonic Etudes (Chopin). 10.50, 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.—8.0 a.m., Gymnastics for Women. 8.15, Gymnastics. 9.0-9.30, Talk. 10.0, Divine Service Relay. 11.30, Weather. 11.40, News. 12 (Noon), Town Hall Chimes. 12.2 p.m., Concert by the Station Orchestra, conducted by Emil Reesen: Overture, La rencontre imprévue (Glück); Concerto for Strings (Lully-Weingartner); Overture, The Magic Flute (Mozart); Suite, Le tombeau de Couperin (Ravel). 1.0-2.0, Language Lessons. 1.0, Talk in English: Proper Names in the English Dictionary. 1.20, Talk in German: The Pre-war German Novel. 1.40, Talk in French: Holidays in Zealand. 2.0, Gramophone Records. 2.30, Programme for Children. 3.0, Concert by the Station Orchestra, conducted by Launy Gröndahl; Soloist: Elsebeth Riegeis (Songs). 5.0 (also on Skamlehæk, 31.51 metres), Divine Service Relay. 6.20, Talk: A Visit to the Chicago World Fair. 6.50, Weather and News. 7.15, Time. 7.30, Talk. 8.0, Town Hall Chimes. 8.2, Concert of Light Music, relayed from the Radio Exhibition: March (Evans); Waltz (Beyer); Selection from The Flower of Hawaii (Abraham); Die Spieluhr der Pompadour (Noack); Metropolitan (Bloom); Addio a Napoli (Mazzilli); Marimba Solo, Rit o' Rhythm (Kjaer). 8.45, Eu Tevamp—Radio Scenes from the Radio Exhibition. 8.55, Selection from Othello—Opera (Verdi), on Gramophone Records. 9.10, Haydn Music by Mogens Hansen (Violin), Ludwig Gunder (Viola), and Otto Lützhöft ('Cello): Divertissement in A for Violin, Viola and 'Cello; Trio in D for Violin, Viola and 'Cello. 9.30, The Hansen Family—A Humorous Episode (Jens Locher). 9.45, Instrumental Concert, relayed from the Radio Exhibition. 10.15, News. 10.25, Instrumental Concert, relayed from the Radio Exhibition. 11.0, Dance

Music from the Lodberg Restaurant. In the interval at 12 Midnight, Town Hall Chimes. 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 a.m. to 12 Noon, Programme in English by the I.B.C. 11.0, Happy Hour. Part I.—Orchestral Music: Signature Tune; Waltz, Künstlerleben (Joh. Strauss); Mignollette (Friml); Xylophone Duet: Dance of the Nymphs (Birch); Dance of the Clowns (Smetana); Selection from The Merry Widow (Lehar); Love Everlasting (Friml); Xylophone Solo: The Clatter of the Clogs (Flynn); Air de Ballet (Herbert). Part II.—Organ Recital: Turkish Patrol (Michaelis); Butterflies in the Rain (Myers); The Old Spinning Wheel (Hill); The Wooden Soldier and the China Doll (Jones); A Palace of Dreams (Waller); Hold Me (Schuster); Sylvan Scenes (Fletcher); Spirit of America (Zamecnik); Signature Tune. 12 Noon, French Programme. 2.0 to 7.30 p.m., Programme in English by the I.B.C. 2.0 to 4.0, Special Programme for South Coast Listeners. 2.0, Orchestral Concert: Signature Tune; The Night by the Sea; Selection from The Pirates of Penzance (Sullivan); The Song of the Nightingale (Albion); Pianoforte Solo: Romania (Hollbrooke); Cuban Serenade (Herbert); Oriental Serenade (Herbert); Song: The Drum Major (Newton); The Musical Clock of Madame Pompadour (Noack); The Boys of the Old Brigade (Barri); Waltz, Gold and Silver (Lehar). 2.30, Light Music: Musical Comedy Switch (arr. Hall); Waltz-Serenade, Mandoline (Thomé); Waltz, Morella (Charlier); Song: Sundown in a little Green Hallow (Baskette); Tesoro Mio (Becucci); Xylophone Solo: Aeroplane Polka (Gaston); Song: I've got the World on a String (Arlen); Pianoforte Solo: Magic Notes (Steininger). 3.0, Gramophone Concert: Selection from Music in the Air; My Lady Dainty (Hesse); Negro Spiritual Medley; Butterflies in the Rain (Reaves); War Marching Songs; So long lads, we're off (Low); Scherzo from A Midsummer Night's Dream (Mendelssohn); The Way to the Heart (Lincke). 3.30, I.B.C. Members' Request Half Hour: Southern Rhapsody (Hosmer); Picking my Way (Lang-Kress); Tired Hands (Sanderson); That Futuristic Rag (Bloom); Marching through Georgia (Wark); The Song of Songs (Moya); What Aloha means (Alphin); Selection from The Geisha (Jones); Signature Tune. 4.0, Judge Rutherford's Address. 4.15, The Nursery Corner. 4.30, Descriptive Adventure Story. 5.0, Major Charles Stevens' Concert: The Thistle (arr. Myddleton); Song, Comin' thro' the Rye (arr. Smart); Harmonica and Zither Duet, The Skirl of the Pipes; Song, Loch Lomond; Come o'er the stream, Charlie; Back to the Shore where the Heather grows (Lauder); Song, Annie Laurie; The Glasgow Highlanders (arr. Dyack). 5.30, Home Radio (Lowestoft) Concert: Signature Tune; Jolly Good Company; The Steig Song; Something came and got me in the Spring (Rich); Hold me (Schuster); The Wedding of the Painted Doll (Brown); Stormy Weather; The Juggler (Grotasch); The Skater's Waltz (Waldteufel); Auf Wiedersehen, my Dear; Signature Tune. 6.0, Club Concert for Chester Listeners: Part I. Military Band Music: Signature Tune; The Chum Song; Overture, Zampa (Hérol); Xylophone Solo, Spanish Dance (Moszkowski); Squirrel Dance (Elliot-Smith); Nibelungen March (Wagner); Song, When the Sergeant Major's on Parade (Longstaffe); Tally Ho (Barot); Cradle Song (Brahms); King's Guard March (Keith). Part II. Concert of Light Music: Pulcinello (Aletier); Charming Episode (Ormandy); Poor Butterfly (de Phillips); Violin Solo, Caprice viennois (Kreisler); The Fortune Teller (Herbert); Pianoforte Solo, Sous les Palmiers (Albeniz); Selection from Countess Maritza (Kálmán); Evolution of Dixie (Lake); Signature Tune. 7.0 to 7.30, Choral Selection: John Peel; Selection from Wonder Bar (Kerscher); Old Man River (Kern); Waltz Favourites (Anche); Ould John Braddum; Three Fishers went sailing (Kingsley); Waltz, Zigeunerweisen (Borogov); Minstrel Memories. 7.30, Programme in French. 9.0, Concert of Dance Music: Signature Tune: Happy Feet; Peter, Peter; That's what life is made of; One tiny Tear; Spanish Eyes; Pop Gun; Little Miss Muffet; The Old Spinning Wheel; Out in the Open; Signature Tune. 9.30, Talkie Time: Up-to-date Reviews of the Films. Signature Tune: Sittin' in the Dark; Sweetheart Darlin' (Stophart); Song of the Islands (King); In the Park in Patee (Woods); Rhapsody in Blue (Gershwin); Love Songs of the Nile (Brown); The Ghost Walk; Happy Ending (Davies); Selection from The Desert Song (Romberg); Signature Tune. 10.0, I.B.C. Members' Request Half Hour: Serenade (Heykens); Here comes the Band; Song, If I were King (Coslow); The Sport of Kings (Flanagan and Allen); Blaze away (Holzmann); The Red Sarafan (arr. Leontiev); Song, Beware of the Maidens (Crake); Let's put out the Lights (Hupfeld). 10.30, Concert of Dance

SEPT. 3rd

SUNDAY

continued

Music: One little Drink; I'm getting sentimental over you; Dancing Butterly; I raised my Hat; In a second-hand Store; Somebody stole my gal; Hits from Forty-Second Street; Smilin' Through. 11.0, Dance Music: Signature Tune; Stormy Weather; When my little Pomeranian; You've got me crying again; Piccadilly; Body and Soul; Sylvia; Chansonnette (Friml); I wake up smiling; Signature Tune. 11.30, Concert by the I.B.C. (Ireland), Ltd.: Signature Tune; Come Back to Erin; Selection from Princess Pat (Herbert); Fairy on the Clock (Myers); Mother Machree (Ball); Japanese Sunset; My little Irish Cottage (Summers); Selection from No, No, Nanette (Youmans); Tommy Lad (Margeson); The Golden Musical Box (Krome); Signature Tune. 12.5 a.m. (Monday), News Bulletin in English. 12.10 (approx.), Dance Music (Electrical Transcriptions): Sadie the Shaker; I wanna count Sheep; Rocky Road; Crying and Sighing; You're driving me crazy; Rockin' Chair; I've got the World on a String; Bugle Call Blues; High Society; Junk Man Blues; Blues I love to sing; My Woman; Hot Feet. 1.0, Dance Music: Signature Tune: Bells of Normandy; Maybe I love you too much; Fiddlin' Joe; Moon Song; Any time, any day, anywhere; Pickaninny's Heaven; Hello; Don't be late in the morning; I hate to leave you now; Honeysuckle Rose; Rock-a-Bye; Underneath the Harlem Moon; Wear a great big Smile; Merry-go-round; I gotta right to sing the Blues; Sophisticated Lady; Old Man Harlem; 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.—11.30 a.m., See Leipzig. 12 Noon, Military Band Concert. 1.15 p.m., Gramophone Concert. 2.30, Agricultural Talks. 2.40, Rural Programme.—Radio Reports and Talk. 3.30, Programme for Young People. 4.30, Concert of Weber, Wagner and Liszt Music, relayed from the Kurhaus, Wiesbaden. 6.0, A Merry Interlude. 6.30, Radio Report of the Football Match, Berlin v. Hamburg. 7.0, Sports Notes. 7.10, Radio Report from the Mainz Wine Market. 7.30, Talk: Careers and Vocations. 8.0, Gri-Gri—Operetta in Three Acts (Lincke). 10.0, Time and News. 11.0 (approx.), See Munich.

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

860 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. 12.15 p.m., Concert from Heilsberg. In the interval at 12.55, Time and Weather. 2.0, Programme for Children. 3.0, Concert by the Small Station Orchestra, conducted by Gerhard Maass. Sinfonia for String Orchestra (Holzbauer); Suite for School Orchestra (Rinkens); Der Mond ist aufgegangen (Erpf); Der Tag vertreibt die finstere Nacht (Maler); Overture to an Opera for Schools (Paulsen). 3.45, Sun on the Sails—Humorous Dialect Programme. 4.45 (from Bremen), Wind Instrument Concert. March, Mit Eichenlaub und Schweren (Blon); Overture, Poet and Peasant (Suppé); Second Waltz Potpourri (Robrecht); Selection from La Traviata (Verdi); Puszte-Legende (Lindsay-Thimer); Viennese Potpourri, Beim Henrigen (Kroninger); March (Beez); March Potpourri (Wiggart); Waltz, Münchener Kindl (Komzak); March, New Germany (Zimmer). 6.0 (from Kiel), Relay from the Kiel Youth Festival—Games and Choral Music. 6.30, See Berlin (Deutschlandsender). 7.0 (from Hanover), Keeping in Step—Programme of March Music by the Station Orchestra, Harry Moss (Recitations), Schulz (Tenor), and Lanteme (Bass Songs to the Lute). 7.40, Sports Notes. 7.55, Weather. 8.0, See Berlin (Deutschlandsender). 9.0, News. 9.10, (from Hanover), Saxon, Lower Saxon and Bavarian Dialect. Programme by the Station Orchestra and Soloists. 10.10, News. 10.20, Hamburg, Bremen and Lübeck—A Weekly Review of the Hanseatic Free Cities. 10.35, See Berlin (Funkstunde). 11.0, See Berlin (Deutschlandsender).

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., See Leipzig. 12 Noon, Concert by the

Small Station Orchestra, conducted by Eugen Wilcken. 2.0, Chess Lesson. 2.30, Programme for Young People. 3.0, East Prussian Songs and Fairy Tales (arr. Hertha Grudde). 3.30, Reading (Bois-Reymond). 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken. 5.50, Horse Racing Notes. 6.0, Concert of Old Königsberg Chamber Music (Reichardt). 6.50, Community Singing, relayed from a Labour Service Camp. 7.15, Chamber Music by Young East German Composers. 8.0, Sports Notes. 8.10, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner: Overture, Ruy Blas (Mendelssohn); Schelherazade (Rimsky-Korsakov); Serenade (Moszkowski); Ballet Suite (Popy); Waltz, España (Waldteufel); Overture, Eine Nacht in Venedig (Joh. Strauss); March, Einig und frei (Schweichert). 10.0, News. 10.30, Dance Music relayed from Berlin (Funkstunde). 12 Midnight (approx.), Close Down.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.)—8.10 to 9.10 a.m., Programme of the Christian Radio Society (N.C.R.V.). 8.10, Divine Service. 9.10 to 4.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 9.10, Gramophone Music. 9.40, High Mass, relayed from the Church of St. Clemens Maria Hofbauer. 11.10, Gramophone Music. 11.40, Talk. 11.55, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Wilhelmine (Wesly); Overture, Norma (Bellini); Ein Melodientraum (Urbach); Ballnacht-Walzer (Strauss); Clair de lune (Ketelbey); Two Spanish Dances (Fallas). 12.40 p.m., Talk. 1.0, Concert (contd.): Overture, Maritana (Wallace); Selection from The Land of Smiles (Lehar). 1.30, Gramophone Music. 1.50, Literary Talk. 2.10, Concert by the K.R.O. Orchestra: Jubelouverture (Weber); Selection from The Mastersingers (Wagner); Kaisermarsch (Strauss). 2.40, Gramophone Music. 2.50, Radio Report from the Catholic Labour Demonstration at Eindhoven—Programme of Songs, Recitations and Addresses. 4.25, Gramophone Music. 4.40 to 7.25, N.C.R.V. Programme. 4.40, Sacred Music on Gramophone Records. 5.0, Divine Service, relayed from a Church at Groningen, followed by Sacred Music on Gramophone Records. 7.25 till Close Down, K.R.O. Programme. 7.25, Gramophone Music. 7.40, Sacred Concert for the Fortieth Anniversary of the Ordination of the Archbishop of Utrecht: The Utrecht Municipal Orchestra, a Choir, and Soloists: Mme. Vincent (Soprano), Mme. Luger (Contralto), L. van Tulder (Tenor), and Ravelli (Bass). Introduction; Address; Ecce Sacerdos—Cantata; Address; Op. een Priester—Cantata (van Schaik); Te Deum (Diepenbroek); Address by the Archbishop; Songs. In the interval at 9.5, News and Talk. 10.10, News. 10.20, Choral Epilogue. 10.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW.—11.40 a.m. to 4.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Time Signal. 11.41, Concert by the Wireless Orchestra, conducted by Nico Treep. 1.40 p.m., Book Review. 2.10, Beethoven Pianoforte Recital by Egbert Veen: Ecossaises; Für Elise; Sonata—the Pathetic. 2.40, Concert by the Residence Orchestra, conducted by Ignaz Neumark, relayed from the Kurhaus, Scheveningen: Soloists: Jo Hendrichs Zalsman (Songs) and Sally van den Berg ('Cello); Overture, Così fan tutte (Mozart); Aria from Don Giovanni (Mozart); Andante from the Quartet in E flat minor for strings (Tchaikovsky); Symphonic Variations for 'Cello and Orchestra (Boellmann); Gramophone Music: Symphonic Legend, Zorahayda (Svendsen); Songs (Grieg): (a) Am schönsten Sommerabend, (b) Solveig's Song, (c) Letzter Frühling; Homage March from Sigurd Jorsalfar (Grieg). 4.10, Gramophone Music. 4.40 to 7.40, Programme of the Workers' Radio Society (V.A.R.A.). 4.40, Orchestral Concert, conducted by Boers. 5.40, Orchestral Concert, conducted by Mechelen. 6.15, Choral Concert, conducted by Krelage. 6.30, The Adventures of MM. Wakker and Tropicdruit. 6.50, Orchestral Concert (contd.). 7.25, Choral Concert (contd.). 7.40 till Close Down, A.V.R.O. Programme. 7.40, Time, Weather and News. 7.55, Popular Music by Kovacs Lajos and his Orchestra. 8.55, Gramophone Music. 9.10, Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist, Hélène Cals (Soprano): Overture, Le roi d'Yvetot (Adam); Soprano Arias from (a) Lucia di Lammermoor (Donizetti), (b) Romeo and Juliet (Gounod); Overture, Light Cavalry (Suppé); Ridonami la calma (Tosti); Songs: (a) Humoresque (Dvořák), (b) La foletta (Marchesi); March, Herein spaziert (Ziehrer). 9.55, Gramophone Music. 10.10, Concert by the Wireless Orchestra, conducted by Nico Treep. 10.40, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Visite de Coloquinte—Sketch (E. Bigot). 1.30, Radio Concert. 8.0, Amusement Guide and Sports Notes. 8.15, Radio Concert. In an interval at 9.0, News. 10.0, Popular Programme. 10.30, Variety Programme. 11.30, Dance Music by the Billy Arnold Jazz Band, relayed from the Hollywood Restaurant.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—8.30 a.m., Catholic Service. 10.0, Musical Programme. 12 Noon, Humorous Radio Report. 12.15 p.m., Orchestral Concert, conducted by Wolf: Mussini-Marsch (Carl); Dramatic Overture (Blon); Finale from Undine (Lortzing); Ballet égyptien (Luigini). 12.45, Concert by the Station Chamber Orchestra, conducted by Wilhelm Keiper: Waltz, Liebeslied (Strauss); Selection from Der Obersteiger (Zeller); Dance of the Dervishes (Bendi); Czardas (Monti); First Suite from L'Arlesienne (Bizet). 2.0, Concert by the Essen Zither Society, relayed from Bottrop. 2.30, Talk: The Health of the Nation. 3.0, Talk on Blücher and Wrangel. 3.5, Illustrated Talk: Old Prussian Parade Marches. 3.30, Talk with Gramophone Illustrations: Experiences in a Theatre behind the Lines. 4.0, See Breslau. 5.0, Talk with Gramophone Interludes: Recent Scientific and Technical Discoveries. 5.30, Extracts from Madame Butterfly—Opera (Puccini). 6.30, Ida von Herzfeld, a Westphalian Saint—Radio Picture (Wilhelm Schulte). 7.0, Es ist Keinem Recht zu machen—Humorous Radio Sequence (Josef Tobias). 7.45, Sports Notes. 8.0, All Hands on Deck—Variety Programme. 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.—11.30 a.m., Allein zu dir, Herr Jesu Christ—Cantata (Bach), by the Municipal and Gewandhaus Orchestra, the St. Thomas Choir, and Soloists. 12 Noon, Concert by the Leipzig Symphony Orchestra. 1.0 p.m., Talk: Bismarck's Courtship. 2.0, Weather and Time. 2.5, Programme Announcements. 2.25, Agricultural Notes. 2.35, Talk: A Blind Man's Impressions of his Surroundings. 3.0, Choral Concert. 3.30, Two Animal Anecdotes. 4.0, Concert by the Station Orchestra. 5.30, A Journey into the Blue—Radio Sequence. 7.0, Topical Programme. 8.0, Pianoforte Recital. 8.30, See Berlin (Deutschlandsender). 11.0, See Munich. 12 Midnight (approx.), Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—8.0 p.m., Spng Recital. 8.45, Concert by the Station Orchestra. In the interval at 9.30, Weather and News. 10.0 (approx.), Close Down.

MADRID

EAJ, 707 kc/s, 424.3 metres; 2 kW.—9.0 to 10.0 a.m., Topical Review. 3.0 p.m., 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 and Science Talk. 11.30, Municipal Band Concert, relayed from Rosales, followed by Dance Music. 1.30 a.m. (Monday), Close Down.

MADRID

EAQ, 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m., Programme, relayed from Madrid, EAJ 7. After the Programme, Radio Chronicle. 1.0 a.m. (Monday), Close Down.

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 4 kW.—8.45 p.m. till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.0 p.m., See Prague. 7.5, See Brno. 8.5, See Prague. 9.5, Concert of Light Music by the Station Orchestra, conducted by Jan Plichta. 10.0, See Prague. 11.0 (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.—10.0 a.m., Protestant Service. 10.45, Chimes from our Lady's Church. 11.0, Sixteenth and Seventeenth Century Folk Music to the Lute. 11.30, See Leipzig. 12 (Noon), Military Band Concert from the Feldherrnhalle. 1.0 p.m., Time, Weather and Programme Announcements. 1.10, Agricultural Talk. 1.30, Gramophone Concert. 2.30, Talk: The National Socialist Movement.

SEPT. 3rd

SUNDAY

continued

2.50, Programme for Children. 3.20 (from Nürnberg), Mandoline and Guitar Music. 3.45, The Allgau District—a Radio Sequence (arr. Eugen Roth). 4.30, Concert. 5.45, A Landscape Painter describes his Travels. 6.5, Sonata for Viola and Pianoforte (Ditters von Dittersdorf). 6.25, Talk: Idealism and Love of Nature. 6.45, Weather and Sports Notes. 7.0, Concert from Leipzig. 8.0, Summer in Old Munich—Radio Sequence of the Biedermeier Period (Ernst Hohenstaater). 8.50, Concert by the Station Orchestra, conducted by Karl List. 10.0, Austria. 10.20, Time and News. 11.0, Serenade by the Lorenz Jais Orchestra. 12 Midnight, Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—10.15 a.m., Weather and Roads Report. 10.20, Chimes. 10.30, Divine Service, relayed from Fagerborg. 5.0 p.m., Gramophone Music. 6.15, Talk: Social Welfare Work in Swedish Factories. 6.45, Violin Recital by Gunnar Knudsen. 7.15, Weather and News. 7.30, Talk on Hans Aanrud, with Recitations from his Works. 8.0, Time. 8.1, Concert by the Station Orchestra, conducted by Hugo Kramm. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Cabaret Programme. 10.45, Dance Music on Gramophone Records.

OSTERSUND.—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 an interval at 1.30, Time, Announcements and Weather. 5.0, See Turin. 8.0, Dopolaro Notes, Giornale Radio and Sports Notes. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Symphony Concert, conducted by La Rosa Parodi. In an interval. Talk. After the Concert, Gramophone Music. 10.55, News.

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, Concert by Jean Ibos and his Orchestra. 2.30, Concert of Spanish Music. 6.45, Le Journal Parlé. 8.30,

Gramophone Concert. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—10 a.m., Gramophone Music. 10.20, Press Review. 10.30, Sponsored Concert. 11.0, Concert by the Raymond Verney Orchestra. 12.15 p.m., Sponsored Concert. 12.30, Half-an-Hour of Fantasy by Paul Weill. 1.0, Interval. 1.30, Sponsored Programme. 2.0 to 7.0, Interval. 7.0, Le Journal Parlé. 7.5, Sports Notes. 7.15, Gramophone Music. 7.30, Catholic Review. 8.0, Concert by Ter-Abramoff and his Orchestra. Soloist: Marex Lieven (Songs). 10.15, News.

PARIS

RADIO PARIS, 174 kc/s, 1,725 metres; 75 kW.—7.45 a.m., Gramophone Music. 8.0, News and Weather. 8.30, Physical Culture. 12 Noon, Religious Address by the Reverend Father Padé. 12.20 p.m., Sacred Music. 12.45, Gramophone Concert. 1.30 to 2.30, Programme in English by the I.B.C. 1.30, Gramophone Concert. 2.0, Concert of Dance Music: Signature Tune; Happy Feet; My Darling (Jones); How could you surrender; Lazy Bines; Till she comes back; In a little second-hand Store; Day and Night; I love to Yodel; Bird Songs at Eventide (Coates); Signature Tune. 3.0 to 3.30, Programme in English. Orchestral Concert: Over There; Bal masqué (Fletcher); Waltz from The Merry Widow (Lehár); Passing Show. 1914 (Finck); Selection from The Belle of New York (Kerker). 4.0, Popular Concert. 6.30, Gramophone Concert of Light Music. 7.0, Variety Concert. 8.0, Radio Paris Music Hall. In the intervals at 8.30 and 9.15, News. 9.30, Concert of Light Music. 10.30 (approx.), Close Down.

PITTSBURGH

KDKA, 980 kc/s, 305 metres; 50 kW. Relayed by WSXK on 48.86 metres and 25.27 metres.—5.15 to 6.15 p.m., Radio City Concert. from New York. 7.0, Boys of Wynne-castle. 7.15 to 10.0, New York Relay. 7.15, Radio Forum. 7.30, Variety Concert. 8.0, National Opera Concert. 9.0, Welsh Musical Festival. 9.30, Organ Recital. 10.0, Vesper Services. 11.0, News, Among Masters. 11.15, Weather. Sports. 11.30, Jack Pettis' Orchestra. 12 Midnight to 1.30 a.m. (Monday), New York Relay. 12.0, Borah Minnevitich. 12.15, Jules Lande. 12.30,

Wisdom of the Ages. 1.0, Concert. 1.30, Pathé News of the Air. 1.45 to 2.45, New York Relay. 1.45, Floyd Gibbons. 2.0, Golf Headliners. 2.30, Walter Winchell. 2.45, Programme to be announced. 3.30, Orchestral Concert from New York.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—11.0 a.m., Military Band Concert, relayed from Podesbrady. 12 Noon, Chimes. 12.5 p.m., News. 12.15, See Bratislava. 1.30 to 1.45, Agricultural Talk. 4.0, Military Band Concert, relayed from Kralovska Obora. 5.30, Gramophone Music. 6.0, German Transmission: Review of the Musical Programmes of the Slovak Broadcasting Stations. Concert—Comedy in Three Acts (Bahr). News in German. 7.0, News. 7.5, See Brno. 8.5, Concert of Light Music. 8.35, Recital of Liking Songs. 9.0, Time Signal. 9.5, See Moravska Ostrava. 10.0, Time and News. 10.20, Gramophone Concert. 11.0, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—7.0 p.m. (from Geneva), Catholic Address. 7.30 (from Geneva), Sports Notes, News, and Announcements. 8.0 (from Geneva), Pianoforte Recital of Jazz Music. 8.25 (from Geneva), Recitation of Poems. 8.45, Concert by the Radio-Suisse Romande Orchestra. 9.50, News and Weather. 10.0, Concert (contd.). 10.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 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.—10.0 a.m., Sports Notes and Amusement Guide. 10.30, Agricultural Notes. 10.45, Bible Reading. 11.0 (approx.), See Turin. 12 Noon to 12.30 p.m., Interval. 12.30, Orchestral Concert. 1.30, See Turin. 1.45 (approx.) to 2.30, Orchestral Concert. In the interval at 2.0, Time and Announcements. 5.0, See Turin. After the Concert, Vocal and Instrumental Concert. Sports Notes in the intervals. 6.30, Weather. 7.30, Sports Notes. Dopolaro and News. 7.45, Soprano Solos. 8.0, Time and Announcements. 8.30, Results of the International University Sports at the Mussolini Stadium. Turin. 8.45, Stenterello—Operetta in Three Acts (Cuscia).

In the intervals: Topical Talk, Recital of Poems and 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.—8.0 to 10.0 p.m. (approx.), New York Relay. 8.0, Wayne King's Orchestra. 8.30, Radio Pulpit. 9.0, Fiddlers Three. 9.15, Wildroot Institute. 9.30, Temple of Song. 12.45 to 3.45 a.m. (Monday), New York Relay. 12.45, Russian Symphonic Choir. 1.0, Variety Programme. 2.0, Manhattan Merry-Go-Round. 2.30, American Album of Familiar Music. 3.0, Popular Programme. 3.15, Impressions of Italy. 3.45, Sunday at Seth Parker's 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.—5.0 p.m. till Close Down, Programme from Zurich. 5.0, Gramophone Music. 5.30, Ballad Recital. 6.0, Gramophone Concert. 6.30, Talk: The Small Republican State of Andorra. 7.0, Time and Sports Notes. 7.5, Hawaiian Guitar Music. 7.30, Concert by the Frohsinn Quartet. 8.30, Talk on Architecture. 9.0, News. 9.10, Dance Music. 10.15, Sports Notes. 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, 832 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: The Necessity of Mineral Foods for Domestic Animals, relayed from Uppsala, 662 kc/s, 453.2 metres. 9.30, Gramophone Music. 10.10, Esperanto Programme. 10.30, Talk for Workers, relayed from Falun, 977 kc/s, 307 metres. 11.0, Divine Service, relayed from Hudiksvall, 1,327 kc/s, 226 metres. 12.45 p.m., Weather. 1.0, Sports Talk. 3.45, Report on the European Motor Cycle Grand Prix, relayed from Saxtorp. 5.5, Trio. Op. 49 (Mendelssohn), for Violin, Cello and Pianoforte. 5.30, Reading. 6.0, Evensong. 7.15, Weather and News. 7.35, Talk. 8.0, Concert by the Station Orchestra. Soloist: Carl Achatz (Flute). Overture, The Bartered Bride (Smetana); First Suite from L'Arlésienne (Bizet); Flute Concertino (Chaminade); Nocturne (Franck); Pieces (Stan-

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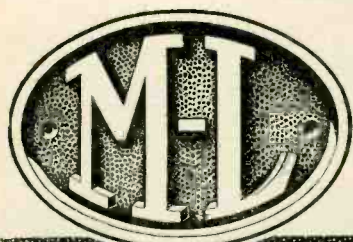
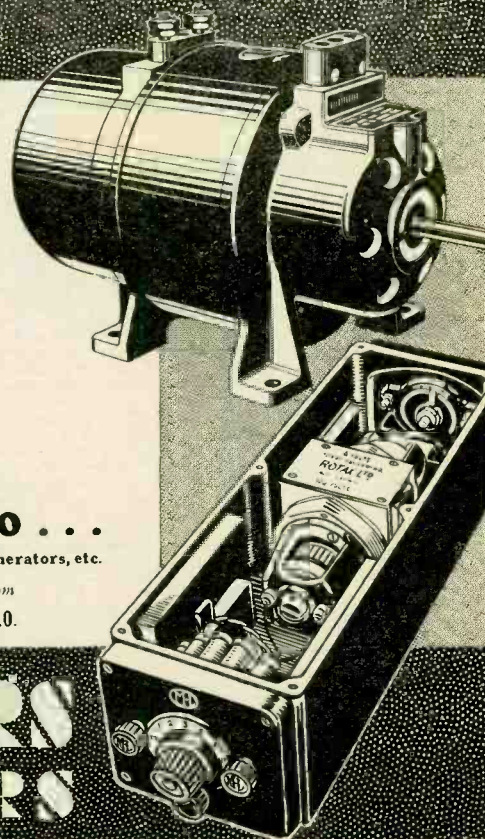
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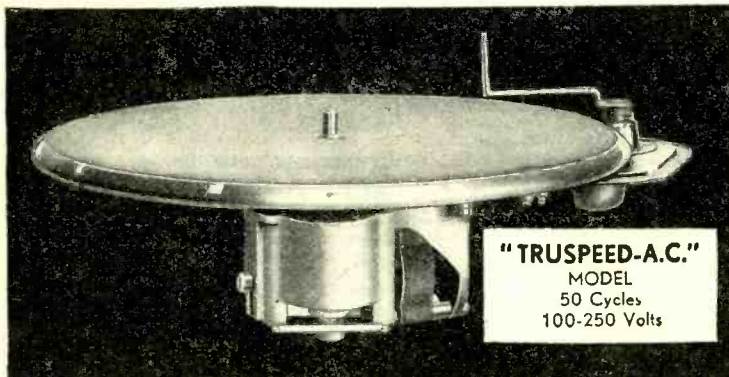
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NCC 170.

SEPT. 3rd

SUNDAY

continued

ford): (a) Drake's Drum, (b) Devon, O Devon, (c) Home, (d) The Old Superb; Waltz, The Blue Danube (Joh. Strauss); Barcarolle from The Tales of Hoffmann (Offenbach); March (Asch). 9.25, An Idyll (Herbert Grevenius). 10.0, Orchestral Concert. 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, Classical Music on Gramophone Records. 12.45 p.m., News. 1.0, Time Signal. 1.30 to 4.30, The Passion Play—Part II, Choruses from the Oratorios of Bach, Mendelssohn and Vidal, with Orchestral Accompaniment, relayed from the Théâtre de la Passion, Nancy. 4.30, Light Music on Gramophone Records. 5.15, Orchestral Concert of Variety Music, conducted by Roskam. 6.0, Medical Talk. 6.15, Sports Talk. 6.30, Concert of Chamber Music: Sonata in A for Violin and Piano (Handel); Trio in C minor for Violin, Viola and Cello (Beethoven); String Quartet No. 13 (Mozart). 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German. Lottery Results and Announcements. 8.30, Alsatian Programme: 's Spiel mit d'r Larv—Play in Three Acts (Raymond Buchert). In an interval at 9.30, Press Review. 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, 570 metres.—10.0 a.m., Catholic Service. 10.50 to 11.30, Interval. 11.30, See Leipzig. 12 Noon, Orchestral Concert, conducted by Karl Körner, relayed from Glotterbad. 1.0 p.m., Gramophone Music. 2.0, Agricultural Talk. 2.30, Gramophone Records of Marches and Dances. 3.30, Programme for Children. 4.30, See Frankfurt. 6.0, Reading of a Swabian Tale (Gaupp). 6.25, Recital of Alemannic Folk Songs, with Lute accompaniment. 7.0, Sports Notes. 7.20, Altweibersommer—Programme of Songs and Recitations (arr. Martin Lang). 8.0, See Frankfurt. 10.0, See Munich. 10.20, Time and News. 11.0, See Munich. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—11.0 a.m., Dance Refrains. 11.30, Instrumental Solos: Fire Dance (Fallia); Minuet (Mozart); La précieuse (Kreisler); Czardas (Monti). 11.45, Chansonettes. 12 Noon, Operetta Music: Selection from (a) Le Jour et la Nuit (Lecocq), (b) Ciboulette (Hahn), and (c) Countess Maritza (Kálmán). 12.15 p.m., Comic Opera Music; Chorus from Cavalleria Rusticana (Mascagni); Duet from Act One of Manon (Massenet); Chorus from Mirella (Gounod). 12.30, Accordion Solos. 12.45, Operetta Music: Selection from (a) Mascotte (Audran), (b) Paganini (Lehár), (c) Encore cinquante centimes (Yvain), (d) The Desert Song (Romberg). 1.0, Amusement Guide and Market Prices. 1.5, Orchestral Music. 1.30, Sound Film Music. 1.45, Balalaika Music and Russian Songs. 2.0, Sound Film Music. 2.15, Programme by a Viennese Orchestra: Potpourri (Jessel); (oubliez-moi (Telefer); Tales from the Vienna Woods (Joh. Strauss); The Blue Danube (Joh. Strauss); Hungarian Potpourri. 2.45, Agricultural Report. 3.0, Concert Version of Les Cloches de Corneville—Operetta (Planquette). 4.15, Accordion Solos. 4.30, Music by an Argentine Orchestra. 4.45, Sound Film Music. 5.0, Thé-Dansant. 5.45, Opera Music: Selection from: (a) L'Africaine (Meyerbeer), (b) Il Trovatore (Verdi), and (c) Sigurd (Reyer). 6.0, News. 6.15, Light Music. 6.30, Operetta Music: Selection from: (a) Le Voyage en Chine (Gabriel Marie), and (b) La Vie parisienne (Offenbach). 6.45, Cello Solos: Romance sans paroles (Fauré); Spring Song (Mendelssohn); Rondo (Boccherini); Minuet (Mozart). 7.0, Military Music. 7.15, News and Horse Racing Results. 7.30, Sound Film Music. 7.45, Choral Music. 8.0, Orchestral Music. 8.15, Extracts from Operetta. 8.30, Opera Music: Prelude to Werther (Massenet); Selection from Cavalleria Rusticana (Mascagni); Overture, Manon (Massenet). 8.45, Hunting Horn Solos. 9.0, Selection from Les Erinnyes (Massenet). 9.30, Opera Music: Selection from: (a) Lohengrin (Wagner), (b) Hérodiade (Massenet), and (c) Faust (Gounod). 9.45, Instrumental Solos. 10.0, Orchestral Music. 10.15, News. 10.30, Concert for Listeners in Morocco. 11.0, Light Music. 11.30, Comic Opera Music. 11.45, Music by a Viennese Orchestra. 12 Midnight, News. 12.5 a.m. (Monday), Accordion Solos. 12.15, Vocal Tangos. 12.30, Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—9.40 to 9.55 a.m., See Turin. 10.20, Agricultural

Talk. 10.40 to 11.0, Religious Address. 11.0 (approx.) till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

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.—9.40 to 9.55 a.m., Giornale Radio. 10.20, See Trieste. 10.40, Religious Address. 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 News. 1.30, Sponsored Music. 1.45 to 2.0, Gramophone Music. 4.30, Orchestral Concert. In the interval, Sports Notes. 5.0, Opening of the International University Sports from the Mussolini Stadium, Turin. 6.15, Weather and Gramophone Music. 6.30, Giornale Radio and Sports Notes. 6.45, Interval. 7.0, Time and Dopplavoro Announcements. 7.10, Gramophone Music. 8.0, Announcements, Giornale Radio and Sports Notes. 8.30, Talk on the following Transmission. 8.40, Le Jongleur de Notre-Dame—Opera (Massenet). In the intervals, Talk and Theatre Notes. After the Programme, Giornale Radio.

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.—10.0 a.m., Report of the Special Meeting in Connection with the Opening of the Twenty-fifth Vienna Fair. 10.40, Chamber Music: String Quartet in B flat, Op. 130 (Beethoven); Burlesque for String Quartet (Alfred Uhl). 11.20, Sacred Choral Music and Address. 12.5 p.m., Concert by the Wiener Symphoniker, conducted by Hugo Gottesmann: Serenade in E flat, Op. 32 (Mjaskowski); The Fifth Symphony in E minor—From the New World (Dvorak). 1.10 to 2.10, Concert, conducted by Rudolf Pelm. 2.20, Time and Review of the Week's News. 2.40, Agricultural Talk. 3.0, Relay from Gross-Weikersdorf of a Patriotic Demonstration and the Meeting of the Schmieda Valley Catholic Youth Society. 4.0, Review of Books. 4.25, An Entertainment. 4.50, Radio Report of the Mitropa Cup Final—Austria v. Ambrosiana, relayed from Milan. 5.50, Gramophone Concert. 6.15, Talk: On the Banks of the Wannsee. 6.40, Joseph Gregor reads from his own Works. Introductory Talk by Erwin Weill. 7.10, Schubert Song Recital by Hans Duhon (Baritone): Liebesbotschaft; Kriegers Ahnung; Frühlingssehnsucht; Ständchen; Aufenthalt; In der Ferne; Abschied; Der Atlas; Ihr Bild; Das Fischermädchen; Die Stadt; Am Meer; Der Doppelgänger; Die Taubenpost. 8.5, Time, Sports Notes and Programme Announcements. 8.15, Bunter Abend. The Wiener Symphoniker, the Bohème Quartet, Fritz Imhoff and Fifi Mars (Songs), and Maryan Rawicz and Walter Landauer (Recital on Two Pianos). 10.0, News. 10.15, Cigány Music from the Ketter Restaurant, Budapest.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from Torun Cathedral. 12.5 p.m., Programme Announcements. 12.10, Weather. 12.15, Concert by the Station Symphony Orchestra, conducted by Oziminski. Soloist: Mme. Perenson (Soprano). Overture, Der Palla (Moniuszko); Gipsy Dance (Debussy); Suite (Silver); Soprano Solos: (a) The Convert (Moniuszko), (b) Two Songs (Marek). (c) Song from The Snow Maiden (Rimsky-Korsakov); Symphony in G. No. 6 (Haydn); Soprano Solos: (a) Aufträge (Schumann), (b) Was will die einsame Träne (Schumann). (c) Two Songs (Brahms); Le Rouet d'Omphale (Saint-Saëns). 2.0, Agricultural Talk. 2.15, Agricultural Report and Weather Forecast. 2.20, Accordion Recital of Popular Yugoslav Music. 2.45, Agricultural Programme. 3.5, Gramophone Music. 4.0, Programme for Children. 4.15, Reading for Children, relayed from Lwów, 788 kc/s, 381 metres. 4.30, Opera Arias by Mme. Zimgród-Pedyczkowska. Arias from: Il Seraglio (Mozart), Manon Lescaut (Puccini); Hamlet (Thomas); Louise (Charpentier); and Turandot (Puccini). 5.0, Talk for Workers. 5.15, Talk on Harvest Festivals. 6.0, Gramophone Music. 6.35, Programme Announcements. 6.40, Miscellaneous Items. 7.0, Reading, relayed from Cracow, 959 kc/s, 312.8 metres. 7.40, Answers to Technical Correspondence. 8.0, Concert by the Station Orchestra, conducted by Gorzynski. Soloist: Salecky (Tenor). Selection from Der Teufelsreiter (Kálmán); Overture, Gipsy Love (Lehár); Three Tenor Solos; Selection from Frühling im Wienerwald (Ascher); Three Tenor Solos; Album Leaf (Glydmark); March from Zizi (Kreisler). 8.50, Radio Journal. 9.0, Humorous Programme, relayed from Lwów. 10.0, Dance Music. 10.40, Weather and Police Notes. 10.45, Dance Music (contd.).

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 Report, Stock Exchange Quotations, and Gramophone Music. 6.0, Programme for Children. 6.45, News. 7.0, Gaelic Talk. 7.15, Poultry Talk. 7.30, Time Signal. 7.31, The Station Orchestra. 8.0, Tenor Solos by J. P. Burke. 8.15, Pianoforte Solos by Fred May. 8.30, Sending Grandpa to Heaven—Sketch, by H. Fraser and Company. 9.0, Soprano Solos by Nellie Ryan. 9.15, Organ Recital by J. O'Brien, relayed from St. Francis Xavier's Church. 9.45, Sponsored Programme. 10.45, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Selection from Siegfried (Wagner); Larghetto (Dumas); Wedding Day on Trolldhaugen (Grieg); Chanson de l'abeille (Filipucci); Rocco Minuet (Haydn); Pastoral (Loreggio); Selection from Cavalleria rusticana (Mascagni). 8.0, Request Gramophone Records. 8.20, Sports Notes. 8.30, Exchange and Talk in Catalan. 9.0, Gramophone Music, followed by News. 10.0, Chimes from the Cathedral, Weather and Exchange. 10.5, Humorous Review of the Week's Events in Verse. 10.15, Music by the Radio Orchestra: Paso doble, Sevillana (Ulierte and Leo); Habanera, El esclavo (Coto); Waltz, Was Blumen träumen (Translatour). 10.30, Duets and Songs from Operetta by the Radio Orchestra. Juan Barrebas (Tenor) and Rita Esteban (Songs): Duets from The Dollar Princess (Fall); Serenade (Delmas); Selection from The Merry Widow (Lehar); Duets, Silbyll (Jacobi); Legend (Dvorak); Song, El principe bohemio (Millan); Intermezzo (Huppmann); Duets from Eva (Lehar); Dance of the Merry Muscots (Ketelbey). 11.30, Topical Talk. 12 Midnight, News, followed by Concert from the San Sebastian Casino. 1.0 a.m. (Tuesday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes. Tourist Talk and Dopolavoro Announcements. 8.20, Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.45, Turandot Opera in Three Acts (Puccini). In the intervals, Reading and Art Notes. After the Opera, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—5.0 p.m., Yugoslav Songs. 6.55, Time Signal and Programme Announcements. 7.0, Concert by the Station Orchestra. 7.50, Talk. 8.30, Programme from Zagreb, 977 kc/s, 307 metres. 10.30, Time and News. 10.45 (approx.), Cigany Music from the Zanatski Dom Restaurant.

BERLIN

DEUTSCHLANDSENDER REICHSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—2.0 p.m., Gramophone Music of Famous Singers. 3.0, Talk for Women. 3.30, Weather and Exchange. 3.45, Review of Book on Politics. 4.0, See Breslau. 5.0, Talk: The Political Education of the Man in the Street. 5.25, Recital of Music by Munich Composers, by Prühl (Soprano), Hartmann (Baritone) and Scholz (Pianoforte). Songs from The Chinese Flute, Op. 44 (Frankenstein); The Rilke Cycle, Op. 8 (Marx); Songs from Six Voice Pictures, Op. 5 (Westermann); Stille der Nacht from Drei Hymnen der Nacht (Hausegger); Hälfte des Lebens, Op. 22, No. 1 (Sachse); Brunnen des Lebens, Op. 34, No. 3 (Sachse); Songs from Die Hebelgesänge (Pottgiesser). 6.0, Poems. 6.5, Programme for Young People. 6.25, Dialogue: The Coming Theatre Season. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, To-day's Motto. 8.5 (approx.). Concert from Stuttgart. 9.15, Germans in Venice; Radio Sequence (Littack). 10.0, Weather, News and Sports Notes. 10.25, Talk: The Stars and Human Destiny. 10.45, Weather for Shipping. 11.0, Concert from Leipzig. 12 Midnight, Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.30 p.m., Concert by the Berlin Wireless Orchestra, conducted by Otto Frickhoefer: Ballet Music from Les petits riens (Mozart); Symphony No. 104 in D—The London (Haydn). 5.30, Reading (Dr. Rudolf Prescher). 5.50, Extracts from Der Danismend (Wieland) for the BI-Centenary of the Author's Birth. 6.20, Partita in E for Violin (Bach). 6.40, The Funkstunde Station informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations: Concert of Bavarian and Swabian Music by a Wind Band and the Station Choir. 8.0, Lottery Announcement. 8.5, Extracts from Die Zwillingsses—Opera in Three Acts (Erwin Dressel). 9.25, East Germany—A Radio Sequence in Four Acts. 9.55, News. 10.10 (approx.). Dance Music from the Tiergarten. In the interval from

MONDAY

SEPTEMBER THE FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON	"Strife," a drama, by John Galsworthy. Promenade concert from Queen's Hall, London.
REGIONAL MIDLAND	Orchestral concert.
REGIONAL NORTH	Orchestral concert from the Spa, Whitby.
REGIONAL WEST	Orchestral concert.
REGIONAL SCOTTISH	Choral and orchestral concert.
REGIONAL BELFAST	"Things that go bump in the Night," a programme for the fireside.
ABROAD	
BARCELONA	7.0 p.m. The Station Trio.
BRUSSELS	5.0 p.m. The Station Symphony Orchestra.
(No. 1)	
BRUSSELS	8.0 p.m. The Station Symphony Orchestra.
(No. 2)	
BUDAPEST	9.30 p.m. The Opera House Orchestra, conducted by Fridl.
COPENHAGEN	10.15 p.m. Danish music, by the Station Orchestra.
HAMBURG	10.35 p.m. Orchestral concert, relayed from Kiel.
LANGENBERG	6.0 p.m. Orchestral concert, conducted by Eysoldt.
STRASBOURG	8.5 p.m. Musical journey round the world.
STUTT GART	6.30 p.m. Grieg orchestral concert, conducted by Maurice de Villers.
WARSAW	8.5 p.m. Orchestral concert, conducted by Karl Assmus, relayed from Baden-Baden.
	8.0 p.m. Operetta: "The Bayadere," by Kálmán.

11.0 to 11.5, Topical Talk. 12 Midnight (approx.), 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.—2.50 p.m., Jan Bella Concert for his Ninetieth Birthday. 3.50 to 4.0, See Prague. 5.45, See Prague. 6.5, Pro Quartets (Jan Bella) by the Station Quartet. 6.55, Report. 7.0, See Prague. 7.10, See Brno. 7.10, Literary Talk. 8.25, See Moravska-Ostrava. 9.0, See Prague. 10.15 (approx.). Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gletwitz, 1,184 kc/s, 253 metres.—1.5 p.m., Gramophone Concert: Overture, Bocacelo (Suppé); Hungarian Rhapsody No. 6 (Liszt); Selection from Madame Butterfly (Puccini); Potpourri, Aus der guten alten Zeit (Kock); Rhineland Song Potpourri (Hannemann); March, Hoch Heidecksburg (Herzer). 1.45, Time and News. 2.5, Recital of Marching Songs to the Guitar by Georg Heider. 2.30, Gramophone Concert: March Potpourri, Alle mit uns (Kohrecht); Selection from Frasnquita (Lehar); Melody (Peterson-Berger); Waltz, Tales from the Vienna Woods (Joh. Strauss-Gebhardt); Andras Hofer-Marsch (Blankenburg). 3.0, Agricultural Prices. 3.20, Book Review. 3.40, Talk: The Influence of Climate on a Nation's Health and Political Economy. 4.0, Concert by the Silesian Symphony Orchestra, conducted by Gerhard Ewald Kischka. Overture, Peter Schmolli (Weber); Kinder-Suite (Schumann-Rischka); Selection from Der Rosenkavalier (R. Strauss); Overture, Cagliostro (Joh. Strauss); Eine Sängereinfahrt nach Wien (Silving); March Potpourri, Die Wache zieht auf (Kochmann). 5.30, Agricultural Prices. 5.35 (approx.). Talk on German Culture. 5.50, Programme to be announced. 6.10, Violin Recital by Walter Dittich: Sonata in D (Handel); Variations on a Theme of Corelli (Turini); Perpetuum mobile (Ries); Sienlanka-Mazurka (Wienawski). 6.30, Talk: The Organisation of the Nazi Movement. Nazi Women's Organisations. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Silesian Vespers—Literary and Musical Programme by the Station Orchestra and Choir, conducted by Ernst Prade. Solists: Käthe Helbig (Soprano), Herbert Heidrich (Tenor), Gerhard Bertermann (Baritone), and Hermann Gaupp (Recitations). 9.0, Announcements. 9.10, Erich Hoiniks reads from his own Works. 9.30, Chamber Music: Gotthold Richter

(Harpsichord), Rudolf Vorneug (Viola d'amore), and Fritz Binnowsky (Viola da Gamba). Sonata in D for Viola d'amore and Harpsichord (Hammer); Toccata in E Minor for Harpsichord (Bach); Sonata for Viola da gamba and Harpsichord (Abel); Concerto for Viola d'amore, Viola da gamba and Harpsichord. 10.15, Time and News. 10.35, Technical Talk. 10.45, Talk: The Junction of the Save and the Danube. 11.0 (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.25, German Transmission: News, followed by Talk: Iron and Steel. 7.0, See Prague. 7.10, A Radio Revue. 8.10, See Bratislava. 8.25, See Moravska-Ostrava. 9.0, See Prague. 10.30 (approx.). Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by Leemans. 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert. 5.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Russian and Ludmilla (Glilinka); Serenade (Glazunov); The Flight of the Bumble Bee (Rimsky-Korsakov); Dance of the Tumblers (Rimsky-Korsakov); Peer Gynt Suite, No. 1 (Grieg); Nocturne (Brenta); Danse Sacrée (Desprez); Suite (Kalkman). 6.0, Talk: Elocution and Plastic Art. 6.15, Gramophone Records: Quintet in E minor (Brahms); Aria from The Barber of Seville (Rossini); Ballet Music from Isolde (Messager). 7.15, Talk: Accountancy. 7.30, Le Journal Parlé. 8.0, Symphonie Fantastique (Berlioz) on Gramophone Records. 8.45, Talk by Theo Fleischmann: Brussels Programmes for the season 1933-1934. 9.0, Concert, relayed from the Kursaal, Ostend. After the Concert, Le Journal Parlé, followed by Dance Music by Robert Kers and his Cabaret Kings and the Orquestra tipica de Tangos Argentines, relayed from the Kursaal, Ostend.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Extracts from Iolanthe—Opera (Sullivan), on Gramophone Records. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans. 5.0, Gramophone Records: Sonata in G (Schubert); Overture, Euryanthe (Weber). 5.45, Programme for Children. 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Overture, The Gipsy Liaron (Strauss); Old Spanish Song (Aubert); Russian Dance (Tchaikovsky); Fantasia for Violin (Wlzy); Potpourri, From Gluck to Wagner (Schreiner); Cor Anglais Solo, Theme from Tristan and Isolde (Wagner); March (Kricka). 7.15, Talk on Folklore. 7.20,

Talk. 7.30, Le Journal Parlé. 8.0, Concert by the Station Symphony Orchestra, conducted by Kumps: Overture, Bevenuto Cellini (Berlioz); Night on the Bare Mountain (Mussorgsky); Cor Anglais Solo, Air from Manfred (Schumann); Symphony in E flat (Mozart). 8.45, Talk: The Librado Congress at Antwerp. 9.0, Concert (cont.): Symphonie Variations (Gilsen); Gramophone Records, (a) Song of the Viking Quest from Sadko (Rimsky-Korsakov), and (b) Kontchak's Song from Prince Igor (Borodin); Petite Suite (Dupuis); Gramophone Record, Distant Echo of my Youth from Eugene Onegin (Tchaikovsky); Gollywog's Cake-Walk (Debussy). 10.0, Le Journal Parlé. 10.10, Gramophone Dance Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra. March (Fuehl); Waltz, Frühlingsstimmen (Strauss); Overture, Orpheus in the Underworld (Offenbach); Selection from Tannhäuser (Wagner); Selection from Paganini (Lehar); Greg Potpourri (Urbach); The Caravan (Niemann); Indian Intermezzo (Ketelbey); Hopak (Tchaikovsky). In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Gramophone Music. 7.40, Educational Talk. 8.0, Concert by the Sarvas Trio. Trio in B Op. 8 for Violin, Pianoforte and Cello (Brahms) Trio in F (Saint-Saëns). In an interval at 8.30, Talk. 9.15, Dance Music by the Marcel Zuharia Syncop Accorders, relayed from the Lido. 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. 5.0 p.m., Gramophone Concert. 6.0, Programme for Workers. 6.20, Music by the Lajos Kiss Cigany Band. 7.30, Reading. 8.0, Kondor and Nador Song Recital. 9.10, News. 9.30, Concert by the Opera House Orchestra, conducted by Fridl: Overture, The Bohemian Girl (Balfe); Suite, Scenes napolitaines (Massenet); Carnival in Paris (Svendsen); Praeludium (Jarnefeldt); Valse triste (Vescey); Intermezzo from Der Kriessgefangene (Goldmark); Extracts from the Ballet Argiris (Gajary). 10.5, Weather. 10.40, Pianoforte Recital. 11.20, Dance Music from the Rajnapark Café.

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, Town Hall Chimes. 12.2 to 2.0 p.m., Concert from the Wivex Restaurant. 3.20, Talk for the Housewife. 3.30, Instrumental Concert: Overture, Undine (Lortzing); Waltz, Alt Wien (Ziehrer); Chanson triste (Tchaikovsky); Selection from Don Cesar (Bellinger); Serenade (Rachmaninov); Overture, Lysistrata (Lincke); March, Sevilla (Prelin); Selection from La Favorita (Donizetti); En révant (Florent Schmitt); Im schönen grünen Holstenland (Petras); Pizzicato (Morena); Minuet (Danning); Intermezzo (Meyer-Helmund); March, Uncle Teddy (Fuehl). In the interval at 4.15, Reading. 5.30, Exchange and Fish Market Prices. 5.45, Dramatic Programme. 6.15, Elementary English Lesson. 6.45, Weather. 6.54, Report of the Workers' Radio Association. 7.0, News. 7.15, Time Signal. 7.30, A Discussion. 8.30, Concert by the Radio String Orchestra, conducted by Emil Reesen: Serenade in E flat for String Orchestra (Wolf-Ferrari); Acquarelas Valenciennes (Chavari). 9.5, Pianoforte Recital by Percy Grainger: Two Pieces (Grieg); Paraphrase on a Theme from Der Rosenkavalier (R. Strauss-Grainger); Four Pieces (Percy Grainger); (a) English Sea Shanty, One more day, my John. (b) The Hunter in his Career. (c) The Londonderry Air. (d) Country Gardens. 9.30, A Radio Grotesque (Piet). 10.0, News. 10.15, Concert of Danish Music by the Station Orchestra, conducted by Emil Reesen: Overture, Correggio (J. P. E. Hartmann); Selection from the Music to On the Bosphorus (Lange-Müller); Overture, Maskerade (Carl Nielsen); Legende (Flui Henriques); Tarantella from Fête galante (Schierbeck). 11.0, Dance Music from the Nimb Restaurant. In the interval at 12 Midnight, Town Hall Chimes. 12.30 a.m. (Tuesday), 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. Happy Hour. Part I. Military Band Music: Signature Tune; March, Old Comrades (Teike); Holohokoko (Reeves); Under the Double Eagle (Tapiero); Selection from The Pirates of Penzance (Sullivan); Praeludium (Jarnefeldt); Cornet Solo, Il bacio (Arditi); Valse des Alouettes (Drigo); Parade of the Tin Soldiers (Jessel). Part II. Dance Music: Talking to you about me (Snyder); Adorable (Whiting); My Love Song (Burnaby); My first Love to last (Whiting); In a second-hand Store (Nelson); You're mine, you (Green); I cover the

SEPT. 4th

MONDAY

continued

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayed by Dresden, 941 kc/s, 319 metres.—4.0, Wind Instrument Concert, relayed from Altenburg: March, Oberst Hummelsch (Curtli); Overture, Mignon (Thomas); Die Musik kommt! (Zimmer); Waltz, Donausagen (Fück); Coburg March; Military March; March, Am schönen Rhein (Schwartz). 5.0, Book Review. 5.20, Organ Recital by Hans Anderdonath, relayed from the Ligner Schloss, Dresden: Toccata for Organ (Bach); Symphonic Fantasia and Double Fugue in F, Op. 27 (Fährmann). 5.50, Announcements. 6.0, Talk: The Employment Exchange in the Struggle against Unemployment. 6.20, Flute Recital. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Sunday's Events. 8.10 (from Dresden), Mandoline and Zither Concert. 9.0, Agnes Bernauer—Tragedy (Friedrich Hebbel). 10.30, News. 10.45, Concert by the Station Orchestra, conducted by Blumer; Soloists, Günther Ölbrich and Otto Reinhardt (Trumpet). 12 Midnight (approx.). Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Concert by the Station Orchestra. 8.0, Talk in Esperanto. 8.30, Concert by a Vocal Quartet. 9.15, Weather and News. 9.30, Programme relayed from the Fair. 10.30, Gramophone Music. 11.0 (approx.), Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. Italian Programme.—7.30 p.m., Second and Third Acts of Rigoletto—Opera (Verdi) on Gramophone Records. 8.30, Programme of Variety Music. 8.50, News in French. 9.0, Cello Recital with Orchestral Accompaniment. 9.45, News in German. 9.55, Variety Music by the Station Orchestra, conducted by Henri Pensis. 10.15, Variety Music and Dance Music on Gramophone Records.

MADRID

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

MADRID

EAQ, 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m., Concert of Light Music. In an interval at 11.45, Radio Chronicle. 12.35 a.m. (Tuesday), Sports Notes. 12.40, Light Music. 1.0 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 4 kW.—8.45 p.m. till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.30 p.m., German Transmission: Theodor Körner Memorial Programme, followed by Amusement Guide. 7.0, See Prague. 7.10, See Brno. 8.10, See Bratislava. 8.25, A Comedy. 9.0, 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, 559 metres; and Nürnberg, 1,256 kc/s, 230 metres.—2.50 p.m., Ballad Recital. 3.15, Programme for Children. 3.35 (from Nürnberg), Reading. 3.55, Weather and Market Prices. 4.5, Talk: Reminiscences of a Prisoner of War. 4.30 (from Nürnberg), Orchestral Concert, conducted by Michael Bayer: Overture, Rubezahl (Weber); Ballet Music from Faust (Gounod); Czardas (Michiels); Selection from Alessandro Stradella (Plotow); Waltz, Rendez-vous (Waldteufel); Italian Serenade (Holmes); March, Unterm Freiheitsstern (Blankenburg). 5.45, Talk. 6.5, Pitzner Song Recital by Erik Wildhagen (Baritone). 6.30, Review of Books. 6.50, Time and Weather. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Concert by the Station Orchestra, conducted by Karl List. Soloist: Anita Wich (Soprano). Ein Volkstrümpfstück (Waldteufel); Rheinische Nachtmusik (Niemann); España (Chabrier); Two Arias for Soprano and Orchestra: (a) Aria from The Pearl Fishers (Bizet), (b) Aria from Don Pasquale (Donizetti); German Dances (Schubert-Webern); Overture, Der Waffenschmidt (Lortzing). 9.0, Talk: The German and the Russian Revolutions. 9.20, A Radio Sequence. 10.20, Time and News. 11.0, Programme from Leipzig. 12 Midnight (approx.), Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s,

Waterfront (Green); I'm getting sentimental over you (Raftmann); Signature Tune. 12 Noon, French Programme. 1.30 to 6.0 p.m., Programme in English by the I.B.C. 4.30, The Nursery Corner: Music, Story, and Birthday Greetings. 5.0, Concert for Chichester and Bognor Listeners. Light Music: Signature Tune; Night by the Sea; Rhapsody in Blue (Gershwin); The Busy Bee (Bendix); Piano Solo, Still I love her (Gaskill); Romance (Lohr); Selection of Old Music Hall Memories; Spring Blossoms awaken (Lohr); War Marching Songs (arr. Somers); The Enchanted Forest (Ganglberger). 5.30, Concert for Hastings and Eastbourne Listeners. Operetta Programme: Selection from Wild Violets (Stolz); The Night was made for Love, from The Cat and the Fiddle (Kern); Selection from White Horse Inn (Stolz-Benatzky); My Hero, from The Chocolate Soldier (O. Strauss); If I am dreaming, from The Dubarry (Millocker); Selection from No No Nanette (Youmans); One alone, from The Desert Song (Romberg); Selection from The New Moon (Romberg); Signature Tune. 6.0, French Programme. 10.0 (approx.) till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune; Bella of Normandy; Stay out of my Dreams; Talking to you about me; My! Oh, My; I shall still keep smiling along; Land of Love and Laughter; Hiawatha's Lullaby; I lay me down to sleep; Piccaninny; Someone to care for; Play it Hot; Won't you stay to tea?; Body and Soul; Under my Umbrella; Chansonnette (Friml); And so I married the Girl; Sylvia; Signature Tune. 11.0, Talkie Time. Sound Film Music: Signature Tune; Sittin' in the Dark; Selection from The Kid from Spain (Kalmár); Love Songs of the Nile, from A Night in Cairo (Brown); Adorable (Whiting); Two Songs from Your Lips say "No"; Happy Ending, from This Week of Grace (Davies); Sweep from Falling for you (Ellis); The Whip, from Golden Dawn (Kalmár); Talkie Potpourri. 11.30, Club Concert for Nantwich Listeners. Part I, Members' Request Half Hour: Signature Tune, The Chum Song; Moonlight on the Alster (Petras); Roses of Picardy (Haydn Wood); With me Gloves in me and; Old Jim's Christmas Hymn (Gray); The Clock and the Dresden Figures (Ketelbey); Waltz, Très jolie (Waldteufel); The Sea Road (Haydn Wood); The Phantom Brigade (Myddleton). 12.5 a.m. (Tuesday), News Bulletin in English. 12.10 (approx.), Club Concert. Part II: When Work is through; Swanee Stomp; Love, here is my Heart; Masquerade; Conchita; Signature Tune. 12.30, Dance Music by the Blue Mountaineers (Electrical Transcriptions); There's a Cabin in the Pines; Jog along; Wherever you are; You've got me crying again; Two Buck Tim from Timbuctoo; Love you funny thing; When it's lamp lightin' time; The Language of Love; Bahama Mama; Won't you stay to tea?; There's a tiny little hair; Moonlight, the Danube and you. 1.0, Dance Music: Signature Tune, Bells of Normandy; Out in the Open; You'll never get up to Heaven that way; Little Miss Muffet; Sylvia; Waltzing in a Dream; You've got me crying again; Pop Gun; No more Love; It's the Band; In Eger on the Tegen Sea; This is the Rhythm for me; We belong together; I sigh for you, Rio Rita; It pays to advertise; They all do the Rumba; London Bridge is falling down; 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., See Munich. 5.45, Exchange. 6.0, A German Almanac. 6.10, Programme to be announced. 6.25, Talk on Ivan Turgenev. 6.45, Review of the Day's News. 6.50, Time, Programme Announcements, Weather and Exchange. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Songs of the Rhine and the Mosel. 8.30, Dialogue: With Field Batteries on the Western Front and in Italy. 9.0, A Newly Discovered Haydn Symphony—Recital with Commentary. 10.0, Topical Talk. 10.15, Time and News. 10.45, See Leipzig. 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.—6.0 p.m., Variety Programme. 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Concert of Old Hamburg Music by the Hermann Erdlen Chamber Music Orchestra and Lotte Ackers-Ulman (Violin). Symphony in C No. 3

(C. P. E. Bach); Sonata from Musicalische Frühhingsfrüchte (Becker); Presto (Telemann). 8.35, News. 8.45, Good Morning, Mr. Fisher!—Musical Joke in one Scene (Friedrich) with Music for Two Pianofortes by Ginnatis. 9.45, Jos. Magnus Welner reads from his own Works. 10.15, News. 10.25, Topical Talk. 10.35 (from Kiel), Concert by the Orchestra of Unemployed Musicians, conducted by Hans Döring. Overture, William Tell (Rossini); Selection from Rigoletto (Verdi); Spanish Dance (Sarasate); Waltz (Prigge); Selection from Das Dorf ohne Glocke (Künneke); Intermezzo, Ferdinand and Miranda (Humperdinck); Waltz, Zigeunerliebe (Strauss); Husarenritt (Spindler); March (Blankenburg).

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., Italian Opera Music on Gramophone Records: Prelude and Scene from Aida (Verdi); Overture, The Barber of Seville (Rossini); Duet from I Pagliacci (Leoncavallo); Aria from La Bohème (Puccini); Selection from Tosca (Puccini); Selection from Rigoletto (Verdi); Finale from Act III of Ernani (Verdi); Intermezzo from Madame Butterfly (Puccini). In the intervals at 1.20 and at 2.0, News. 3.0, Agricultural Prices and Exchange. 3.30, Programme for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, The Battle of Legnano (Verdi); Rhapsody No. 1 (Brahms); Geschichten aus dem Ernstal (Pachernegg); Hokuspokus (Leuschner); Little Ida's Flowers (Klenau); Pastoral Suite (Scasola); Hoffballtänze (Lanner); Selection from The Geisha (Jones); Overture, The Bird Fancier (Zeller). In the interval at 4.50 (approx.), Talk: Anniversaries of the Week. 5.45, Talk on Hermann von Wissmann, the African Colonist. 6.15, Agricultural Prices. 6.25 (from Danzig), Talk on Daniel Gabriel Fahrenheit. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Political Announcements and Weather. 8.10, Max Dauthendey Memorial Programme—Literary and Musical Radio Sequence (arr. Ernst Jerosch). 8.50, Song Recital by Charlotte Hahnel (Soprano). Songs (Schubert): (a) So lässt mich scheiden, (b) Trockene Bühen, (c) Gretchen am Spinnrad; Songs (Schumann): (a) Der Nussbaum, (b) Mit Myrthen und Rosen; Songs (Brahms): (a) An eine Acolsharfe, (b) Geheimnis, (c) Hofschaff. 9.20 (from Danzig), Reading (Friedrich Hebbel). 9.45, Elementary English Lesson. 10.15, Weather and News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Christian Radio Society (N.C.R.V.). 12.10 p.m., Organ Recital by Jan Zwart: Prelude and Fugue in C (Bach); Pastoral in F (Bach); Prelude and Fugue in D Minor (Bach); Potpourri of Psalms (Zwart); March on a Theme from The Messiah (Handel-Guilman); Allegretto on a Theme of Mendelssohn (Guilmant); Choral on a Theme of Handel (Guilmant); Potpourri of Sacred Songs (Zwart); Intermezzo from the Symphony No. 6 (Zwart); Adagio from the Symphony No. 4 (Widor); Toccata from the Symphony No. 5 (Widor); Potpourri of Sacred Songs (Zwart). 1.40, Broadcast for Schools. 2.15, Gardening Talk. 2.55, Gramophone Music. 3.40, Bible Reading and Sacred Music. 4.40, Gramophone Music. 4.55, Sacred Songs and Violin Solos. 5.55, Gramophone Music. 6.10, Answers to Correspondence. 6.40, Police Notes. 6.55, Religious Report. 7.10, Answers to Correspondence. 7.40, Concert for the Thirty-fifth Anniversary of the Reign of Queen Wilhelmina: The Station Orchestra, conducted by Hurk; Psalm 42 (Weiss); Neerland en Oranje (Maas); March, Jubileum (Vlesing); March, Piet Hein; Jubelmarsch (Ogier); Oranje-marsch (Scholten); Neerlands Vlag (Tierolf); Overture, Soli Deo Gloria (Rugers); Gramophone Music: Van U zyn alle dingen (Bastiaans); Heilig God, voor Wien slechts waarheid; Myn tijt gaat wech; In 't Voorhout (Ileye); Waak op Nederland (Diepenbroek); Holland (Schuijer); The Land by the Sea (Viotta). 8.40, Talk: The Mission at Celebes. 9.10, Concert (cont'd): La Czarine (Ganne); Selection from The Gipsy Princess (Kalmán); Marche lorraine (Ganne); News; Huldugunsmarsch (Boer); Mein Wunsch (Albrecht); Italian Caprice (Tchaikovsky); New Berlin (v. Blon); Clarinet Concertino (Coenen); Through Bolts and Bars (Urbach); Piece (Vlesing). 10.30, Gramophone Music. 11.10 (approx.), Close Down.

HÖRBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 1,875 metres; 8.5 kW. Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Small V.A.R.A. Orchestra, conducted by de

Groot; Melody; Le bon vieux Temps (Mouton); Two Italian Serenades (Micheli); Three Irish Pieces (Ansell); Turkish March (Mozart); Hungarian March (Fück); Basque Waltz (Urtmann); Kleiner Wiener Marsch (Kreisler). 12.25 p.m., Song Recital by Eline Hemrica (Soprano): Aria from L'Enfant prodigue (Debussy); Chanson triste (Duparc); Ständchen (R. Strauss); Serenade (Lange). 12.40, Concert by de Notenkrakers: March, Hail to the Spirit of Liberty (Sousa); Waltz from The Arabian Nights (Strauss); Two Airs (Tosti); Cordova (Lozano-Salabert); Selection from Mariska (Lehar); Love Moon (Rico); In a Hungarian Inn (Rinesh); Selection from Casanova (Lincke). 1.25, Song Recital (cont'd): Aria from The Bartered Bride (Smetana); Aria from La Traviata (Verdi). 1.40, Organ Recital by Jong: Berceuse de Jocelyn (Godard); Andante (Haydn); Minuet (Haydn); Selection from Viktoria and her Hussar (Abraham); The Dolls' Concert (Sarony). 2.10, Recitations. 2.40, Gramophone Music. 3.25, Interval. 3.40, Concert by de Notenkrakers. 4.10, Programme for Children. 4.40, Concert by the V.A.R.A. Orchestra, conducted by de Groot: Selection from The Vagabond King (Friml); Lolita (Buzzi-Peccia); Marechiaro (Tosti); Studiantina (Waldteufel); Serenata (Braga); Salut d'amour (Elgar); Liszt Potpourri (Urbach); Bolek (Leopold). 5.25, Recitations. 5.40, Concert (cont'd): Mattinata (Leoncavallo); Norwegian Bridal Procession (Grieg); Melody in F (Rubinstein); Tambourin chinois (Kreisler); Strauss Potpourri (Körngold). 6.10, Talk on Music. 6.40, Concert by De Fierelhuizers, conducted by Ray Forest. Soloist: Esther Philipse (Songs). In the interval at 7.10, Talk on the Dutch Fair. 7.40, SOS Messages. 7.42, Press Review and Gramophone Music. 8.0, Promenade Concert relayed from London. In the interval, Recitations. 10.25, Concert by Gaspar Lajos and his Gypsy Band. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide. Financial Notes and News. 8.10, Sports Notes. 8.20, Press Review. 8.30, Radio Concert. 9.0, News and Weather. 9.15, Un Châte brodé—Play (M. Manican).

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—6.35 p.m., History Talk. 7.20, Announcements and Gramophone Music. 7.40 till Close Down, See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—6.10 p.m., News in Swedish. 6.15, Agricultural Bulletin. 6.25, Choral Concert of Sacred Music, conducted by Kurt Thomas. 7.10, Talk. 7.30, Recital of English Poems. 7.50, Concert by the Station Orchestra, conducted by Raapainen: Fantasia (Purcell); Introduction and Allegro (Dementi); Serenade (Elgar); Two Melodies (Debussy); Two Pieces (Percy Grainger); (a) Molly on the Shore, (b) Mock Morris; Londonderry Air (arr. Percy Grainger); Dance (Bantock). 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—1.0 p.m., Orchestral Concert, conducted by Eysoldt: Overture, The Caliph of Bagdad (Boieldieu); Waltz, Rudolfklänge (Strauss); Lyric Suite (Mauz); Italian Romance, Marica (Marco); Schubert Potpourri (Urbach); Slav Rhapsody (Friedemann); In the Temple of the Bells (Yoshitomo); March, Mit Standarten (Blon). In an interval at 2.0 (approx.), Announcements. 2.30, Cattle Market Prices. 3.30, Economic Notes and Time Signal. 3.50, Programme for Young People. 4.30, Topical Talk. 4.40, Talk: Westphalian Legends. 5.0, Song Recital on Gramophone Records. 5.30, Talk on Hermann von Wissmann, for his Eightieth Birthday. 6.0, Orchestral Concert, conducted by Eysoldt: Coronation March (Kretschmer); Overture, Hunyadi Laszlo (Erkel); Romance, Tchaikovsky; Hungarian Capriccio (Ferraris); Ballet Music, Über allen Zaubern Liebe (Lassen); Scenes from Die tote Augen (d'Albert). 6.45, Announcements. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.0, Announcements. 8.5, Berlin—London—New York—Milan—Berlin—Musical Journey Round the World. 10.5, News. 10.30, Concert of Chamber Music for Piano and Wind Instruments: Quintet in F Flat (Mozart); Theme with Variations, Op. 34 (Blumer); Sextet, Op. 6 (Thuille). 12 Midnight (approx.), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

SEPT. 4th

MONDAY

continued

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 Radio Ensemble. 6.30, Talk on Sport. 7.0, Advertising Notes, Weather and News. 7.30, Recital of Norwegian Songs. 8.0 Time Signal. 8.2, Sunday—Play in One Act (Claude Roger-Marx, translated by Vilhelm Dybwad). 8.45, Pianoforte Recital: Sonata in B Flat Minor, Op. 1 (Alban Berg); Mephistowalzer (Liszt). 9.10, Review of Foreign Affairs. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Talk in English: Impressions of America. 10.30 (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 an interval at 8.30, Time and Announcements. 8.45, Concert of Chamber Music. Gallies (Oboe), Scala (Pianoforte), Manno (Violin), Micozzi (Clarinet): Oboe Solos, Andante and Scherzo (Hoffman); Sonata in A for Pianoforte and Violin (Franck); Clarinet Solos, Prelude and Rondo (Boulevard); Oboe Solo, from the Suite (Cord); Clarinet Solos: (a) Rio gaio (Giaccino), (b) The Gazelle (Wallenhandt); Sonata in F for Pianoforte and Violin (Grieg). 10.15, Light Music on Gramophone Records. 10.55, News.

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 Notes. 7.0, Le Journal Parlé. 8.45, Concert, relayed from the Casino Vichy (See Strasbourg). 11.15 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.15, Le Journal Parlé. 7.30, Hot Jazz on Gramophone Records. 8.0, Cécile Chaminade Song Recital by Paul Payen: Sans amour; Réve d'un soir; Au firmament; Si j'étais jardinier; Eclair; Tu me dirais. 8.30, Songs by Max Régier. 9.10, Sponsored 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 Records: La ronde des lutins (Kozani); Bella Across the Meadows (Ketelby); La Chasse aux Caillots (Paradis); Roses from the South (Strauss). 8.0, Weather and Press Review. 12 Noon, Gramophone Concert: Minuet chretien (Adam); Noveletta (d'Ambrosio); Clarity (Fauré); Slav Dance (Dvorak-Kreisler); Retour de Vêpres (Busser); Schön Rosmarin (Kreisler); Aimons-nous (Gounod); Jota (Falla); L'air (Ishin); Dance (Kouguell); La Barbe blanche (Hüe); Carnival in Venice (Gemin); Chanson de Barherine (Loret); Spanish Dance No. 5 (Granados); Bonsoir, Madame la Lune (Marinier); Tu n'as jamais compris (Marinkovitch); Ce que disent les Cloches (Massenet); Sonatina for Violin and Oboe (Mihalovitch); Pans angelicus (Franck); Sonata in G (Mozart-Grieg); Elegy (Massenet); Chante, Rossignol (Fijan); Souvenir (Tzerov-Zargavski); Five Poems (Ferroudi); Arabesque No. 1 (Debussy); Soir (Fauré); Chanson Villageoise (Popper); Roussignolet (Despoutrins); Polichinelle (Rachmaninov); Les Amans (Delmet); Valse-Caprice, No. 2 (Philipps); Arioso (Delibes). In the interval at 1.0 p.m., Exchange and Weather. and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Notes. 7.10, Gramophone Records: Spanish Dances (Sarasate); Frisson de Feuilles (Sauer); L'angelus de la Mer (Goublier); Impromptu in A Flat (Schubert); The Silver Ring (Chaminade); Abandoned (Schumann); Melody (Tchaikovsky). 7.50, Commercial Prices and News. 8.0, Pianoforte Recital by Regnaud Wein-gartner. 8.30, News and Weather. 8.40, Review by Paul Reboux. 8.45, Talk and Reading: The Origin of the French Theatre in Canada, Some Canadian Poets. 9.15, Press Review and News. 9.30, Chamber Music on Gramophone Records; Ballad No. 1 in F Minor (Chopin); Fêtes galantes (Debussy); Maudoline (Debussy); Five Mazurkas (Tansman); Six French Songs (Tailleferre); String Quartet No. 2 (Milhaud).

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relay by WSKK 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, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, Press News-Reeler. 11.15, Sports, A Song. 11.30, Pittsburgh Spotlights. 11.45, to 3.0 a.m. (Tuesday), New York Relay. 11.45, Lowell Thomas. 12.0, 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, Guild and Sheffer. 2.0, Sinclair Minstrels. 2.30, Melody Moments. 3.0, Silver Toppers.

PORSGRUND.—See Oslo.

POZNAN

896 kc/s, 335 metres; 1.9 kW.—7.20 p.m., Miscellaneous Items and News. 7.35, Theatre Notes and Programme Announcements. 7.40, See Warsaw. 10.0, Time Signal, Sports and Police Notes. 10.15 (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Bratislava. 3.50, Weather Report. 3.55 to 4.0, Exchange. 5.45, Gramophone Music. 5.55, Hints for the Housewife. 6.5, Agricultural Talk. 6.10, Gramophone Music. 6.15, Talk: Divorce and Separation. 6.25, News in German. 6.30, German Transmission: Talk by Roderich Menzel: Experiences as a Participant in the International Tennis Championship, 1932. 7.0, Chimes and News. 7.10, See Brno. 8.10, See Bratislava. 8.25, See Moravská-Ostrava. 9.0, Time Signal. 9.2, Orchestral Concert of Music by Jan Levoslav Bella. 10.0, Time and News. 10.15, Talk: Creative Art in Czechoslovakia. 10.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—1.0 p.m. (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, 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: The Century of Speed. 7.30 (from Geneva), News. 8.0 (from Geneva), Depuis six mois—One Act Comedy (Mauray). 8.30 (from Lausanne), Programme for the Centenary of L'Ecole normale in the Vaud Canton. 9.30 (from Lausanne), Pianoforte Recital by Olga Daragan. 9.50, News. 10.0 (from Lausanne), Song Recital by Gustave Dutoit (Bass). 10.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Popular Music by the Radio Quartet, with Songs.

RJUKAN.—See Oslo.

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relay by Naples, 941 kc/s, 319 metres; and 2RO, 11,810 kc/s, 25.4 metres, from 5.15 p.m.—12.30 p.m., Gramophone Music. 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 Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Vocal and Instrumental Concert: Paolo Leonori (Cello), Elisa Capolino (Soprano) and Adolfo Facchini (Tenor); 'Cello Solos: (a) Aria, (b) Minuet (Hüré); Soprano Solos: (a) Romance from The Force of Destiny (Verdi), (b) Torna, amore (Buzzi-Peccola); Tenor Solos: (a) Aria from Tosca, and (b) Aria from Turandot (Puccini); 'Cello Solo: Oriental Dance (Rachmaninov); Duet from L'Amico Fritz (Mas-cagni). 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolavoro Notes, Radio Journal, Tourist and Agricultural Reports, and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.5, Gramophone Music. 8.15, Talk. 8.30, Giornale Radio and Sports Notes. 8.45, Concert of Light Music. Talk in the interval. 10.55, 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 Levee Fuller. 9.15, Soloist, from New York. 9.30 to 10.0 (approx.), Radio School of the Theatre. 12.45 a.m. (Tuesday), Stock Reports and Baseball Scores. 1.0, Seconyland Sketch, from New York. 1.30, Felix Ferdinand's Burgomasters. 1.45, Ferde Grofe's Orchestra, from New York. 2.0, A. and P. Gypsies, from New York. 2.30, Horse Sense Philosophy. 2.45 to 3.30, New York Relay. 2.45, Musical Programme. 3.0, Contended Programme. 3.30, Popular Programme, from New York, followed by Programme Resumé.

SCHWEIZERISCHER

LANDESENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; Basle, 1,220 kc/s, 244.1 metres; and Bern, 1,220 kc/s, 245.9 metres.—11.59, Time Signal from Neuchâtel Observatory and Weather. 12 Noon (from Basle), Gramo-

phone Music. 12.30 p.m., Time and News. 12.40 (from Basle), Gramophone Music. 1.25 (from Basle), Time, Weather and Exchange. 1.35, Interval. 5.0 (from Zürich), Fashion Talk for Women. 5.30 (from Berne), Light Music on Gramophone Records. 6.30 till Close Down, Programme from Zürich. 6.30, Talk: Natural Homespun and its Industrial Value. 7.0, Time and Weather. 7.5, Gramophone Music. 7.30, English Lesson. 8.0, Italian Music. 8.30, Talk: Manchukuo. 9.0, News. 9.10, Robi's Verlobung—Comedy (Schmeiter). 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., Folk Music. 5.25, Talk in Norwegian. 5.45, Gramophone Music. 6.45, Interview with Some Delegates to the Twelfth International Congress of History and Art. 7.15, Weather and News. 7.30, Cabaret Programme. 8.15, Talk: Life in Finland. 8.45, Poetry and Music of the Eighteenth Century. 9.45, Weather and News. 10.0 (from Göteborg), Concert by Wertheimer's Orchestra: Overture, Die Fledermaus (Joh. Strauss); Selection from The Flying Dutchman (Wagner); Valse des fleurs (Tchaikovsky); Potpourri (arr. Ottosson); Potpourri of Hungarian Songs and Dances, Hungary (arr. Leopold). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12.15 p.m., Grieg Music on Gramophone Records. 12.45, News. 1.0, Time and Exchange. 1.5, Dance Music on Gramophone Records. 2.0 to 3.30, Interval. 3.30, Orchestral Concert, conducted by Brouillat, relayed from the Casino, Vichy: Overture, Martha (Plotow); An den Frühling (Grieg); Solvieg's Song (Grieg); Ballet Music from Le Miracle (Hüe); Melody; First Movement from The Unfinished Symphony (Schubert); Selection from The Tales of Hoffman (Offenbach); Hydropathen-Walzer (Gungl). 5.0, Gramophone Music. 5.15, Orchestral Concert, conducted by Roskam: Marche française (Filipucci); Waltz, Etincelles (Waldteufel); Minuet (Paderewsky); Overture, Giorlé-Girou (Lecocq); Pianoforte Solo; Selection from Tosca (Puccini-Berghes); Ballet italien (de Bozi). 6.0, Literary Review. 6.15, Review of the Week in German. 6.30, Grieg Concert, conducted by Maurice de Villers: March from Sigurd Jorsalfar; Lyric Suite; Three Norwegian Dances; Peer Gynt Suite. 7.30, Time and News. 7.45, Light Music on Gramophone Records. 8.15, Press Review in German, Lottery Results, and Announcements. 8.45, Concert, relayed from the Casino, Vichy. Soloists: Sotfens (Violin) and Serville (English Horn). Overture, Genova (Schumann); Violin Concerto in E Flat (Mozart); Entr'acte from Act III of Tristan and Isolde (Wagner); English Horn Solo; First Romanian Rhapsody (Enescu); La ville rose (Roussel); Poem, for Violin and Orchestra (Chausson); Symphony, with Organ Accompaniment (Saint-Saëns). 11.15 (approx.), Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relay by Freiburg, 527 kc/s, 570 metres.—12 Noon, Orchestral Concert, conducted by Karl Assmus, relayed from Baden-Baden: Hungarian March (Schubert-Liszt); Overture, Amid Nature (Dvorak); Entr'acte from Rosamunde (Schubert); Ballet Suite (Reger); Selection from Oberon (Weber); Introduction to Loreley (Bruch); Potpourri, Walzertrümpe (Robrecht). 1.15 p.m., Time and News. 1.30, Gramophone Music. 2.0 to 2.15, Programme arranged by the Post Office, with Gramophone Music. 2.30, Spanish Lesson. 3.0 to 3.30, Elementary English Lesson. 4.30, See Munich. 5.45, Talk: Experiences in South-West Africa. 6.10, Legal Talk. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Berlin (Funkstunde). 8.5, Orchestral Concert, conducted by Karl Assmus, relayed from Baden-Baden: Festival Overture (Lassen); Ballet Music from Prometheus (Beethoven); Second Movement from the Symphony from the New World (Dvorak); Waltz from Gipsy Love (Lehár); Triumphant March from Aida (Verdi). 9.15, See Berlin (Deutschland-sender). 10.0, Time and News. 10.45 (approx.), See Leipzig. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.15 p.m., Hawaiian Guitar Solos. 6.30, Operetta Music: Selection from (a) Les Cloches de Corneville (Planquette), (b) Begonia (Pujol), (c) Rose Marie (Friml), (d) Monsieur Beaucaire (Messager), and (e) New Moon (Rom-

berg). 6.45, Music by an Argentine Orchestra. 7.0, Light Music. 7.15, News. 7.30, Extracts from La Péri (Dukas). 7.45, Comic Opera Music: Songs from Mirella (Gounod); Cavatina from Romeo and Juliet (Gounod); Cavatina from The Pearl Fishers (Bizet). 8.0, Military Music. 8.15, Operetta Music: Selection from (a) Vénitienne (Messager), (b) Vilette de Narbonne (Audran), (c) Les Cloches de Corneville (Planquette). 8.30, Orchestral Music. 8.45, Sound Film Music. 9.0, Concert by the Toulouse Symphony Orchestra. In the interval, Light Music. 10.15, News. 10.30, Concert for Listeners in Morocco. 11.0, Light Music. 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Tuesday), Instrumental Solos. 12.15, Orchestral Music. 12.30, 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

273.7 metres; 7 kW. Relay by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—5.10 to 6.0 p.m., Orchestral Concert. 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, Sponsored Concert. 9.15, A Comedy in One Act. 10.0, Chamber 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; 100 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.—3.0, Time and Announcements. 3.20, Gardening Talk. 3.30, Talk. 3.55, Gramophone Concert of Popular Music. 4.35, Programme for Young People. 5.0, Talk: The Symphonies of Brahms and Bruckner. 5.25, Song and Pianoforte Recital, by Anemarie Hönel (Soprano), and Emmy Draxlik: Soprano Solo: (a) Provincial Song, (b) Aus den östlichen Rosen, (c) Stille Liebe, (d) Schneeglöckchen, (e) Die Kartenlegerin; Pianoforte Solos: (a) Chromatic Fantasia and Fugue (Bach), (b) Intermezzo, Op. 118, No. 2 (Brahms). 6.5, Talk: A Walk through the Vienna of the Baroque Period. 6.25, Books of Reference in Connection with the Week's Talks. 6.30, Talk: Modern Ecclesiastical Art. 7.0, Topical Talk. 7.15, Time and Announcements. 7.25, Macbeth—Opera in Four Acts (Verdi), relayed from the State Opera House. In an interval, Announcements. 10.15, Dance Music by the Broadway Boys, relayed from the Café Palmhof.

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., Popular Orchestral Concert, relayed from the Bagatelle Restaurant. 12.25, Polish Press Review. 12.33, Weather. 12.35, Orchestral Concert (cont'd.). 12.55, Radio Journal. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.10, Announcements. 3.15, Gramophone Music. 3.25, Economic Notes. 3.35, Gramophone Music. 3.45, Traffic Report. 3.50, Gramophone Music. 4.0, Concert by the Poznan Opera House Orchestra, relayed from Ciechocinek: Conductor: Tyllja; Overture, Ruy Blas (Mendelssohn); Waltz, Pluie d'or (Waldteufel); Ballet égyptien (Luigini), Selection from Countess Maritza (Kálmán); Ballet Music from Henry VIII (Saint-Saëns). 5.0, Talk in French. 5.15, Song and Pianoforte Recital by M. Pomorska (Soprano) and Mme. Swiecička (Pianoforte); Soprano Solos: Arias from: (a) L'Enfant prodigue (Debussy), (b) Turandot (Puccini); Pianoforte Solos: (a) Theme with Variations (Paderewsky), (b) Impromptu in C Minor (Rozycy), (c) Cracovienne (Niewiadomsky); Soprano Solos: (a) Agnes (Rozycy), (b) Lullaby (Kassern), (c) Song (Nowowiejsky); Pianoforte Solos: (a) Prelude and Humoresque (Wertheim), (b) Serenade (Zarembsky); Soprano Solos: (a) Après un rêve (Fauré), (b) Serenade (Massenet), (c) Pastorale (Bizet). 6.15, Talk on Economics. 6.35, Gramophone Music. 6.55, Military Notes. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Literary Talk. 8.0, Die Bajadere—Operetta (Kálmán). In the intervals: Agricultural Report and Radio Journal. 10.0, Dance Music, relayed from Ciechocinek. 10.25, Sports Notes. 10.35, Weather Report and Police Notes. 10.40, Dance Music, relayed from Ciechocinek (cont'd.).

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 Report, Stock Exchange Quotations and Gramophone Music. 5.0, Programme for Children. 6.40, News. 7.0, Gaelic Reading. 7.15, Poetry Recital by May Pitchford. 7.30, Time Signal. 7.31, Concert of Sinding and Sibelius Music by the Station Orchestra. 8.0, Scandinavian Ballads by Fearoid O Lochlainn. 8.15, Traditional Fiddle Solos by May Kavanagh. 8.30, Irish Music by the Station Orchestra. 9.0, Soprano Solos by Lily Christie. In an interval at 9.10, Orchestral Music. 9.45, Sponsored Programme. 10.45, News, Weather and Close Down.

BARCELONA

EADJ, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Selection from Don Giovanni (Mozart); Piece romantique (Chaminade); Gavotte (Chaminade); Aria from Louise (Charpentier); Serenade (van den Eynde); Sigmund's Love Song from The Valkyrie (Wagner); Selection from A Masked Ball (Verdi). 8.0, Request Gramophone Music. 8.30, Exchange and Talk. 9.0, Gramophone Music, followed by News. 10.0, Chimes, Weather, Messages for Seamen and Exchange. 10.5, Sponsored Programme. 10.30, Concert by the Station Orchestra: Catalan Symphony (Ribera); Nocturne (Field); Ball dels gegants (Sancho Marraco); Violin Solo: Ballet Music from Sylvia (Debussy); Waltz in A (d'Ambrósio). 11.15, Concert from the Café Español. In the interval at 12 Midnight, News. 1.0 a.m. (Wednesday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes, Tourist Talk, and Dopolavoro Announcements. 8.20, Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.40 (approx.), Quartet Concert: Overture, Le trane deluse (Cimarosa); Serenata galante (Amadei); Prelude to Act II of I goliardi (Cassini); Pleniunio (Del Buono); Suite, Spagua (Giangreco); Selection from Ernani (Verdi); Lento gentile (Gargano); Romance (Amadei); Prelude to Act IV of La Traviata (Verdi); Intermezzo, Mormorio del mare (Salvetti); Serenata, C'era la luna (De Martino); Popular Spanish Dance (de Riez). In the interval, Literary Notes. 10.30, Gramophone Music. 10.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—6.55 p.m., Time Signal, Programme Announcements, and Gramophone Music. 7.20, Reginald Howard sings his own Songs: (a) Fantasy in Bells, (b) Where do I want to go, (c) Chinese Suite, (d) All change for Happiness, (e) That's all that matters to me. 8.0, A Radio Play. 8.30, European Concert relayed from Berlin (Deutschlandsender). 10.0, Time, News, and Gramophone Music. 10.40, Dance Music from the Ratnicki Dom Restaurant.

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—1.45 p.m., News. 2.0, Gramophone Concert: Pianoforte Solos by Sergei Rachmaninov: (a) Etude tableau in A minor (Chopin); (b) Waltz in C minor (Chopin); (c) Cello Solos by Pablo Casals: (a) Nocturne in E flat (Chopin); (b) Tondalla (de Laseina); Soprano Solos by Mafalda Salvatini: (a) Aria from Tosca (Puccini); (b) One Fine Day from Madame Butterfly (Puccini); Soprano Solos by Elisabeth Rethberg: (a) Aria from Carmen (Bizet); (b) Aria from Cavalleria rusticana (Mascagni); Violin Solos by Georg Kulenkampf: (a) Humoresque (Dvorak); (b) Hungarian Dance in G minor (Brahms); Pianoforte Solos by Claudio Arrau: (a) Carmen Fantasia (Busoni); (b) Etude in E (Chopin). 3.0, Talk for Young People: A Visit to the Karl May Museum. 3.30, Weather and Exchange. 3.45, Political Dialogue. 4.0, Concert from Leipzig. 5.0, Talk for Women: The Chicago World Fair. 5.20, Chamber Music by Beethoven and Brahms: Part I, Pianoforte Solos (Brahms) by Willy Stehl; Ballad in G minor; Intermezzo in E flat minor; Rhapsody in B minor. Part II: Pianoforte Trio in B flat, Op. 11 (Beethoven). 6.0, Poems. 6.5, Talk: A Criticism of the German Middle Classes. 6.30, Political Press Review. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, To-day's Motto. 8.5, A Political Cabaret. 8.30, European Concert by the Berlin Philharmonic Orchestra, conducted by Erich Kleiber: Two Preludes to Palestina (Pfitzner); Wieland der Schmied (Haugesegger); Alpine Symphony, Op. 64 (R. Strauss). 10.0, News. 10.25, Radio Report of the Swimming Championships at the International University Sports in Turin (on Gramophone Records). 10.45, Weather. 11.0, Orchestral Concert of Modern Italian Music. 12.30 a.m. (Wednesday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.35 p.m., Concert by the Station Orchestra, conducted by Ilams Steinkopf. 5.15,

TUESDAY

SEPTEMBER THE FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON
Regional
Midland Regional
Scottish Regional
Belfast

ATHLONE
7.31 p.m. Concert of Sinding and Sibelius music, by the Station Orchestra.

BARCELONA
7.0 p.m. The Station Trio.

BERLIN
(Deutschlandsender)
8.30 p.m. European concert by the Berlin Philharmonic Orchestra, conducted by Erich Kleiber.

BRESLAU
5.55 p.m. Pianoforte recital; Music of the Baroque Period.

COPENHAGEN
7.30 p.m. The Tivoli Orchestra and soloists.

HAMBURG
10.30 p.m. The Philharmonic Orchestra.

HILVERSUM
7.40 p.m. Concert by the K.R.O. Orchestra.

PARIS
8.30 p.m. Concert by the Station Orchestra.

STOCKHOLM
8.0 p.m. "Pictures from Italy and Spain," concert, by the Station Orchestra.

STRASBOURG
6.30 p.m. Orchestral concert, conducted by Maurice de Villers.

ABROAD

Promenade concert from Queen's Hall, London.

"Strife," a drama, by John Galsworthy.

Band programme.

Orchestral concert.

Orchestral concert.

Concert by the Berlin Wireless Choir, conducted by Heinz Karl Weigel: Soloist: Alexander Ecklebe (Pianoforte); Gott im Ungewitter—for Mixed Choir and Pianoforte (Schubert); Two Pieces for Women's Choir and Pianoforte: (a) Triolet, (b) Tamburinschlägerin (Schumann); Hunting Chorus from Rosamunde (Schubert), for Mixed Choir and Pianoforte. 5.30, Summer in the Village—a Radio Sequence. 6.0, Review of Social Politics. 6.15, Review of Books. 6.40, The Funkstunde informs its listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Lottery Announcements. 8.5, Report on Gramophone Records. 8.30, European Concert relayed from Berlin (Deutschlandsender). 10.0, News. 10.30 (approx.). See Hamburg. In the interval from 11.0 to 11.5, Talk by the Chief of Police. 12 Midnight, Close Down.

BERNE.—See Schweizerischer Landessender.

BEROMÜNSTER.—See Schweizerischer Landessender.

BODEN.—See Stockholm.

BODO.—See Oslo.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—6.30 p.m., Radio Journal. 7.40, Exchange and News. 7.50, Gramophone Music. 8.30, See Paris (Eiffel Tower).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—6.5 p.m., Jan Beila Concert for his Ninetieth Birthday: Songs; Pianoforte Sonata. 6.55, Report. 7.0, See Prague. 8.55, See Brno. 9.25, See Moravská-Ostrava. 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.—1.0 p.m., Weather. 1.2 (approx.), Gramophone Concert: Overture, Die Zwillingsschürder (Schubert); Minuet from the Quartet No. 6 (Dittersdorf); Guitar Solo, Fandangullo (Turina); Selection from Der Rosenkavalier (R. Strauss); Fantasia in D Minor for Pianoforte (Mozart); Valse Serenade (Tchaikovsky); Waltz from Intermezzo (R. Strauss); Concert Waltz, Op. 47 (Glazunov); Three German Dances, Nos. 6, 4, and 2 (Haydn). 1.45, Time and News. 2.5, Lieder Recital by Lotte Roschütz (Soprano); Songs (Grieg): (a) An das Vaterland, (b) Hoffnung, (c) Eros. Songs (Reger): (a) Ohn in den Birnenbaum, (b) Kleine Marie, (c) Ich werde Soldat, (d) Das Blatt im Buche, (e) Herzens-Tausch, (f) Mittag, (g) Wenn die Linde blüht; Songs (R. Franz): (a) Wald-Lied, (b) Aus meinen grossen Schmerzen, (c) Willkommen, mein Wald, (d) Vöglein, wohin so schnell. 2.35, Gramophone Concert.

3.0, Market Prices. 3.15, Review of Books. 3.35, Programme for Children. 4.0, Concert by the Station Orchestra, conducted by Bruno Janz: Overture, Nachklänge aus Ossian (Gade); Selection from Elektra (R. Strauss); Selection from William Ratcliff (Mascagni); Suite from American Forest Idylls (MacDowell); Selection from Das Blumenwunder (Künneke); Operetta Potpourri (Petras); Diavolella (Lindemann); Serenade from Fridericus Rex (Roland); Drömmenbilder (Luntye); Waltz, O schöner Mai (Joh. Strauss); March, Preussens Gloria (Piefke). 5.30, Market Prices. 5.32 (approx.), Talk: Tales and Poems about Danzig. 5.55, Pianoforte Recital—Music of the Baroque Period. 6.25, Talk: The Basis of German Socialism. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Reminiscences of Old Soldiers of the National Socialist Movement. 8.30, European Concert relayed from Berlin (Deutschlandsender). 10.0, Austria. . . . 10.20, Time and News. 10.40, Talk: Productions at the Breslau Municipal Theatre. 10.55, Political Press Review. 11.15, Light Music and Dance Music from the Admiralsbalast. 12.30 a.m. (Wednesday), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.15 p.m., Talk: Feminine Influences on the Lives of Great Men. 6.25, German Transmission: News. Talk on Books for Young People and Agricultural Report. 7.0, See Prague. 8.55, A Tragedy (Karl Stransky). 9.25, See Moravská-Ostrava. 10.0, 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 Orchestra, conducted by Pierre Leemans: Overture, The Thieving Magpie (Rossini); Suite, At the Circus (Armandola); Serenata (Cacciali); Selection from (Tigay Love (Lehar); Si vous l'aviez compris (Deiza); Waltz, Give me a moment, please (Whiting-Harting); Selection from Tromblez-moi (Moretti). 1.0 p.m., Le Journal Parlé. 1.10, Acta III and IV of André Chenier—Opera (Giordano) on Gramophone Records. 5.0, Concert by the Station Symphony Orchestra, conducted by Arthur Meulemans: Overture, Masaniello (Auber); Humoresque (De Greef); Minuet from Orpheus (Gluck); Mardi gras (Dancan); Selection from Lika (Van Oost); The Blue Danube (Strauss); Norwegian Wedding Procession (Grieg). 6.0, Talk: Dancing in Belgium. 6.15, Gramophone Records: Quartet No. 3 (Delavray); Nocturne (Schelling). 6.30, Concert by the Small Station Orchestra, conducted by Pierre Leemans: Overture, Juro (Guillénym); Russian Song (Afkimenko); Dance of the Elves (Henriques); Pianoforte Solo: Hungarian Rhapsody No. 12 (Liszt); Serenade

(Rachmaninov); Cramignon (Gilson); Selection from The Grand Duchess of Gerolstein (Offenbach). 7.15, Protestant Address. 7.20, Art Notes and Review for Women. 8.0, Gramophone Music. 8.15, Pierrot-Narcisse—Scene (Albert Giraud). 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.0, Le Journal Parlé. 10.10, Gramophone Concert.

BRUSSELS (No. 2)

N.I.R., 837 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: Festival Overture (Lentner); Cantilène (Goffin); Serenade (de Boeck); Selection from La Navarraise (Massenet); Serenade, Les Trevoirs de Columbine (Drigo); Cramignon (Gilson); Torero Ramon (Kostal). 2.0, Report on the Cycle Races at Brasschaet. 6.30, Extracts from The Mikado—Opera (Sullivan) on Gramophone Records. 7.0, Gramophone Music. 7.15, Talk. 7.30, Talk: Tunnels under the Escant. 8.0, Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloist: Nancy Vellaz (Songs). Overture, William Tell (Rossini); Tarantella, La Inna (Rossini); Songs: (a) La Vita Fugge (Pizzetti); (b) Due Sonetti del Berni (Malipiero); (c) Io sono la Madre (Respighi); Prelude and Sicilienne from Cavalleria rusticana (Mascagni); Selection from The Daughter of the Regiment (Donizetti), followed by a Sketch. 9.0, Concert by the Radio Orchestra, conducted by Franz André. Soloist: Nancy Vellaz (Songs). March, Granada (José); Waltz, Autumn (Albeniz); Rondala espagnola (Falla); Five Songs (Falla); Aragonese (Falla); Escapes (Ibert); Waltz (Turina); The Student Passes By (Ibañez). 10.0, Le Journal Parlé. 10.10, Gramophone Concert.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Motoi Orchestra. In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Gramophone Music. 7.40, Educational Talk. 8.0, Song Recital. 8.20, Concert by the Station Orchestra: Overture (Rust); Ballet Suite from Kasya (Delibes); Selection from The Czarevitch (Lehar); Selection from Viktoria and her Hussar (Abraham); Waltz, Estudiantina (Waldteufel); March, Frühlingskinder (Blankenburg). In an 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 8.30 p.m. till Close Down.—5.0 p.m., Talk. 5.30, Recital of Viennese Songs with Schrammel Accompaniment. 6.10, Reading. 6.30, Gramophone Music. 7.30, Talk. 8.0, Guitar Recital by Nicolaus Fritz. 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.0, News, followed by Music by the Toll Cigány Band. 11.0, Music by the Lantos Dance Band, relayed from the Hotel Royal, with Karl Vajda (Popular Songs).

CASSEL.—See Frankfurt.

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. Relayed by Kalundborg, 220 kc/s, 1,153.8 metres.—12 Noon, Time Signal and Chimes from the Town Hall. 12.5 p.m., Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. 2.0 to 3.0, Interval. 3.0, Concert by Louis Prell's Instrumental Ensemble: Soloist: André Bech-Nielsen (Songs). 5.0, Programme for Children. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, Elementary German Lesson. 6.45, Weather. 6.54, Wireless Notes. 7.0, News. 7.30, Concert by the Tivoli Concert Orchestra and Soloists: Conductor: Schmedler-Petersen; Overture and Duet from The Daughter of the Regiment (Donizetti); Symphonic Poem, Phaeton (Saint-Saëns); 'Ceio Solos: (a) Minstrel's Song (Glazunov); (b) Sicilienne (Faure); (c) Spanish Dance (Granados-Kreisler); Coronation March from Fête galante (Schierbeck); Birnefest i Tivoli (Gunder Knudsen). After the Programme, Weather Report. 8.30, Talk: The Warm Springs of Iceland. 9.0, Concert (cont.): Overture, Rosamunde (Schubert); Songs (Schubert): (a) Dem Unendlichen, (b) Ariette der Chundine, (c) Sprache der Liebe, (d) Seligkeit; Violin Solos: (a) Three Dances from The Damnation of Faust (Berlioz); Andante and Rondo in D (Mozart); Elizabeth's Aria from Tannhäuser (Wagner); Entry of the Gods into Valhalla from The Rheingold (Wagner); Leonora Overture No. 3 (Beethoven); Concerto in A Minor for Four Pianofortes and Orchestra (Bach); Variations on a Theme of Mozart with Flute Obligato (Drouet); Overture, Rienzi (Wagner). In an interval at 10.10, News and Reading (Zangwill). 11.30 (approx.), Close Down.

CORK.—See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—7.5 p.m., Talk: Old Cracow. 7.20, Miscellaneous Items and News. 7.35, Programme Announcements. 7.40, See Warsaw. In an interval at 10.25, Sports Notes. 11.0 (approx.), Close Down.

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 a.m., Happy Hour. Part I, Orchestral Music: Signature Tune; Potpourri of Musical Gems (arr. Sialmar); Extracts from Nila (Delibes); Balalaika Music: Caucasian Gipsy Songs; Modern Conception of Russian Melodies (di Filippi); Black Eyes (Ferraris); Once on the Rhine (Ostermann); Humoresque (Dvorak); Around the Volga (Borchert); Part II, Dance Music: Have you had a good day to-day?; Hold Me; I wish I had Wings; You're mine, you; There's a Cabin in the Pines; Jog Along; Dancing Butterfly; This lovely Rose; Out in the Open; Signature Tune. 12.0 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, Military Band Concert for Torquay and Exeter Listeners: Signature Tune; The Night by the Sea; Brahman (Dunn); The Three Musketeers; Song: In an Old Fashioned Town (Squire); Voice of the Gulls; In a Monastery Garden (Kettelbey); Song: Walt (d'Hardelot); The Mill in the Black Forest (Eilenberg); Colonel Bogey (Alford). 5.30, Light Music for Plymouth and Devonport Listeners: I do like to be beside the Seaside (Glover); The Old Spinning Wheel (Hill); Song: Letting in the Sunshine (Gay); Pan and the Wood Goblins (Rathke); In the Valley where the Bluebirds sing (Salman); Song: Hold Me (Schuster); Dream of the Ocean (Gungl); In Tulip Time beside the Water Mill (Ailbott); Signature Tune. 6.0, French Programme. 10.0 (approx.) till Close Down, Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune; Bells of Normandy; One hour with you; My wishing song; All over Italy; New Kinda Blues; My Darling; One little word led to another; My Sunny Monterey; How deep is the Ocean?; Sambrosina; Blue; Arm in Arm; I'm telling the World she's Mine; Manhattan; Just a little closer; How are you?; Heavenly Night; As long as you're there; Paradise; Signature Tune. 11.0, Sound Film Music: Signature Tune; Sittin' in the Dark; Extracts from City Lights; You are my Heart's Delight (Lehar); Good Friends (Heymann); Selection from Sous les toits de Paris (Moretti); Just once for all time (Leigh); Selection from The Big Pond (Fain); Cuban Love Song (Fields); Extracts from The Gold Diggers of Broadway (Dubin). 11.30, Club Concert for Crewe Listeners. Part I, Orchestral Music: Signature Tune; The Chum Song; Overture, Die Fledermaus (Joh. Strauss); Mignonne (Friml); The Driver of the 8.15 (Longstaffe); Selection from Patience (Sullivan); The Wheelbarrower's Song (Wolsey Charles); Suite, Americana (Thurman); Xylophone Solo: Spanish Dance (Moskowsky); Intermezzo, Liebesfreud (Kreisler). 12.5 a.m. (Wednesday), I.B.C. News in English. 12.10, Club Concert. Part II: Rocky Road (Gibbs); I wanna count Sheep (Young); Sadie the Shaker (Miller); Crying and sighing (Nesbitt); New Kinda Blues (Lawrence). 12.30, Dance Music (Electrical Transcriptions); Sweetheart; What did I get in return?; Can't we meet again?; Hold up your Hands; Sloppy Joe; If I ever get a Job again; Rosa Mia; Jungle Nights in Harlem; Signature Tune; Bells of Normandy; Millie Rock-a-bye; Hiawatha's Lullaby; Wear a great big smile; You don't understand; Don't be late in the Morning; Sweep; When my little Pomeranian; Peter, Peter; Maybe I love you too much; One Tiny Tear; It's within your power; The Shadow Waltz; Moon Song; I've got to sing a torch Song; Pickaninnies' Heaven. 1.57, I.B.C. Good-night Melody. 2.0 (approx.), 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, Exchange. 6.0, Reading (Heinz Hassmann). 6.30 (from Cassel), Reading (Martin Otto Johannes). 6.45, Review of the Day's News. 6.50, Time, Programme Announcements, Weather and Exchange. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Programme to be announced. 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.20 (approx.), Time and News. 10.30 (approx.), See Hamburg. 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.—5.30 p.m., Variety Programme. 6.25, Ger-

SEPT. 5th

TUESDAY

continued

man Naval Heroes—A War-time Raid with the Seadler (Captain Karl Kirchheiss). 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Military Band Concert, relayed from the Municipal Park: March, The Spirit of the Hansa (Dreyer); Two Marches (Schroeder); Hungarian Rhapsody (Reindell); March (Blumer); Waltz, Morgenblätter (Strauss); Potpourri, Aus dem Militärleben (Reckling); March, Märkische Heide (Lincke); March (Meissner). 9.0, Concert from Berlin (Deutschlandsender). 10.0, News. 10.20, Topical Talk. 10.30, Concert by the Hamburg Philharmonic Orchestra, conducted by Gerhard Maas: Prelude to Act III of Tannhäuser (Wagner); Turkish March (Mozart); Ballet Music from Ueber allen Zaubern Liebe (Lassen); Waltz (Busoni); Overture, The Arabian Nights (Strauss); Caucasian Suite (Ippolitov-Ivanov); Selection from Der Feldprediger (Müllacker); Waltz, Accelerationen (Strauss); March, Old Comrades (Telke).

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: Extracts from the Capriccio italiano (Tchaikovsky); Die Lerche (Bischoff); Solveig's Song (Grieg); Aria from The Tales of Hoffmann (Offenbach); Song of the Toreador from Carmen (Bizet); Two Arias from The Magic Flute (Mozart); Frühlingserwachen (Bach); Theme and Variations (Sor); Selection from The Bohemian Girl (Balfe); Donauwellen (Ivanovici); March, Feuer los (Holzmann). In the intervals at 1.20 and at 2.0, News. 3.0, Agricultural Prices and Exchange. 3.30, Musical Games for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le puits d'amour (Balfe); Waltz, Märchen aus dem Orient (Joh. Strauss); Melody (Sullivan); Water Sprites (Kettelbey); Selection from La Dubarry (Camussi); Overture (Blume-Kwitek); Hurra! die Musik kommt (Zimmer). 5.15, Talk: Leaders and the Masses in Ancient and Modern Germany. 5.45, Haydn's Settings of Scottish and Welsh Folk Songs—Recital by Charlotte Gleisner, arranged for Voice, Violin, Cello and Piano/forte Accompaniment. 6.25, Talk on Sickness Insurance. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Weather and News. 8.5, Talk: The New German Conception of History. 8.30, European Concert, relayed from Berlin (Deutschlandsender). 9.5, Variety Concert by the Small Station Orchestra. 10.0, Political Press Review, Weather and News.

HILVERSUM

Announced HILVERSUM, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert by the K.R.O. Orchestra, conducted by Lustenhouwer. 1.25 p.m., Interval. 1.40, Programme for Women. 2.40, Gramophone Music. 3.25, Song Recital by de Leeuw (Baritone). 4.0, Indian Love Lyrics (Woodforde-Finden). 4.30, Gramophone Music. 3.55, Recitations. 4.10, Song Recital (contd.). Letzter Frühling (Grieg); Beim Sonnenuntergang (Grieg); Ich liebe dich (Grieg). 4.25, Gramophone Music. 4.40, Concert by the K.R.O. Sextet: Turkish March (Mozart); Serenata (Braga); Potpourri of Strauss Waltzes (H. Weber); Extase (Ganne); Potpourri, From A to Z (Geiger); Le pas des Fleurs (Delibes); Gramophone Records; Sevilla Alfonso; In Gedanken versunken (Schnelder-Bobby); Selection from Il Trovatore (Verdi); My Home, my Paradise (Lohr); Idylle passionnelle (Razigade); Finales. 6.40, Police Notes. 6.55, Gramophone Music. 7.5, Two Talks. 7.40, Concert by the K.R.O. Orchestra, conducted by Gerritsen: Overture, L'epreuve villageoise (Grieg); Scenes napolitaines (Massenet); Valse fantastique (Glazunov). 8.10, News. 8.15, Song Recital by Funke-Küppers (Bass). 8.25, A Radio Sketch. 8.45, Concert (contd.): Selection from Tiedland (d'Albert); Selection from Die Königskinder (Humperdinck); Selection from Lohengrin (Wagner); Selection from Ariadne auf Naxos (R. Strauss). 9.25, Song Recital (contd.). 9.40, Een Pandoor Avondje—Radio Play in Two Acts (Rentmeester). 10.0, Concert (contd.): Selection from Die Puppenfee (Bayer); Wiener Schwalben (Schlogel); Selection from The Bayadere (Kalmann); Schatzwalzer (Strauss). 10.40, Gramophone Concert. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—11.10 a.m., Organ Recital. 11.40, Concert by the Wireless Orchestra, conducted by de Beer. Gramophone Music in the intervals. 1.55 p.m., Piano/forte Recital: Sonata, Op. 100 (Beethoven); Feu d'artifice (Debussy); L'isle joyeuse (De-

bussy). 2.25, Gramophone Music. 2.40, Popular Concert by a Concertina Quartet. 3.25 to 3.40, Interval. 3.40, Gramophone Music. 4.10, Concert by a Children's Choir. 4.40, Programme for Children. 5.10, Gramophone Music. 6.10, Talk. 6.40, Concert by the Wireless Orchestra, conducted by Nico Treep. 7.10, Talk on Cuba. 7.40, Time Signal, Weather and News. 7.45, Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist: Coha Rijnke (Piano/forte); Overture, The Magic Flute (Mozart); Piano/forte Concerto in G, No. 4 (Beethoven); Ballet Music from Isolde (Messager). 8.40, A Radio Play. 9.20, Dance Music by the Kovacs Lajos Band. 9.55, Gramophone Music. 10.10, Dance Music by the Kovacs Lajos Band. 10.40, News. 10.50, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, Financial Notes, and News. 8.10, Agricultural Report. 8.20, Press Review. 8.30, Radio Concert. 8.45, News and Weather. 9.0, Concert by the Casino Orchestra, conducted by Scotto, relayed from Monte Carlo.

KALUNDBORG.—See Copenhagen.

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.20 p.m., Announcements and Gramophone Music. 7.35, Sports Notes. 7.40 till Close Down, See Warsaw.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LAHTI

167 kc/s, 1,796 metres; 40 kW. Relayed by Helsinki, 815 kc/s, 368.1 metres.—5.0 p.m., Concert by the Station Orchestra, conducted by Erkki Linko: March, Attila (Fucik); Finnish Dances (Faltin); Finnish Melody for Wind Instruments (Ekman); Waltz, Tout Paris (Waldteufel); Melody (Grieg); Overture, The Thieving Magpie (Rossini). 5.50, News in Finnish. 5.59, Time and Weather. 6.10, News in Swedish. 6.15, Agricultural Talk. 6.40, Piano/forte Recital. 7.10, Talk. 7.35, Humorous Items. 8.0, Quartet Concert: String Quartet for Voices Intimae, Op. 56 (Sibelius); Suite for String Quartet (Cyril Scott). 8.45, News in Finnish. 9.0, News in Swedish. 9.10 (approx.), Part Relay of the European Concert from Berlin (Deutschlandsender).

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Concert by the Münster Rosamund, conducted by Jochem: Overture, Rosamund (Schubert); German Dances (Reger); Romantic Waltz (Heinecke); Lehar Operetta Potpourri (Geiger). 12.50 p.m., Announcements. 1.0, Orchestral Concert, conducted by Eysoldt: March, Im Heideglanz (Lehnert); A German Waltz (Düppen); Overture, Boccaccio (Suppé); Ballad (Mauz); Extracts from Tiedland (d'Albert); Melody (Czibulka); Wiegeli (Clotteta); Spanish Rhapsody (Chabrier); Potpourri, Echo der Welt (Zimmer). In an interval at 2.0 (approx.), Announcements. 3.0, Programme for Children. 3.30, Economic Notes and Time Signal. 3.50, Reading (Jakob Schaffner). 4.20, Reading (Zingsheim). 4.30, Reading of Ballads by Goethe, Uhland, Schiller, Strachwitz, Liliencron and Eichendorff. 4.50, Political Address. 5.0, Quintet in E Flat, Op. 44 (Schumann) on Gramophone Records. 5.30, Talk: Workmen's Dwellings at the Talbot Works in Aachen. 5.45, Italian Lesson. 6.0, Concert by the Fröhliche Fünf. 6.45, Announcements. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Announcements. 8.5, Reading (Heinrich Lersch). 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.15, News. 10.35, Review of the Week.

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 by the Dulle Orchestra, conducted by Idille. 4.0 (from Dresden), Concert by the Dresden Soloist Ensemble: Extracts from the String Quartet, Op. 1, No. 4 (Haydn); Extracts from the Koveletten for Piano/forte, Violin, and Cello. Scenes pittoresques (Massenet); Extracts from the Suite for Cello and Piano/forte (Fuchs); Spanish Airs, Sevillana, Op. 63 (Niemann); Two Viennese Waltzes (Fuchs); Romanco for Violin and Piano/forte (Svendsen); Selection from Doktor Eisenhart (Zichner); Extracts from the Suite Wanderer (Krumpholtz); Overture, Die Felsenmühle (Reissiger). In an interval at 5.0, Reading (Rudolf Fischer). 5.50, Announcements. 6.0, Talk for Parents. 6.30, Report on the Leipzig Autumn Fair. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0 (from Dresden), Variety Concert. 9.0, Ivan Turgenyev Memorial Programme for the Fiftieth Anniversary of his Death. 9.30, Dance Music. 10.20, News. 10.35 (approx.),

Concert by the Genzel Quartet and Soloists. 12 Midnight (approx.), Close Down. LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Concert by the Station Orchestra. 8.0, Talk: America. 8.30, European Concert from Berlin (Deutschlandsender). 10.30, Weather and News. 11.0 (approx.), Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Belgian Programme. 7.30 p.m., Symphony in D Minor (César Franck), on Gramophone Records. 8.15, Concert of Belgian Music. 8.50, News in French. 9.0, Song and Violin Recital by Mme. Grosfils-De Cuyper (Soprano) and Feltgen. 9.50, News in German. 10.0, Variety Music. 10.25, Dance Music.

LWOW

738 kc/s, 381 metres; 16 kW.—6.35 p.m., Song Recital by Francoise Platonowa (Soprano): Aria from The Countess (Moniuszko); Aria from Die Loten Augen (d'Albert); Elsa's Dream, from Lohengrin (Wagner); Ständchen (R. Strauss); Laut pritanlere (Rachmaninov); Se fossi (Quaranta); Je sais (Niewiadomski). 7.5, Gramophone Music. 7.20, Announcements and Gramophone Music. 7.35, Announcements. 7.40, See Warsaw. 10.40, Gramophone Music.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange, Radio Journal and Request Gramophone Records. 8.30, Talk by Joaquin España Cantos and Request Gramophone Records (contd.). 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time, and Topical Review. 11.20 (approx.), Maruxa—Opera (Vives) on Gramophone Records. 1.15 a.m. (Wednesday), Topical Review. 1.30, Chimes and Close Down.

MADRID

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

MALMO.—See Stockholm.

MILAN

VIGENTINO; 662 kc/s, 453.2 metres; 4 kW.—8.35 p.m. (approx.) till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 p.m., Concert by the Station Orchestra, conducted by Jan Plichta. 3.50-4.0, See Prague. 5.45, Gramophone Music. 5.55, See Prague. 6.5, Talk: Travellers' Tales. 6.15, See Brno. 7.0, See Prague. 8.55, See Brno. 9.25, Piano/forte Cycle, Op. 8 (Milan Balcar), by the Composer. 10.0, See Prague. 11.0 (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—11.45 a.m., Weather. 2.45 p.m., Weather. 3.0, Vocal and Instrumental Concert. Music by Chopin, Pöpper, Krein, Paganini, Kreisler, Rachmaninov, and Glazunov. 3.55, Time Signal. 4.0, Talk. 4.30, Literary Programme—Recent Soviet Literature. 5.30, Choral and Orchestral Concert. 6.30, Light Music and Dance 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 Kaiserstautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.—12 Noon, Orchestral Concert. 1.15 p.m., Time, Weather and News. 1.30, Gramophone Concert: Minuet (Boccherini); Waltz from Der Rosenkavalier (R. Strauss); Waltz from the Fifth Symphony (Tchaikovsky); Russian Waltz (Mahar); Trompetenländer. 2.0, Time, Weather, News, Programme Notes and Exchange. 2.20 (from Nürnberg), Song and Piano/forte Recital by Ernst Niedermeyer (Tenor), Friedl Curwy (Soprano) and Alfred Waig (Piano/forte): Tenor Solos: (a) Drei Wanderer (Herrman); (b) Der Hidalgo (Schumann); Theme and Variations in F Sharp Minor, Op. 72 (Glazunov); Five Songs for Soprano: (a) Schöne Freunde, (b) Marienwurmchen, (c) Dein Angesicht, (d) Lied der Braut, (e) Die Soldatenbraut. 3.0, Talks for Women. 3.55, Weather and Market Prices. 4.5, Talk: Hunting the Chamois in Buchtesgaden. 4.30, Concert from Frankfurt. 5.45, Hate and Love in the Animal World—Some Observations. 6.5, Folk Song Recital. 5.25, Dialogue on Marriage. 6.45, Time, Weather and Agricultural Prices. 7.0, Transmission for all German Stations, relayed from Stuttgart. 8.0, Concert by the Station Orchestra. Soloists: Lotte Theile (Soprano) and Willy Stühaut (Violin). March, Bavaria (Kozak); Der Jäger aus Kurpfalz (Hindemith); Busserli-Walzer (Lanner); Soprano Solos: (a) Faust Fantasia for Violin (Wieniawski); (b) Song from Die Fledermaus (Joh. Strauss); (c) Song from Wiener Blut

(Joh. Strauss); Waltz for Choir and Orchestra, Am Wörthersee (Komzak); Selection from Firenze ridente (Raffaelli). After the Concert, Patriots and Participants—Radio Picture (Czibulka). 9.10, Austria. 10.20, Time and News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres. 5.0 p.m., Concert of Light Orchestral Music from the Lyche Restaurant. 6.0, Talk for the Housewife. 6.45, Accordion Recital. 7.0, Advertising Notes. Weather and News. 7.30, Medical Talk. 8.0, Time Signal. 8.2, Concert by the Station Orchestra, conducted by Hugo Kraumm; Suite, Turandot (Atterberg); Two Pieces (Gyldmark): (a) Albumblatt, (b) Serenade; Oriental Sketch (Kristoffersen); Serenade and Ballad from the King Christian Suite (Sibelius); Suite (Teilmann); Marche grotesque (Sinding). 9.10, Talk on Turgeniev, and Reading from his Works. 9.40, Weather and News. 10.0, Topical Talk.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopplavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Il diavolo nel campanile—Opera in One Act (Adriano Luaili). 9.30, Socrate immaginario—Musical Comedy (G. Paisiello). In the interval, Talk. 10.55, News.

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 Notes. 7.0, Le Journal Parlé. 8.30, The Speckled Band—Play (Conan Doyle).

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 40 kW.—7.0 p.m., Piano-forte Recital by Edith Gorenstein: Toccata and Fugue in D minor (Bach); Polonaise Fantasia in A flat (Chopin). 7.15, Le Journal Parlé. 7.30, Concert of Scandinavian Music. 8.30, Concert by the Station Orchestra; Soloist, Mme. Doniau-Blanc (Songs); Overture, La Hussarde (Fournier); Waltz, Tendresse (Waldteufel); Pastorale and Dance from La Tasse (Godard); Song, Amours d'hiver; Mazurka, Tarass-Boulba (Marcel-Samuel-Rousseau); Selection from Les cent Vierges (Lecocq); Second Suite, Ballet égyptien (Luigini); Three Songs (Gaubert); Entr'acte and Air from The Pearl of Brazil (David); Andante and Minuet from Ariane (Massenet); Airs (Büsser) from (a) La Palomina, (b) Rosées (Büsser); Selection from L'Africaine (Meyerbeer); Sérénade mélancolique (Lachaux); Marche bohémienne (Filippucci). 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 Records: Clavelitos (Valverde); After the Mazurka (Selling); Le Credo de Paysan (Goublier); Mossotis (Heraux). 8.0, Weather and News. 12 Noon, Gramophone Concert; Part I, Opera Music: Overture, Gwendoline (Chabrier); Aria from Herodiade (Massenet); Aria from Lakmé (Delibes); Melody from Sigurd (Reyer); Te Deum, from Tosca (Puccini); Air from Maou (Massenet); Il est des musulmans, from Marouf (Rabaud); Sophie's Aria, from Werther (Massenet); Part II, Operetta Music: Selection from Miss Decima (Audran); Melody from Brummel (Hahn); Invocation à Venus, from La belle Hélène (Offenbach); Song from Le petit Duc (Lecocq); Air from La Mascotte (Audran); Selection from Les Vingt-huit Jours de Clairette (Tavan); Song from Les Cloches de Corneville (Planquette); Waltz from Les Salimbanques (Ganne); March from Ciboulette (Hahn); Part III, Light Music: Pierrot galant (Chillemout); Melody (Coslov-Harling); Mandoline (May); Wedding of the Painted Doll (Brown); Siempre (Bianco); Air (Abraham); This is Montparnasse (Heimtz); Love Song (Bixio); Amorette-tanz (Gundel); A la Godille (Hoorebeck); Part IV, Symphony Music: Phaeton (Saint-Saëns); Prelude à l'après midi d'un Faune (Debussy); Extract from Daphnis and Chloé (Ravel); Suite, Namouna (Lalo). In the intervals at 1.0 p.m., Exchange, News, and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Notes. 7.10, Gramophone Music: Fantaisie Impromptu (Chopin); Der Nussbaum (Schumann); Selection from Il Trovatore (Verdi); Suite in F (Roussel); Hungarian Rhapsody (Liszt); Valse Caprice (Rubinstein). 7.50, Commercial Prices and News. 8.0, Programme from Paris (Eiffel Tower).

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XX on 48.86 metres and 25.27 metres.—7.30 p.m., KDKA Home Forum. 8.0, Betty and Bob, from New York. 8.15, Smiths

SEPT. 5th

TUESDAY

continued

Play Bridge. 8.30, Words and Music, from New York. 8.45, Congress of Clubs. 9.0, Meredith Wilson Orchestra, from New York. 9.15, Jack Walton's Orchestra, from New York. 9.30, News, Markets. 9.45, Programme to be announced. 10.0, Casino Orchestra, from New York. 10.15, Tarzan of the Apes. 10.30, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Piano Classique. 11.15, Sports, A Song. 11.30, Pittsburgh Spotlights. 11.45 to 1.45 a.m. (Wednesday), New York Relay. 11.45, Lowell Thomas. 12.0 Midnight, Amos 'n' Andy. 12.15 a.m. (Wednesday), Radio in Education. 12.45, Ray Heatherton. 1.0, Crime Clues. 1.30, Adventures in Health. 1.45, Programme to be announced. 2.0, Miniature Theatre, from New York. 2.30, Programme to be announced. 3.0, Musical Memories, from New York.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Moravská-Ostrava. 3.50, Weather. 3.55 to 4.0, Exchange. 4.45, Gramophone Music. 5.55, Talk: Autumn Fashions. 6.5, Market Prices. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission; Hermann Löse Memorial Programme. Talk: Löse and his Works. Recitations (Löse). Songs. 7.0, Chimes and News. 7.10, Talk. 7.25, Band Concert: March (Vackar); Waltz from Polentint (Nedhal); Festival Overture (Suppé); Selection from Cavalleria rusticana (Mascagni); March (Prozavnik); Schubert Potpourri (Gregor); In the Still Night (Priml); Slow Foxrot, O my dear St. Anthony (Benes); Tango, Farewell my Love (Stole); Foxrot, My Girl, where are you going? 8.25, A Radio Play of Dvorák's Youth (Jan Kvet) with Incidental Music. 8.55, See Brno. 9.25, See Moravská-Ostrava. 10.0, Time and News. 10.15, Dance Music by Czech Composers arranged for Two Pianos, with Gramophone Interludes. 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Lausanne), Concert by the Radio Lausanne Orchestra. 5.0 (from Lausanne), Programme for Women. 5.0 to 7.0, Interval. 7.0 (from Geneva), New Gramophone Records. 7.45 (from Geneva), Answers to Correspondence. 8.0 (from Geneva), Gymnastic Festival Programme—Choral Concert. In the interval, Talk by the Vice-President. 8.40 (from Geneva), Humorous Recitations and Monologues. 9.0 (from Geneva), Popular Concert of Zither and Accordion Music. 9.50, News and Weather. 10.0 (from Geneva), Gramophone Concert. 10.30 (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 RAO, 11,810 kc/s, 25.4 metres, from 5.15 p.m. (approx.).—12.30 p.m., Gramophone Music. 1.0, Orchestral concert. 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. 5.10, Weather. 5.15 to 6.0, Orchestral Concert. 6.40, Naples, Shipping and Sports Notes. 6.45, Wireless Signals and Dopplavoro Notes. 7.0, Tourist Report. 7.10, Agricultural Report and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.15, Sponsored Music. 8.30, Sports Notes. 8.35 (approx.), La leggenda di Sakuntala—Musical Drama in Three Acts (Alfano). 10.55, 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 W2KAD on 19.55 metres.—12.45 a.m. (Wednesday), Stock Reports and Baseball Scores. 1.0 to 3.30, New York Relay. 1.0, Blackstone Plantation. 1.30, Wayne King's Orchestra. 2.0, Ben Bernie's Blue Ribbon Orchestra. 2.30, Variety Programme. 3.0, Musical Programme. 3.30, National Radio Forum, from New York, followed by 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.—5.0 p.m., Orchestral Concert. 5.30 (from Basle), Gramophone Music. 6.30 (from Berne), Talk: Nietzsche in the Swiss Mountains. 7.0, Time and Weather. 7.5 (from Berne), Talk: Where shall we go on Sunday? 7.10, Concert by the Station Orchestra. 7.50 (from Berne), Springtime and the Minnesinger. 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.0, News. 10.10 (approx.), Close Down.

SOTTENS.—See Radio-Suisse Romande.

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by Boden, 249 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, 380 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Concert by a Mandoline Orchestra. 5.45, Reading. 6.15, Gramophone Music. 7.15, Weather and News. 7.30, Talk, relayed from Malmö, 1,301 kc/s, 231 metres. 8.0, Pictures from Italy and Spain—Concert by the Station Orchestra; Soloist, Margareta Höglors (Songs); Overture, The Barber of Seville (Rossini); Selection from Cavalleria rusticana (Mascagni); Songs: (a) Canto di primavera (Buzzi-Pecia); (b) Le Girometta (Sibella); (c) Carmela (Wilson); Piedmontese Dance (Sinigaglia); Intermezzo from Goyescas (Granados); Catalan Caprice (Albeniz); Malagueña (Moszkowski); Songs: (a) Marechiaro (Tosti); (b) Aprile (Tosti); (c) Venetian Barcarolle (Leoncavallo); Overture, Le carnaval romain (Berlioz). 9.15, Literary Review, relayed from Malmö. 9.45, Weather and News. 10.0, Dramatic Programme. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Light Music. 12 Noon, Orchestral Concert, conducted by Maurice de Villers. In the intervals at 12.45 p.m., Time; and at 1.0, Time and Exchange. 2.0 to 3.30, Interval. 3.30, Concert by the Municipal Orchestra, conducted by Bourbié, relayed from the Casino, Vichy. 5.0, Talk: French Concessions in the Pacific. 5.15, Orchestral concert, conducted by Roskam: March (Heymann); Waltz, Wine, Woman and Song (Joh. Strauss); Humoresque (Dvorák); Violin Solo, Liebesleid (Kreisler); Foxrot, Vacances d'amour (Fylling); Tango from Nina Rosa (Romberg); Wenn du nicht kommst dann haben die Rosen umsonst geblüht (Heymann); Boston (Kahal and Burke); Birthday Serenade (Lincke); Joey the Clown (Reaves and Meyers); Two-Step, Ayerbe (Coffner). 6.0, Talk: Adventures of the Seventeenth Century. 6.15, Topical Talk. 6.30, Orchestral Concert, conducted by Maurice de Villers. Soloist: Jean Hazart (Songs). Overture, A Midsummer Night's Dream (Mendelssohn); Three Pieces (Fragli); (a) J'aime l'âne, (b) Avec ton parapluie bleu, (c) Nennis; Ballet Music from Patrie (Paladilhe); Song, Muais (Jean Hazart); Selection from Ariadne auf Naxos (R. Strauss); Songs (Mariotte): (a) Poème, (b) Sur la bouche; Oriental March (Granados). 7.30, Time and News. 8.0, Press Review in German, Lottery Results, and Announcements. 8.30, Dramatic Programme. 10.30 (approx.), Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—12 Noon, Gramophone Concert: Overture, Das Liebesverbot (Wagner); Grieg Memories (Urbach); Wahnung (Herrmann); Liebesfeier (Weingartner); Selection from La Bohème (Puccini); Aria and Duet from Tosca (Puccini); Suite, Caucasian Sketches (Ippolitov-Ivanov); Polonaise in A flat (Chopin); Two Songs (Richard Strauss): (a) Cécile, (b) Stänlechen; Military March and War March (Richard Strauss). 1.15 p.m., Time and News. 1.30, Concert from Langenberg. 2.0, Programme arranged by the Post Office, with Gramophone Music. 2.30 to 3.0, Advanced English Lesson. 3.30, Talk: Flowers. 4.0, Talk for Women. 4.30, See Frankfurt. 5.45 (from Freiburg), Talk: The Almanac Compiler. 6.10, Talk: Angora, Ten Years Capital of Turkey. 6.35, Time and News. 7.0, Transmission for all German Stations: Christoph Martin Wieland—a Radio Play on the Second Centenary of the Poet's Birth (Paul Enderling and Martin Lang). 8.0, Gramophone Records of Famous Singers. 8.30, European Concert, relayed from Berlin (Deutschlandsender). 10.0, Programme to be announced. 10.20, Time and News. 10.50 (from Mannheim), Talk on the Theatre. 11.29 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.15 p.m., Military Music. 6.30, Chansonnettes. 6.45, Music by an Argentine Orchestra. 7.0, Sound Film Music. 7.15, News. 7.30, Concert: Air from Frederica (Lelhar); Les petit pains, from Phi-Phi (Christiné); Duet from Véronique (Messager); Harp Concerto in C minor (René). 8.0, Light Music. 8.15, Military Music. 8.30, Music by a Viennese Orchestra. 9.0 (approx.), Concert Version of Brummel—Operetta (Hahn). 9.45, Light Music. 10.0, Accordion Solos. 10.15, News. 10.30, Concert for Listeners in Morocco: Scherzo in E flat (Schubert); Song from The Valkyrie (Wagner); Waltz Potpourri (Robrecht); Le bonheur est chose légère (Massenet); La cinquantaine (Widoff); Valse des hirondelles (Murcau); Gachucha (Tenaro). 11.0, Dance Music. 11.45, Opera Music: Overture, Iphigenia in Aulis (Gluck); Overture, The Flying Dutchman (Wagner). 12 Midnight, News. 12.5 a.m. (Wednesday), Opera Music: Selection from Prince Igor (Borodin); Wolfgram's

Song from Tannhäuser (Wagner). 12.15, 'Cello Solos. 12.30, Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.15 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.—5.15 p.m., Dance Music, relayed from the Savoia Dance Hall. 6.0 to 6.5, Weather Forecast. 6.40, Giornale Radio, Dopplavoro Announcements 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 Gramophone Music. 8.30, Symphony Concert, relayed from Berlin (Deutschlandsender). 10.0, Talk. 10.15, Dance 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 English. 8.0 to 8.15 p.m., Religious Information in Italian.

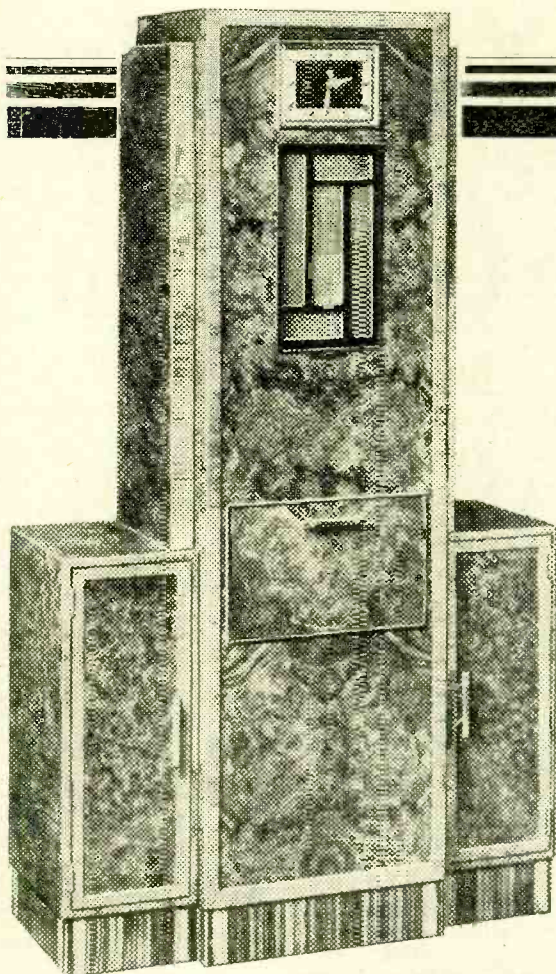
VIENNA

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.—3.35, Gramophone Concert of Popular Music. 4.5, Radio Report from the Vienna Fair. 4.25, Reading: From a Priest's Writing Table (Johann Bruckner). 4.45, Talk: Woman's Position in China. 5.10, Talk: The Virgin Mary in German Art. 5.25, Song Recital by Franz Wassing (Soprano). 6.5, Talk: Life and Work in the Austrian Highlands. 6.30, Talk: Religion and Politics in Palestine. 7.0, Piano-forte Recital by Julius Isserlis: Erica Variations (Beethoven); Ballad in F minor (Chopin); Six Etudes (Scriabin). 7.40, Time and Announcements. 7.50, Reading: Christine Kitzbue (Enrica von Handel Mazzetti). 8.20, Suppé Concert by the Wiener Symphoniker, conducted by Josef Holzner: March, Berg und Tal; Wiener Jubel—Overture; Song, Ich hab' ins Paradies geschaut; Glückswalzer; Polka, Ringelringel-rei; Selection from Das Modell; Gavotte from Die Gascogner; Selection from Das Pensionat; Song, Mein Österreich; Waltz, Gelbe Rosen; Overture, Flotte Büsche. 9.45, News. 10.0, Gramophone Concert of Light Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from the Cathedral. 12.25 p.m., Gramophone Music. 12.25, Polish Press Review. 12.33, Weather. 12.35, Gramophone Music. 12.55, Radio Journal. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.10, Announcements. 3.35, Gramophone Music. 3.45, Aviation Report and Anti-Gas Drill. 3.50, Gramophone Music. 3.55, Announcements. 4.0, Recital by J. Kelles-Krause (Soprano) and Mme. Zajac (Pianoforte): Piano-forte Solos: (a) Chaconne (Bach), (b) Sonata in A (Mozart); Soprano Solos: (c) Tu partisti (Lena), (d) Wiegenlied (Mozart), (e) Ich liebe dich (Beethoven), (f) Der Wanderer (Schubert), (g) Du bist wie eine Blume (Schumann); Piano-forte Solos: (a) Ecosais (Beethoven), (b) Etude in C sharp minor, Op. 10, No. 3 (Chopin), (c) Etude in C sharp minor, Op. 10, No. 4 (Chopin), (d) Waltz in G flat, No. 12 (Chopin), (e) Etude in E (Paganini-Liszt); Soprano Solos: (a) Immer leiser wird mein Schlummer (Brahms), (b) Morgen (R. Strauss), (c) Romance (Debussy), (d) Desir (Szymanowski). 5.0, Wireless Notes. 5.15, Recital of Yugoslav Songs by Janowski (Tenor). 5.45, Light Music from the Gastronomica Café. 6.15, Talk: Contemporary Poland. 6.35, Song Recital by Mme. Platt, relayed from Lwow, 788 kc/s, 381 metres: Aria from Act 1 of The Countess (Moniuszko); Song from Die toten Augen (d'Albert); Elsa's Dream from Lohengrin (Wagner); Serenade (R. Strauss); Spring Waters (Rachmaninov); Se iossi (Quaranto); Song (Niewiadomski). 7.5, Gramophone Music. 7.20, Miscellaneous Announcements. 7.35, Programme Announcements. 7.40, Topical Talk. 8.0, Concert by the Station Orchestra, conducted by Oziminski; Soloist, Iygas (Tenor); Mazurka from Jawnuta (Moniuszko); Selection from Carmen (Bizet); The Boer Patrol (Komzak); Tenor Solos: (a) Aria from Wanda (Doppler), (b) Je ne sais pas prophète (Rachmaninov), (c) Nous vivrons (Glier); Perpetuum mobile (Strauss); Waltz, Wienerblut (Strauss). 8.50, Radio Journal. 9.0, Commercial Correspondence. Course. 9.10, Orchestral Concert (contd.): Bandits' Dance from Janek (Zelenski); Ballet Music from Sylvia (Delibes); Tenor Solos: (a) Si j'étais jeune (Gall), (b) Mazurka (Wieniawski), (c) Je te reverrai (Tosti); Barcarolle (Tchaikovsky); Polka (Tchaikovsky); Oherok fantastique (Fornfeldt). 10.0, Dance Music. 10.25, Sports Notes. 10.35, News, Weather, and Police Notes. 10.40, Dance Music (contd.). Zurich.—See Schweizerischer Landessender.

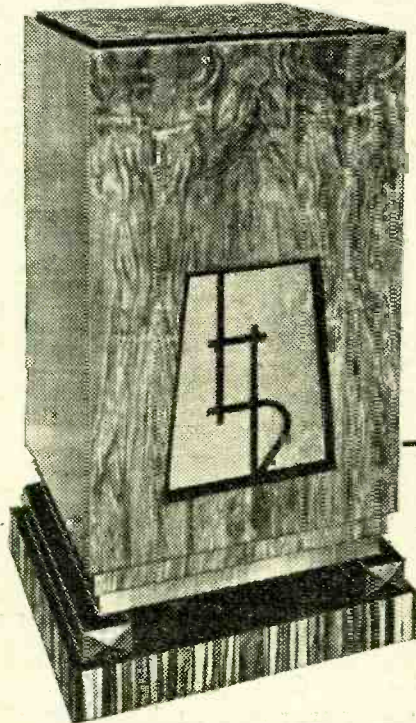
PROGRAMMES CONTINUED



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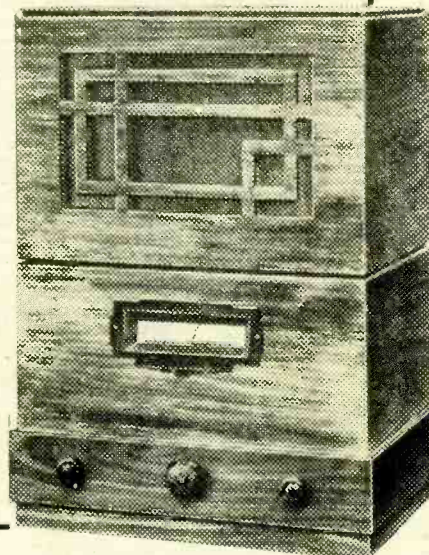
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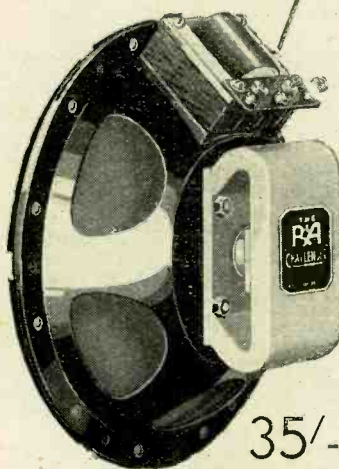
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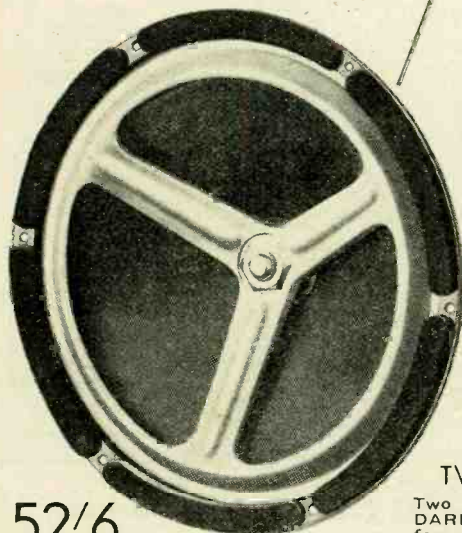
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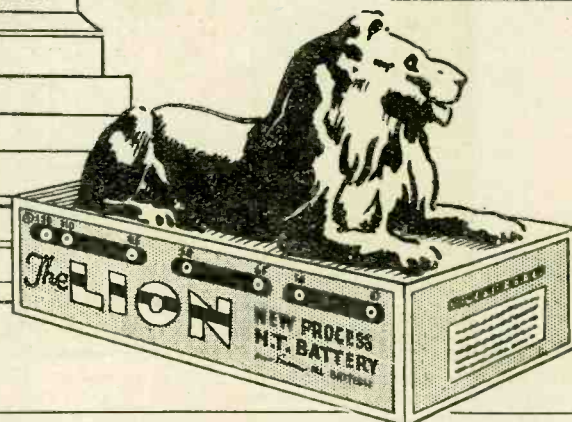
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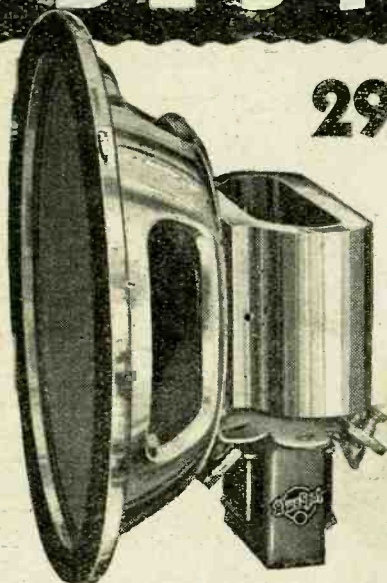
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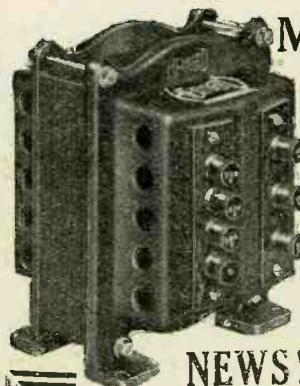
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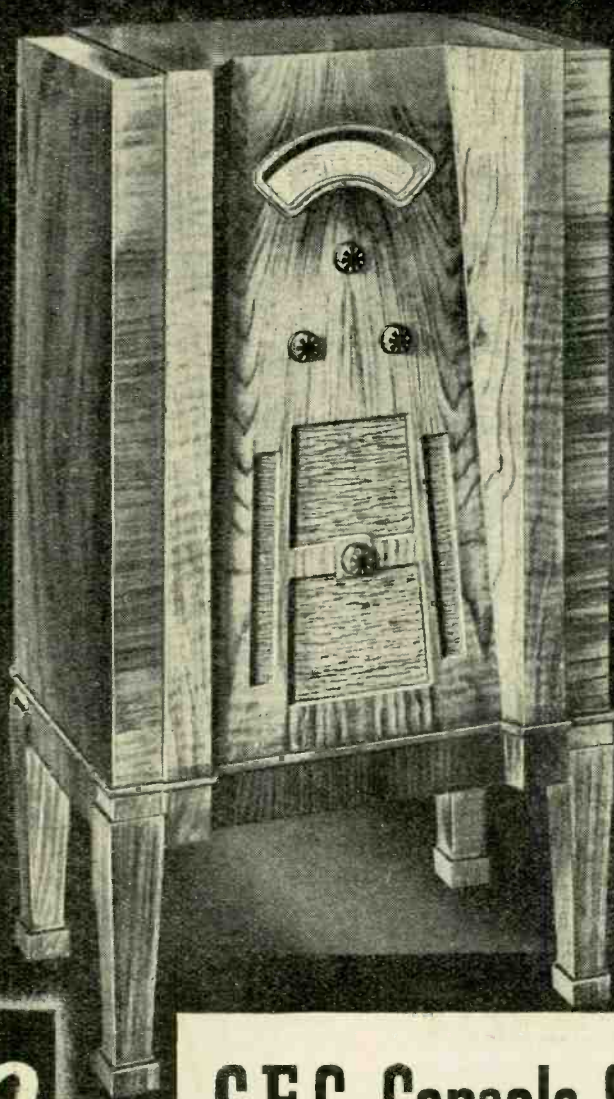
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No. 731.

FRIDAY, SEPTEMBER 1ST, 1933.

VOL. XXXIII. No. 9.

Proprietors: ILIFFE & SONS LTD.

Editor:
HUGH S. POCKOCK.

Editorial,
Advertising and Publishing Offices:
DORSET HOUSE, STAMFORD STREET,
LONDON, S.E.1.

Telephone: Hop 3333 (50 lines).
Telegrams: "Ethaworld, Watloo, London."

COVENTRY: Hertford Street.
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PUBLISHED WEEKLY. ENTERED AS SECOND
CLASS MATTER AT NEW YORK, N.Y.

Subscription Rates:

Home, £1 1s. 8d.; Canada, £1 1s. 8d.; other
countries abroad, £1 3s. 10d. per annum.

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

CONTENTS

	Page
PROGRAMMES FROM ABROAD, pp. I—XXIV	
Editorial Comment	189
Thunder and Lightning	190
Unbiased	192
Simple Measurements on Receivers and Components	193
News of the Week	195
Practical Hints and Tips	196
The Iconoscope	197
New Class "B" Output Valve ..	198
Binaural Reception	199
Thoughts on Olympia	200
Glasgow Show Plan and Guide ..	202
Broadcast Brevities	203
Correspondence	204
Readers' Problems	205

EDITORIAL COMMENT

Broadcasting Hours

Are They Too Long?

A RECENT Leader in which we called attention to the unwarranted amount of criticism levelled at the B.B.C. programmes has brought us a number of letters from readers, one or two criticising us for championing the B.B.C. programme policy, but the majority endorsing heartily our point of view that much of the criticism of programmes is undeserved. We take note, in particular, of the remarks of one correspondent, who, whilst agreeing that the average of the programmes is good, contends that the task of maintaining good programmes over so many hours is a well-nigh impossible one and consequently we cannot expect to avoid the probability that some portion of the matter sent out will be of poor standard.

We have ourselves from time to time in the past raised the question as to whether the B.B.C., in compiling new programmes for so many hours, is not setting itself a rather impossible task. Separating entertainment and the talks from those portions of the programme which may be regarded as service, it would seem that there is room for a certain amount of repetition without spoiling the present character of the programmes. The alternative programme scheme seemed to pave the way for economies of this nature, for we could then have a first-class programme repeated from other stations on different evenings of the week. If this repetition never takes place many fine broadcasts are missed by a proportion of listeners because their other engagements have made it impossible to listen-in at the particular time the broadcast took place. To have a second chance of listening-in

to all the more important broadcast performances would be an undoubted benefit to listeners in general. It would, incidentally, reduce the number of hours when fresh material had to be provided for broadcasting, and it is possible that in some instances it would be permissible for "repeat" performances to be carried out through the medium of records of the original transmission.

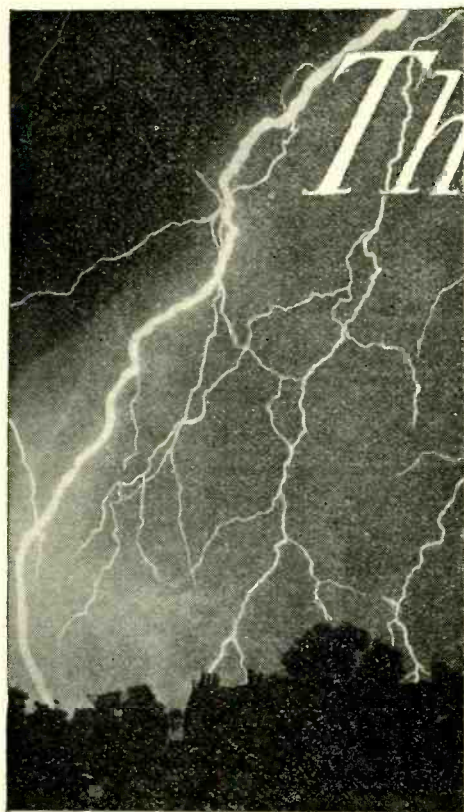
Television Post Cards

The Purpose of the B.B.C.

WE mentioned in last week's issue that the request which is now being made to those who see the broadcast transmissions to send a post card to the B.B.C. is for the purpose of arriving at some idea of the size of the television audiences of these broadcasts.

This action on the part of the B.B.C. is, we understand, a direct result of a suggestion put forward by *The Wireless World* some time back that it was of importance to everyone concerned in the development of television in this country to have this information.

We have noticed that in certain directions this action on the part of the B.B.C. has been interpreted as being intended to provide an excuse for the B.B.C. to discontinue the transmissions when they find that they have a very limited audience. We do not think that there is any reason to feel anxiety on this score. The B.B.C. has a contract to continue these transmissions for some considerable time to come and, in any case, it is obviously absurd to suppose that if there was sufficient justification for starting a year ago, there is any excuse for stopping transmissions now, at a time when so many new developments seem likely to emerge shortly from the experimental stage.



Thunder and Lightning

How Wireless Aerials are Affected

By J. F. HERD, A.M.I.E.E.

AERIALS were at one time popularly believed to act as a kind of collector of lightning discharges. Experience shows that aerials are very rarely struck during the thunder season in comparison with the number of lightning discharges that take place. This summer has proved to be no exception.

THE thunderstorm season has been and is still with us and appears, from newspaper accounts, to have had its usual crop of things, including aerials, "struck by lightning." This always serves to remind us—at least to remind me—how extremely little we know yet about this, one of Nature's oldest and most magnificent phenomena.

Whether he likes it or not, the wireless enthusiast is compelled to affect some interest in thunder and lightning, since lightning discharges are believed to be the cause of most if not, indeed, all of those atmospheric phenomena which so often militate against summer-time reception, especially on the longer wave band. In passing, too, it is to be recalled that Popoff—a Russian scientist, not the perhaps better-known character in "The Merry Widow"—actually used an elevated aerial to observe the effect of distant thunderstorms, wireless atmospheric, a year before Marconi used the same arrangement to radiate controlled wireless waves.

Isolated Targets

Although the daily press reports grizzly details of things struck by lightning, it is surprising how rarely this occurs and how little damage is done by these amazing impulses. Incidentally it is very noticeable that wireless aerials are by no means readily struck. Many Jonahs of a few years ago regarded every aerial as a potential collector of lightning flashes and envisaged them being struck in their thousands. One simple explanation is obvious. It is that the *average* domestic broadcast aerial is not incomparably high with regard to its surroundings, and is therefore in no greater prominence from the point of view of attracting, as it

were, a concentrated field to facilitate a discharge path. It is well known that a single tall tree, standing, for example, in splendid isolation in the middle of an open space is one of the worst forms of shelter that one can seek from rain in a thunderstorm. In such a case there is a definite possibility of the tree acting in the manner described, while, once it is struck there is the well-known possibility of "side-flashing" from the trunk of the tree to persons standing beneath its shady boughs. It is side-flashing of this type which is always the danger to the vicinity when any object is struck by lightning.

The same erratic tendency is seen in the lightning flash itself, giving the zig-zag appearance so familiar. These erratic tendencies can be observed in artificial high-voltage discharges—discharges much less in intensity than those produced naturally. For example, watching successive flash-overs at the National Physical Laboratory high-voltage plant, the erratic nature of the path can be seen changing even during one flash-over. The longer zig-zag path—rather than the straight and narrow one—is due, apparently to differences of ionisation in different parts of the air, causing the longer geometrical path to be, from the electrical point of view, the shorter.

It is interesting to consider the enormous electrical quantities contained in a lightning flash. It is, of course, impossible to make any direct measurement of the effective current in the discharge itself, but it is possible to infer typical values from its effect on circuits and instruments of known electrical dimensions at known distances from the flash.

The classical work on this subject is

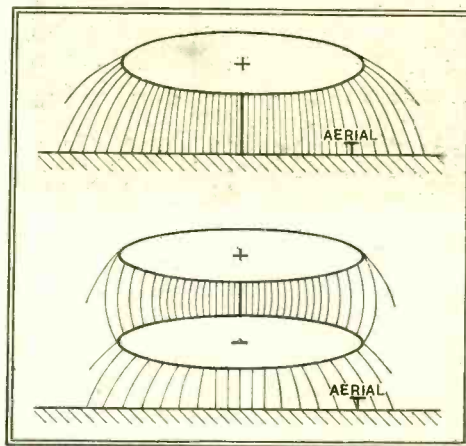
that of the Cambridge scientist, Prof. C. T. Wilson, who has estimated that the potential reached in a thunder cloud just before the discharge is of the order of one thousand million (10^9) volts. Professor Wilson has also estimated that the discharge involves a displacement of the order of 20 coulombs in a period about one thousandth of a second, giving a mean current of about 20,000 amperes. This is, of course, the average value during the time of the discharge and must be greatly exceeded at some process of the discharge. It appears possible that instantaneous values of over 100,000 amperes are reached. The electrical power associated with a lightning flash is thus several thousand kilowatt hours. All of this energy does not, of course, appear at the earth's surface, since much of it is used up in the air channel. Many

of the most powerful strokes, however, must deliver a large proportion of their energy to the earth.

A fairly reasonable domestic load for all lighting and a number of electric power appliances works out at between 1,500 and 2,000 kilowatt hours per year, so that a single lightning discharge has enough energy to keep a modern suburban dwelling fully electrified for about a couple of years. No wonder things happen when

this supply is released in a thousandth of a second!

The above figures of current and voltage help to explain such things as the side-flashing already mentioned. For example, in the case of the simplest lightning conductor the wire may have to carry a current of well over 20,000 amperes, so that every ohm of resistance in it has a drop of over 20,000 volts across it. A local resistance or bad connection, or a



Showing how an intense electric field may be built up about a wireless aerial due to a thundercloud, even when the aerial is not in or near the path of the final discharge which is shown in heavy line.

Thunder and Lightning.

bad earth amounting to ten ohms may thus raise the potential to well on towards a million volts. Apart from the heat developed at the resistance, this will give definite tendencies to side flash if the discharge can gap over a length of air which is easily ionised and made conductive.

In the case of a wireless aerial acting as an involuntary lightning conductor, the presence of anything giving a high impedance to earth would thus explain the various erratic things that have been described in cases where aerials have been struck. In a case described in one well-written technical account, which the writer had the chance of seeing, a series aerial condenser was completely shattered for reasons which are obvious from the above argument. The inside of the set was described as looking as if it had been sprayed liberally with pitch. Side flashing also occurred from the aerial to a lead base round the chimney stack, and at two different places in the wall beside the down lead.

It is well known that some lightning discharges take place between cloud and earth while others occur from cloud to cloud. This is quite apart, of course, from the so called "summer lightning" when the sky is widely illuminated, especially towards the horizon, by the reflected effects of flashes that may be many miles—even a hundred miles—away. Experts are not agreed as to the proportion

of lightning flashes which are of the cloud to earth or the cloud to cloud variety. Neither are meteorologists fully agreed about the exact mechanism which gives rise to the thunder cloud and its enormous electrical charges. Although this would appear to have a distinct bearing on the nature of the discharge. Despite the small number of earth-surface casualties that occur (in relation to the total number of lightning flashes) one has the impression that there have been more such casualties this summer than one usually sees reported.

We are Still Learning

Does this then mean that these summer lightning-storms have been characterised by a greater number of cloud-to-earth strokes, or is it just bad luck? The wireless investigation of atmospheric is, of course, helping to cast light on thunder-

storms, and wireless methods are now available for revealing both the place of origin and the nature of the impulse received at a distance. At the last N.P.L. annual invitation visit, a cinema film was exhibited showing the cathode-ray direction finders which reveal the direction of individual atmospheric. It has been estimated that taking the world as a whole there are about 1,000 lightning discharges per second at any time. The figures of kilowatt hours thus wasted during the course of a year simply do not bear thinking about.

Apart from the case of an aerial being directly hit by lightning there are still possibilities of considerable inductive effects due to lightning. During the process of building up a thundercloud there are very considerable electrostatic fields created between cloud and earth. This can be seen from the diagram on the previous page. Here an aerial can be in an intense electric field even though it is not below the point where discharge finally

even with many that are not actually visible but where the aerial is nevertheless within the extensive region that has come under the wide scope of this electrostatic field. In addition to this more or less local effect the sudden destruction of this field has the effect of setting up an electromagnetic wave which travels out into space in the form of an atmospheric—a natural signal sent out by a powerful transmitter with an excellent large radiating aerial!

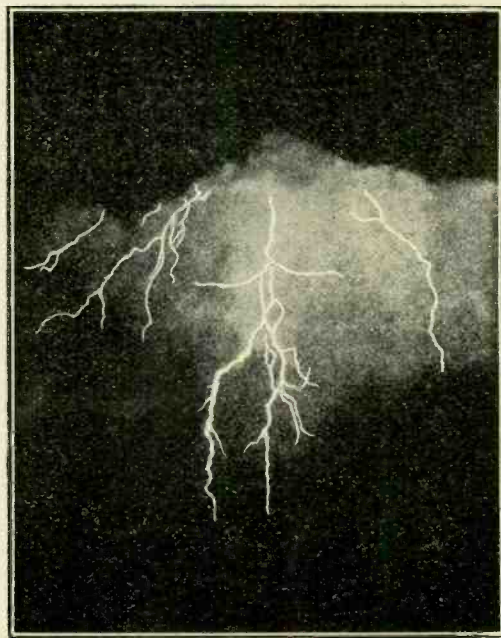
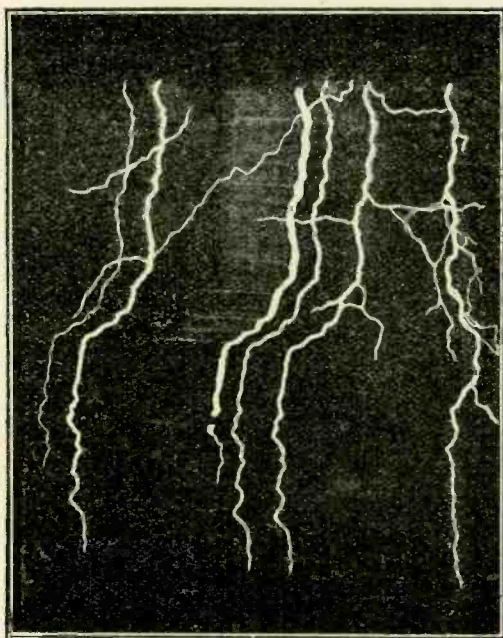
Protecting the Aerial

Despite the few cases of wireless aerials being struck by lightning, there seems no doubt that protection of the domestic aerial from the effects of lightning—even from the relatively minor induced charges just described—is a real and wise precaution. Many earthing devices exist, and most outdoor aerials are fitted with some such device. For the best protection it is usually recommended that the

earthing switch should be outside the house and suitably protected against weather. This unfortunately results in it not being used, particularly as a routine method overnight or when the house is unattended. Some meticulous citizens might manage to remember it, but one fears that the average man is rather casual about it. The next best technical solution, and one much more likely to be used, is to have an indoor switch

immediately at the point of entry. Best of all however, is an automatic device which needs no switching, and gaseous conductors are now available for the purpose, fitted usually, with the familiar serrated edge spark gap or "lightning arrester." In fitting the aerial, too, precautions may be taken to minimise the possibilities of side-flashing. Broadly, these can be summed up in the form of keeping down resistance and inductance of down-leads and even more, of earth-lead. Sharp bends in the down lead should be avoided, and the earth-lead should be as short and straight as possible—as indeed it should be in any case.

There is very little chance of an indoor aerial being struck unless the whole house "gets it." Induced voltages of the type described, are still set up in an indoor aerial, but switching protection is hardly necessary except in the very nearest of discharges.



Photographs of a lightning flash, the left-hand picture was taken by camera moving from right to left; the right-hand picture is of the same flash taken by a stationary camera.

occurs. Even in the case of what ultimately becomes a cloud-to-cloud discharge, not hitting the earth at all, immediately prior to the discharge the lower side of the cloud nearer to the earth gives rise to extremely high electric fields at the surface of the earth. These fields, even although they are static or in the process of slow building up, will obviously have an effect on aerials in their vicinity. When the aerial has a low d.c. path to earth this does not matter, but a series condenser giving a high resistance d.c. path to earth may get uncomfortably charged. A series air condenser in a big aerial can often be seen to spark due to this cause. In either of these cases the sudden destruction of this electric field (due to the discharge taking place) gives rise to the induction of a big transient voltage in the aerial. This is, of course, the very strong atmospheric which is heard when a visible flash occurs, and



Accelerating the heart beats.

Reminiscences

EVERYTHING this year seems to have militated against my getting a view of the Olympia Show, and if it had not been for the solace afforded by *The Wireless World* Show Report I should have been plunged into a barren sea of utter despair. I have already told how the carelessness (or carefulness?) of a van driver outside Olympia laid me low when I was just in sight of the Delectable Country. Thereafter, from my sick-bed I tried to obtain first-hand day-to-day Show reports, but was thwarted by the fact that the little Grid Leaks, the only people I could have relied upon, were away at a wretched holiday camp in the wilds of Central Europe. Ultimately I had to fall back on the services of Mrs. Free Grid, of whom I will say that she did her best. She provided me with a sort of "bird's"-eye view.

Among other things she reported a truly distressing lack of grammar on the part of the exhibition authorities, since, over every entrance door, was printed a large sign: "NO PASS-OUTS." The expression "pass-out" is uncouth enough without such a glaring mess-up in the plural.

Apparently the most spectacular exhibit, notwithstanding the B.B.C. show, was that provided by the General Post Office, and I was rather pained to hear that a thing that attracted most people to the G.P.O. section savoured more of a side-show at Hampstead Heath on a Bank Holiday than a demonstration at a serious scientific exhibition. This was an apparatus for reproducing heart-beats on a loud speaker, where the microphone was held in the cardiac region. The arrangement, I was told, was superintended by a damsel who applied the microphone to the chests of young men and demonstrated how her close proximity accelerated their heart-beats.

I was grieved to learn that the Show revealed one of the features which disgraces certain other exhibitions held at Olympia, at which it is quite impossible to proceed from stand to stand without being followed by a parasite in the form of a part-exchange dealer pestering one with the

UNBIASED

By FREE GRID

enquiry: "Thinking of making a change, sir?"

Two or three young men at the Radio Show were armed with forms which, after requesting details of a set which an intending customer might think of exchanging in part payment for a new one, asked the singularly naive question: "Is the tone, sensitivity, and selectivity of your present set good, bad, or indifferent?" Do the mutts honestly think that, faced with such a question, the customer is going to cry "Stinking fish"?

Big Business

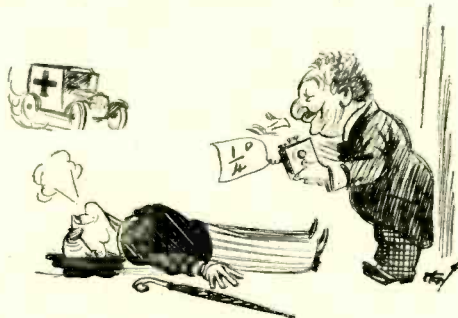
I REALLY think that when it comes to exhibitions the wireless people must be the envy of every other industry in the country; in fact, judging by the way the business flows in at Olympia, I cannot for the life of me see why they keep the Show open for more than one day, or at the outside two; and neither can I understand why every business man in the country doesn't sell out all his other interests and get into the radio business without delay.

One well-known firm, with a factory many acres in extent, stated that they sold the whole of their output up to Christmas time before the Olympia Show was an hour old. Quite a number of firms nearly equalled this record, and one firm of international repute exceeded it, for they announced that during the run of the Show they had sold all their factory output for two years.

I do seriously think that, for the good of the radio industry generally, this blatant bunk ought to be suppressed.

Those Crystal Sets

I HAVE been overwhelmed in such an avalanche of letters and offers of help as the result of my note the other week concerning the dearth of crystal sets and parts thereof that I scarcely know how to thank readers. Not only did I receive letters giving me the addresses of numerous establishments where I could still buy



At knock-out prices.

crystal sets, but a large number of readers were kind enough to search over their old discarded radio gear and send me bits and pieces sufficient to make a very handsome crystal set.

In addition, many others offered me complete sets at knock-out prices. I am astonished to learn that they do exist in quite considerable quantities in various shops. One well-known dealer in wireless gear whose establishment I overlooked in my original quest, although it was well known to me, forwarded me his catalogue showing that the humble crystal set is still listed. I must confess, however, that I was considerably astonished to hear from the Editor that a well-known London firm had written to him stating that they sold over one thousand gross of crystals during the last radio season, more especially since another well-known crystal expert has written to inform me that, so far as he is concerned, the crystal trade has dwindled to vanishing point. Still, we live and learn.

A Souvenir

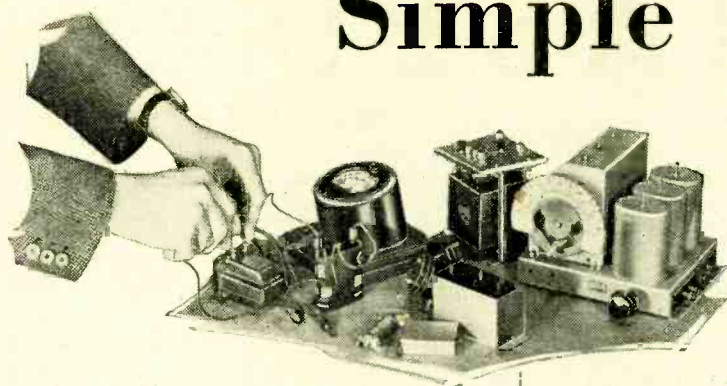
WOMEN never seem to be able to go anywhere, even for a day's visit, unless they bring back a wretched present or souvenir for somebody at home, even if



Functions beautifully.

it only be a paltry china ornament with "A Present from Margate" scrawled on it in gold letters, and Mrs. Free Grid's visit to Olympia was no exception. In this case, however, it was an extremely useful present, consisting of a volume control which is mounted on a weighted strap for slinging across the arm of the fireside chair in much the same way as certain ash-trays. The volume control functions beautifully, the "control" being spread nicely over practically the whole movement of the knob instead of crowded up at one end as in the case of some of them.

Everything in the garden was lovely until I became so satisfied with my present that I wished to buy another. I need scarcely say that, as is the way of all women, Mrs. Free Grid had completely forgotten the name, or even the exact locality, of the stand whence she bought it. The result is, of course, that my desire to possess a spare one has increased a thousand-fold; indeed, it has almost assumed the dimensions of the cravings of a drug-addict.



Simple Measurements on Receivers and Components

A MODERN wireless receiving set is unquestionably a somewhat complicated piece of electrical apparatus, with many components, each of which must function properly if the set is to give the best results. The valves, of course, are the most important of these components, and, even though they may be faultless, their efficient operation and their span of useful life depend on the correct voltages being applied to their various electrodes. For instance, if a grid bias voltage is too low the anode current may be excessive, and, apart from the lowering of efficiency and the introduction of distortion, the emitting cathode of the valve itself may be impaired.

It is perhaps a little surprising to find how often the electrical conditions prevailing in the circuits of a newly constructed receiver are left to chance, even by those who exhibit quite a high degree of skill in constructing their own sets, either from specifications such as those given from time to time in *The Wireless World* or from designs of their own. The assumption is commonly made that, the greatest care having been taken in following the constructional data, and in making theoretical calculations, everything is bound to be well from the electrical point of view! This may be so to a certain extent in many cases, but how much trouble and doubt may be avoided if only a simple measuring instrument such as a milliammeter were available.

Testing a New Set

When the set is completed and the valves are carefully put into their sockets comes the thrilling moment when the first trial is to be made, and the final adjustments effected. It is particularly at this stage that the possession of at least one meter is of the greatest value in enabling rapid and correct adjustments to be made and possibly in preventing damage to one or more of the valves. For even in the hands of the most skilful constructor it is possible for an error to occur in the wiring, or a short-circuit somewhere in the set—no one is infallible. Without the use of a meter it is possible that the fault would only be found at considerable cost.

Faulty components at times cause a deal of trouble, and with the aid of a suitable meter many can be tested before being built into the set. What is more distress-

It is essential to be able to make simple measurements and tests on a receiver before being certain that it is being operated under proper conditions. Quite an inexpensive instrument is capable of imparting to the skilful owner much valuable information.

Many Uses of an Inexpensive Meter

By S. O. PEARSON, B.Sc., A.M.I.E.E.

ing than to discover a faulty component in a more or less inaccessible part of a completed receiver?

Finally, there is the question of maintaining a receiving set in good working order, and here again the possession of a meter is of the greatest value, whether the set be a home-constructed or bought one. There comes a time when the performance of the receiver shows signs of deteriorating and the trouble must either be found by the owner or the set be sent away to an "expert." One need not dwell on which will be the less costly procedure! If it is a battery set maybe the H.T. battery is running low, maybe not—a meter would tell. Perhaps one of the valves is losing its emission—a meter would show which, and the faulty valve could be replaced accordingly. If the receiver were sent away to be serviced it is quite likely that a complete set of new valves would be recommended, and the owner would have no means of disputing the soundness of the advice. It is very commonly argued by the servicing agent that if one valve is deteriorating the remainder will follow very shortly, but this is by no means the case.

From all points of view the acquisition of at least one reliable meter is sound economy.

The Best Type of Instrument

In view of the foregoing remarks a brief survey is given below of the most suitable meter or meters to procure and the most useful applications. Without doubt the most serviceable instrument, if only one is to be purchased, is one with both milliamperes and voltage ranges, preferably of the moving-coil type. Miniature moving-iron instruments, especially of the polarised type (that is, with definite positive and negative terminals), are, however,

quite suitable, though usually not quite so accurate as the moving-coil type; and moving-iron voltmeters take a comparatively heavy current. The actual instrument chosen must, of course, depend on the depth of the purchaser's pocket, but it should be realised that even a cheap meter costing only a few shillings is most useful and enables a great many tests to be made. After all, the price of a meter is only a fraction of the cost of the receiver itself, and will without question pay for the outlay in a comparatively short time. Of course, the best policy is to buy the best meter one can afford.

The question of the most suitable ranges to choose for both milliamperes and volts depends to a large extent on the type of the receiver; for instance, whether it be battery or mains operated. The milliamperes range should be a little greater than the anode current of the output valve, and the maximum voltage range must be a little above the H.T. voltage required by the set. Taking as an example a battery set requiring 100 volts H.T. and consuming normally 15 to 20 milliamperes, a suitable meter would have a voltage range of 120 and a current range of 24 milliamperes. (The combination of 120 volts and 24 milliamperes is a practical one because 24 is a multiple of 120, so enabling the same scale divisions to be used for both ranges.) A low-voltage range, say, up to 12 volts, would be of great value for measuring filament voltages, low-tension battery and grid bias battery voltages. This would be in addition to the 120-volt range.

Naturally, a useful arrangement is to have a separate voltmeter and ammeter, each with two or more ranges. In purchasing a voltmeter, choose where possible an instrument with the highest resistance in ohms per volt. A voltmeter with a resistance of 100 ohms per volt would take a current of one-hundredth of an ampere

Simple Measurements on Receivers and Components—

or 10 milliamperes with full scale deflection on all ranges. Voltmeters with lower resistance than this take more current and in many circumstances render satisfactory voltage measurements difficult.

Readers with a working knowledge of Ohm's law and a little skill in the winding of resistances will agree that a single sensitive or low-reading milliammeter can be made to operate over various current and voltage ranges by using it in conjunction with different parallel (shunt) or series resistances respectively. Instructions for extending the ranges of such an instrument were given in *The Wireless World* of January 29th, 1930. It should be realised that the actual movement of the instrument is identically the same for a voltmeter as for a milliammeter—it is only the equivalent resistance of the combination and its method of connection to the circuit that determines its function.

Testing of Components

Although good components can be relied upon to conform to the makers' rating within a fair degree of accuracy, it is, nevertheless, advisable to check some of the more important ones where facilities permit and where the test is practicable with the milliammeter or voltmeter available.

One of the most useful applications of a meter is the checking of individual components by simple tests before inclusion in a set under construction, or of suspect components in a set which has failed to give satisfactory results. For instance, simple tests can be made for continuity of circuit through resistances, coils, and transformer windings. It is only necessary to connect a meter in series with the resistance or coil under test and apply an appropriate voltage to the ends of the circuit so formed. If current flows there is no break in the circuit.

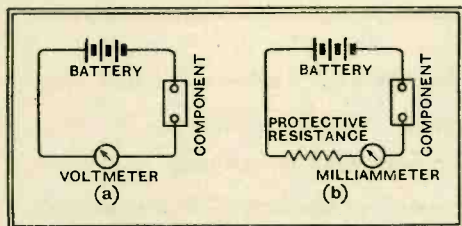


Fig. 1.—Simple test for continuity of circuit through a resistance or other component. A voltmeter should be used for preference as at (a), but a milliammeter may be employed if a safety resistance is included as at (b).

It is most strongly advised to use a voltmeter for this purpose to guard against the flow of excessive current when the component being tested has low resistance—a voltmeter has high resistance and cannot be damaged if the voltage of the testing battery used is not greater than the range of the instrument. The circuit arrangement is shown in Fig. 1 (a). If a milliammeter is used, an extra resistance of a few thousand ohms must be connected in series, as shown in Fig. 1 (b) to limit the

current to a safe value. In the case of very high resistances, such as grid leaks, the current may be too small to be indicated at all, even though the circuit is continuous, and this particular test fails.

Condensers may be tested in a similar way, but as a good condenser has no conducting circuit through it, the conditions are reversed, and zero reading on the instrument scale shows that there is no short circuit in the condenser, and that the insulation between the plates may be satisfactory. But this test gives no proof that one set of plates may not be entirely disconnected from its corresponding terminal. With large capacity condensers, however, such as those employed for smoothing and decoupling, there is a very simple method of finding out if the internal connections are in order. On first closing the circuit there should be a preliminary deflection or kick of the meter needle due to the momentary charging current. If a continuous deflection remains after the initial kick, either the insulation is faulty or there is an internal short circuit. As before, a voltmeter should be used if possible or a milliammeter, safeguarded by a protective series resistance, could be employed.

Variable air condensers can be tested for internal short circuit in the same way; the rotor should be turned through the full range whilst the meter pointer is watched. Any sudden deflection shows that the rotor blades are touching those of the stator, or a particle of metal dust may be lodged between them.

To test the insulation between the primary and secondary windings of a transformer, or between each winding and the core, the procedure is the same as for a condenser.

Measurement of Resistance

The direct measurement of the value of a resistance is not quite so simple and straightforward as Ohm's law would appear to indicate, but as it is of such great advantage to be able to measure a doubtful resistance at times, an example of simple measurement is given here with explanations of the special precautions to be taken.

Ohm's law tells us that the current passed by a resistance is equal to the applied voltage divided by the resistance in ohms. The voltage is the driving force or electrical pressure, and the current is the resulting flow of electrons. If a resistance of R ohms is connected across a battery whose terminal voltage is E , the current flowing will be E/R amperes. But if a milliammeter is included in series with the resistance, as in Fig. 2 (a), to measure the current, the latter will be less than E/R amperes, because the milliammeter itself possesses resistance. If x is the resistance of the milliammeter in ohms, the total resistance across the battery is $R+x$ ohms, and it is this value which is given by the ratio of volts to amperes. Obviously, then, the milliammeter resistance must be known before a test of this nature can be made, unless, of course, the

milliammeter resistance is negligibly small compared with the resistance to be measured, in which case it can be ignored. It is not a very simple matter to determine the resistance of the milliammeter if no other instruments are available, but very often the resistance is given by the makers or would be furnished on request.

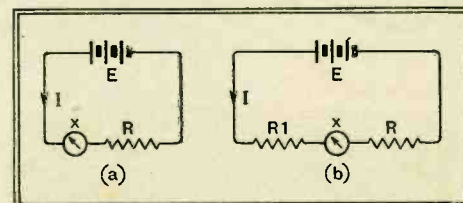


Fig. 2.—Measurement of resistance with a milliammeter and a battery of known voltage E . The circuit is shown at (a). The resistance of the milliammeter x must be allowed for. To guard against a possible short circuit in the resistance R a safety resistance R_1 should be inserted temporarily as shown at (b) and explained in the text.

With the aid of a battery of known voltage and a milliammeter of known resistance, it is possible to check resistances over quite a wide range of values. A single accumulator cell gives very nearly 2 volts (except immediately after charging), and so, if an accumulator of several cells is available, several testing voltages are ready to hand. Suppose that one has a milliammeter reading up to a maximum of 24 milliamperes, and that its resistance is 15 ohms, and suppose, further, that it is desired to check a resistance rated at 250 ohms. A convenient current for measurement would be of the order of 20 milliamperes, or 0.02 ampere, and the voltage necessary to drive this current through 250 ohms would be, by Ohm's law, $0.02 \times 250 = 5$ volts. So one would use a 4-volt accumulator in the circuit of Fig. 2 (a). Suppose that the current is found to be 14.5 milliamperes with 4 volts applied; then the total resistance is $4 \div 0.0145 = 276$ ohms. Deducting the 15 ohms resistance of the meter gives 261 ohms for the component under test.

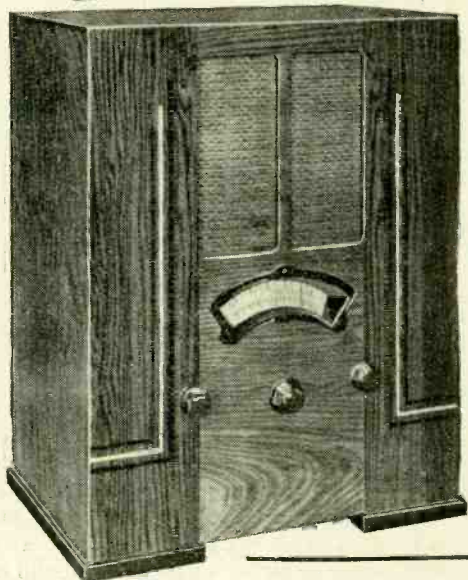
A Wise Precaution

It should always be remembered that a milliammeter is a vulnerable instrument and very easily damaged by an excess of current. Consequently, every precaution must be taken to prevent an accidental jar. If, for instance, the resistance R of Fig. 2 (a) happened to be short-circuited, the milliammeter would be ruined. A safety resistance R_1 of the same order of magnitude as R could be included temporarily as at (b) in Fig. 2. If the current rises considerably when the terminals of R are bridged over with a piece of wire, all is in order, and the safety resistance may be taken out of circuit prior to making the actual measurement.

In a second part of this article an account will be given of simple tests and measurements which can be made on a completed receiver, and how a meter can be used to give a visual indication of the performance of a receiver.

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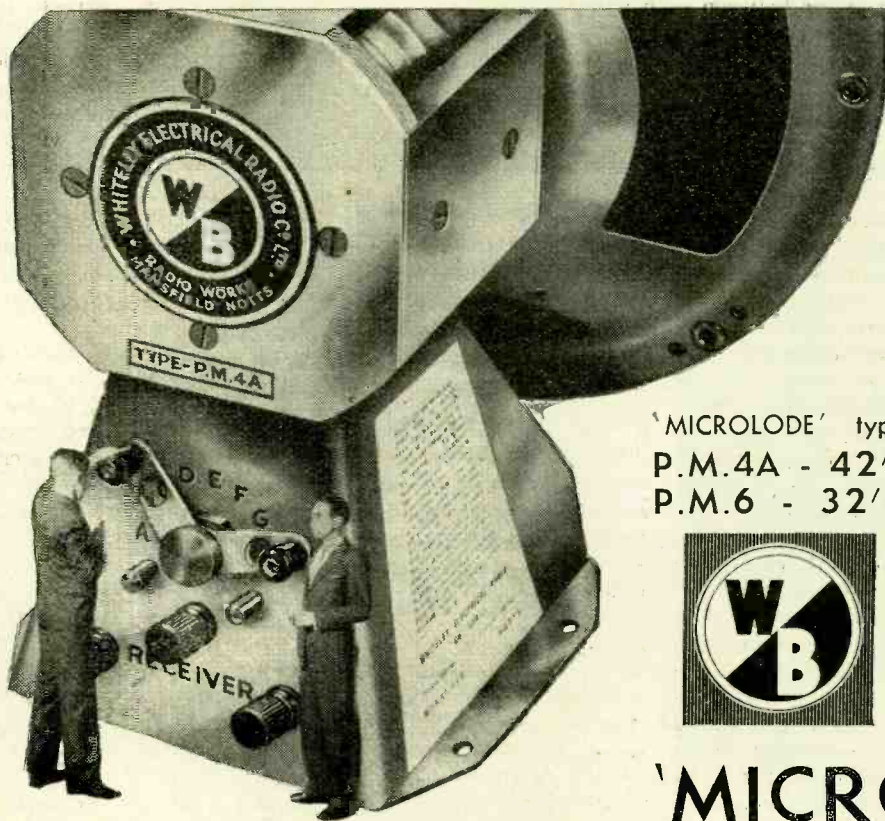


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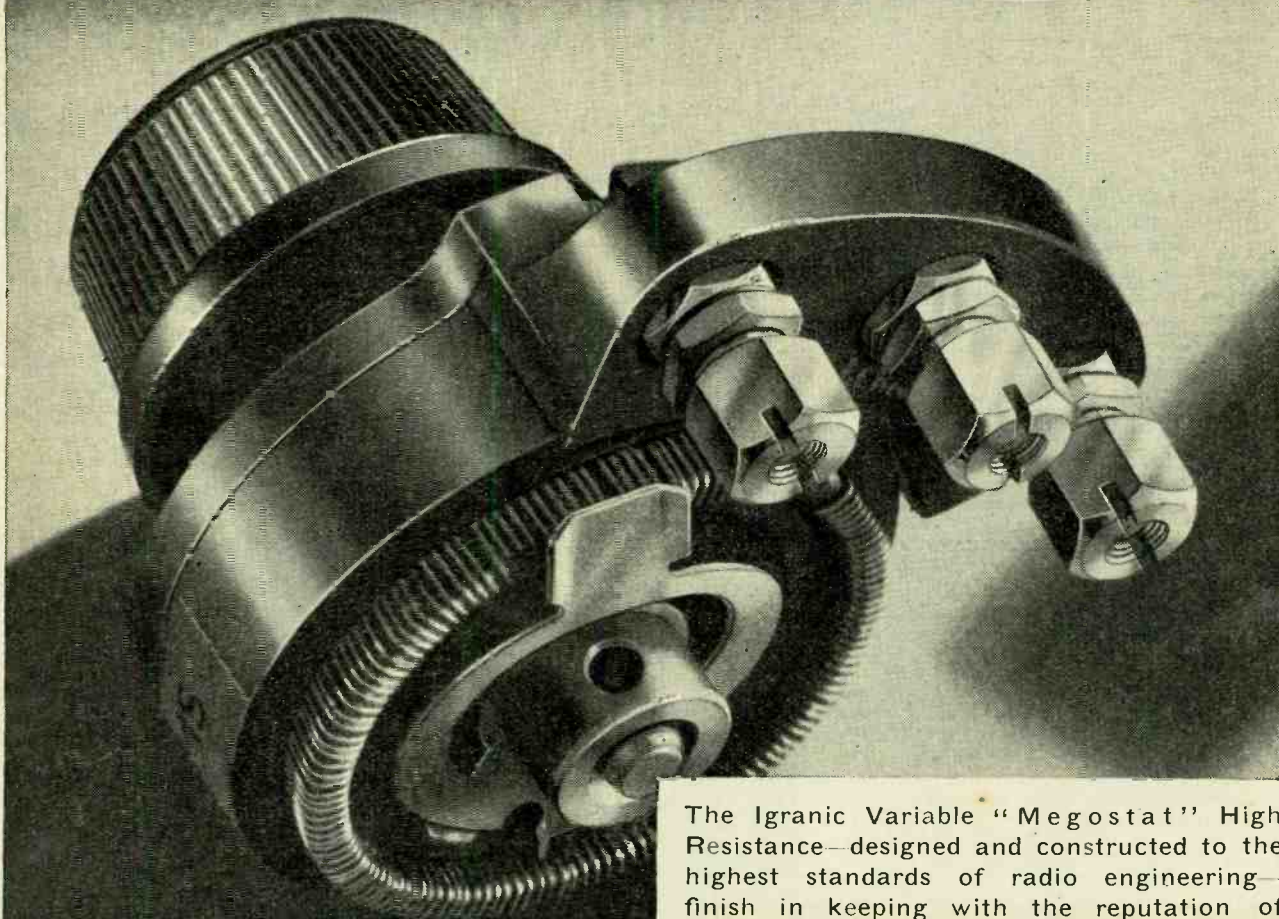
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NEWS of the WEEK

Current Events in Brief Review

All Eyes on Glasgow

GLASGOW, where the Scottish Radio Exhibition opens tomorrow in the Kelvin Hall, has been a stronghold of wireless since the days when 5SC (of blessed memory!) first transmitted the voice of the then British Broadcasting Company.

Of recent shows in Glasgow the most notable was that held last year in the same hall under the auspices of the *Glasgow Weekly Herald*. This year's Show—the first to be sponsored by the Radio Manufacturers' Association—will be a close replica, if on a smaller scale, of the Olympia Exhibition. With nearly eighty stands and a radio ballroom, the Glasgow Show bids fair to make new records both in attendance and business transacted.

A complete guide, with plan, appears on page 202.

The Prince of Wales

ROYAL recognition of wireless has been very marked in recent years, and the Prince of Wales will be carrying on the tradition when he honours the Radio Manufacturers' Association by attending the Annual Dinner in November under the chairmanship of Mr. W. W. Burnham.

This will be the first time that His Royal Highness has been present at this annual dinner.

All in 135 Minutes

MR. J. HUNTER, of Blackheath, London, whose station G2ZQ is one of the best-known in Europe, has put up yet another amateur transmitting record. In two and a quarter hours on one evening recently, he communicated with amateurs in New Zealand, Palestine, Argentine, French North Africa, the United States and England using the 20-metre band.

Future of Radio Paris

AS a sequel to the purchase of Radio Paris by the State, members of the station staff have received formal notice that their engagements will expire without renewal from December 3rd next. It is expected, however, that the whole of the staff will be re-engaged.

Luxembourg Stands Firm

RADIO LUXEMBOURG, it seems, intends to stand by its guns and continue transmissions on the 1,190-metre wavelength, despite the decrees of the International Broadcasting Union. According to a recent visitor, the management contend that it is impossible for an "international" station to work on an exclusive wave of 240 metres. It is hoped that this will be recognised at the forthcoming Amsterdam Conference of the Union.

The Luxembourg transmitter is open to inspection by visitors, who are enabled to see the studios through soundproof windows.

Programmes on Tap

THE peril attaching to the tapping of wires belonging to a wireless relay company was brought home to Mrs. Stanley, of Moorthorpe (Yorks.), when she was fined £1 last week for having fraudulently abstracted a quantity of electricity. Mr. E. H. Moorhouse, prosecuting on behalf of Economic Radio, Ltd., explained how, on July 21st, following much interference, it was found that Mrs. Stanley had tapped the wires and attached a loud speaker, with the result that some fifty or sixty subscribers on the far side of her house were cut off. The current consumed by Mrs. Stanley was only assessed at 1s., but the tracing and making good of the damage was 15s.

Kettering Radio Show

THE first annual radio exhibition at Kettering is to be held on September 14th, 15th and 16th in the Co-operative Central Hall under the auspices of the Kettering Radio and Physical Society.

Musical Murder

INVESTIGATION into a recent Paris murder revealed that a loud speaker was switched on in the flat in which the two victims, a mother and her son, were put to death. French detectives consider that the murderer had tuned in before making his attack in order to stifle any compromising sounds.

Lectures on Wireless

A COURSE of twelve lectures on "Wireless Science" are to be given at Morley College, 61, Westminster Bridge Road, London, S.E.1, by Mr. H. S. Ryland. The lectures will be given on Friday evenings at 7.30, beginning on September 22nd. Full particulars regarding fees may be obtained on application to the Secretary.

French Radio Revelations?

IMPORTANT revelations concerning the immediate future of French broadcasting and the development of the high-power scheme are expected when M. Laurent-Eynac, the Postmaster-General, speaks at the Paris Wireless Show Banquet. The Show, which is international in scope, will be held in the Grand Palais, Paris, from September 6th to September 17th. In addition to exhibits by practically the entire French radio industry, the "Salon" will contain a special section devoted to anti-static devices, the use of wireless in aviation, marine and Colonial services, and practical demonstrations of the manufacture of gramophone records.

A wave of wireless enthusiasm seems to be sweeping France, due to the development of the Ferrié scheme and the realisation that the State is going ahead with the development of broadcasting.

Pitch Pine for Radio Masts

THE increasing use of wood in the construction of wireless masts has greatly encouraged the timber trade. "The Timber Trades Journal" refers, with gratification, to the new German wireless tower erected at Rothsurven, near Breslau, which is built entirely of wood and is claimed to be the tallest wooden structure in the world. Its height is 460ft.

It is stated that German engineers combed the world for the best structural material available, and ultimately chose pitch pine, which is said to excel all other woods in homogeneous strength properties, and provides large dimensions relatively free from knots and defects. Its high content of resin acts as a natural preservative; in addition, pitch pine is not apt to check and split, and its shrinkage factor is very low.



THE BERLIN SHOW. Changed political conditions have made their impression on the famous German radio exhibition, which has just been held under the shadow of the Radio Tower, or Funkturn, in Berlin.

5-metre Tests in London

TRANSMISSIONS on 42.2 metres (7,097 k.c.) and 5 metres (5,600 k.c.) are being carried out to-day (Friday) and on Sunday next by Dr. C. G. Lemon (G2GL) at 72a, North End Road, W.14. The schedule is as follows:—Friday: 5 metres, 10.45 p.m. to 11 p.m.; 42.2 metres, 11 p.m. to 11.15 p.m. Sunday: 42.2 metres, 10.30 a.m. to 11 a.m., 11.30 a.m. to 12 noon; 5 metres, 11 a.m. to 11.30 a.m. Similar schedules will be followed throughout next week.

The Winning District

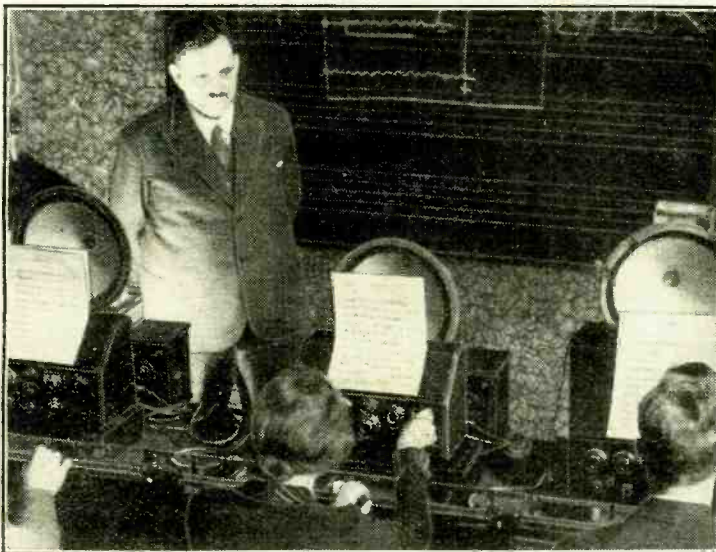
DISTRICT 15 of the Radio Society of Great Britain secured first place in the National Field Day organised recently by the Society, in which portable transmitters and receivers were operated by eighteen groups of amateurs from the R.S.G.B.'s nineteen administrative districts.

District 15 covers West London and Middlesex, and during the Field Day the call signs G6WN and G6YK were used, on the 160 and 80 metres, and on 40 and 20 metres bands respectively. A total of 364 points was obtained, with 64 contacts with other amateurs.

Dr. Koon Speaks

"EVEN the rubbing of a careless finger over a half-day's growth of beard may completely confuse a radio-audience," writes Dr. Cline M. Koon in his booklet, "The Art of Teaching by Radio," just published by the U.S. Office of Education. Dr. Koon advises the broadcaster to avoid heavy breathing, keeping time with his feet, clearing his throat or clicking his finger-nails. The announcer and operator, too, should play their part by making the speaker comfortable and at ease, allowing him to sit and roll up his shirt-sleeves.

It is very important that the broadcaster should assume a friendly, respectful attitude.



ELECTRICAL MUSIC. So high an authority as the Berlin State Academy of Music has now recognised the possibilities of the thermionic valve as a musical instrument. The photograph shows a Trautonium class under the direction of the inventor, Dr. Trautwein.

Practical HINTS and TIPS

IT is not difficult to see that the continuity and general condition of an earth connection cannot be checked by the methods ordinarily adopted in testing other circuits. A fairly good indication that something is wrong is often afforded

Testing the "Earth"

by the fact that a general decline in signal strength is accompanied by a change in tuning, more capacity being needed to bring the aerial circuit into resonance with a given wavelength. But this latter effect is likely to pass unnoticed in a modern gang-tuned receiver.

To ascertain definitely whether the earth lead is broken, it is usual to make a test for continuity between the normal earth connection and a second extemporised "earth"; if all is well there should be negligible resistance between these two points. But the converse does not of necessity hold true; possibly the temporary and unknown "test earth" may itself be of high resistance.

A reader, who evidently believes in taking no unnecessary chances, describes a method of testing the earth connection for which he has made provision in his own installation. The details will be obvious from a consideration of Fig. 1, from which it will be seen that, in addition to the usual connection to the buried earth plate, a second lead, solely for testing purposes, has been soldered to it. The end of this lead, when not in use, is coiled up and concealed in a tin buried just below the surface of the ground.

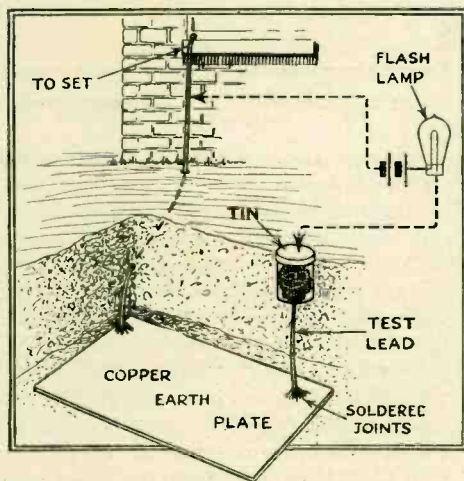


Fig. 1.—Perhaps over-cautious, but—
How to make provision for testing a buried earth connection.

Although it must be admitted that precautions of this nature are hardly necessary in most cases, the provision of a testing lead in this manner involves very little extra trouble, and may save a lot of unnecessary work in the future, especially if the earth plate be deeply buried.

AIDS TO BETTER RECEPTION

ALTHOUGH modern D.C. valves work at a higher voltage and a considerably lower current than their prototypes, it is generally necessary to dissipate a considerable wattage in the main voltage-absorbing resistance, which is wired in series with the heaters.

D.C. Set Precautions

This energy is, of course, finally dissipated in the form of heat, and so an appreciable temperature rise may be expected.

Instances have recently come to light where heat generated in this way has adversely affected paper-dielectric by-pass or smoothing condensers by melting the sealing compounds generally used in the manufacture of these components. It is accordingly wise to make sure that the condensers are mounted in a cool position, and certainly not in the immediate vicinity of the main resistance. In any case, provision for ventilation of the complete set should be made.

IT was recently pointed out that many liberties may be taken with regard to the layout of the L.F. section of a receiver. Unlike the H.F. amplifier, it is but seldom that the result of doing so will be to cause instability or some other manifestation of undesirable interaction.

Transformer Interaction

But, in view of the fact that the L.F. amplifier and power supply equipment are often designed nowadays as a single self-contained unit, it is perhaps as well to point out that a common—perhaps the most common—cause of mains hum is interaction between power and L.F. transformers. Fortunately it is seldom difficult to overcome this trouble by an experimental alteration in the relative positions of these components.

For Batteries Only

IT is rather a pity that we are all prone to expect rather too much from new developments. Take Class "B" amplification; it is proving a real boon to those who are forced to use batteries for H.T. supply, but for mains use in ordinary sets it presents special problems, and, generally speaking, has few attractions. In spite of this there seems to be a tendency, among those who have mains available, to swing over to the new system.

In doing this they are certainly making a mistake; the older and more conventional circuits, with mains-driven valves and a liberal supply of anode current, may be expected to yield better results, and to involve fewer complications and less cost.

IN a recently published reply to a reader's query, it was pointed out that the system of automatic volume control employed in the original A.C. Monodial is impracticable for the D.C. version of the same set, due to the fact that no surplus H.T. voltage is available for the A.V.C. valve.

A.V.C. for the D.C. Monodial

It will be clear, however, that this objection does not apply when a user of the D.C. set is willing to employ an H.T. battery for the controlling valve. Although there may be a natural reluctance to use batteries in an otherwise "all mains" set, the plan is nevertheless quite a practical one, and the extra valve may be wired as shown in Fig. 2.

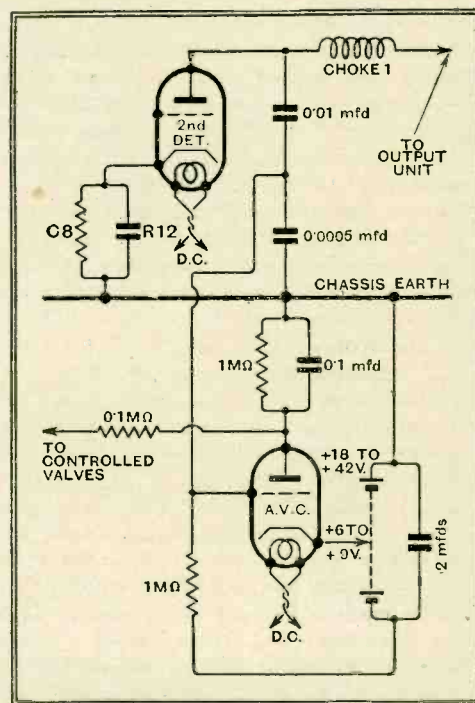
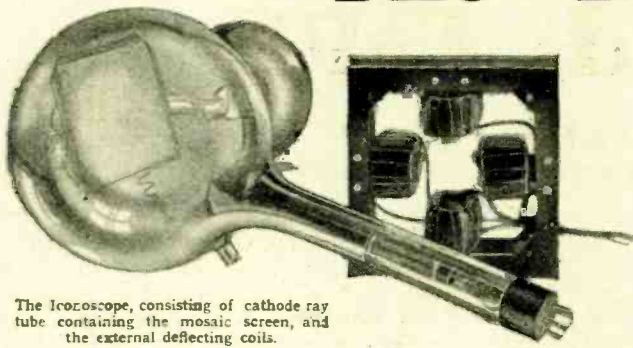


Fig. 2.—The addition of an A.V.C. valve to the D.C. Monodial.

It is opportune to point out that, although a relatively high anode voltage is needed for the A.V.C. valve when full control has to be maintained in the neighbourhood of a powerful station, no such necessity arises in "wirelessly" remote localities where overwhelmingly strong signals are not to be expected. Where the input from the aerial cannot reach a high value, quite a small anode voltage suffices, and, according to a user of this system, a measure of control is still obtainable if the H.T. voltage be reduced to as little as 18 volts. The extent of delay in the action of the A.V.C. system is easily controlled by varying the cathode tapping on the H.T. battery; this determines, of course, the working bias of the grid. Incidentally, a Marconi or Osram D.H. valve has been found suitable for A.V.C.

The ICONOSCOPE



The Iconoscope, consisting of cathode ray tube containing the mosaic screen, and the external deflecting coils.

America's Latest Television Favourite

AN interesting step towards practical television was announced at a recent convention held in Chicago by the Institute of Radio Engineers; the "Iconoscope" of Vladimir Zworykin relating to the use of a cathode ray tube in place of a scanning disc. The Iconoscope is claimed to be several thousand times as efficient as the scanning disc even when it is working far below its theoretical maximum efficiency. It makes it possible to transmit twenty pictures, or more, per second, with a detail corresponding to as many as 250 lines per square inch. The most important feature of the device, however, is its power of imitating the human eye in regarding a picture continuously and in possessing a certain degree of retentivity. It replaces mechanical scanning and several stages of amplification; it is entirely electrical and has no moving parts.

The Iconoscope consists of two devices—a photoelectric mosaic on which the picture is focused by a lens system, and a cathode ray gun which fires at this screen a stream of electron projectiles. The elements of the device are shown in the drawing of Fig. 1. The signal plate upon which the picture is focused may be about 4×5 inches in dimensions and on its surface are millions of small photocells, each consisting of a minute silver globule sensitised by caesium. These minute photocells like a mosaic are deposited on an insulating plate, such as a thin sheet of mica, and the back of this plate is made conductive by a metal coating. Since both the photocell and the metal coating are conductors, and they are insulated from one another by mica, each individual photocell forms a small condenser with the metal plate. This capacity amounts to several hundred micro-microfarads per square centimetre, and the sensitivity of the photocells is equal to that of the modern caesium oxide type cells.

How the Image is Translated

Now, suppose a scene, say, of a well-lighted outdoor landscape is focused upon this plate. Since there are varying degrees of light and shade, there are varying currents flowing from the individual photocells. These currents charge the condensers associated with the photocells

according to the flow of current, and the picture is thus translated into an electrostatic screen made up of many thousand electrical charges, each condenser being charged according to the intensity of the light falling upon its photocell.

Within the same glass bulb as the mosaic is the electron gun which throws a beam of electrons at this screen and which is made to sweep across the screen horizontally and vertically by means of deflecting coils, as in an ordinary cathode ray tube. Whenever an electron hits a photocell it neutralises part of the charge on the associated condenser. This discharge current is picked up, amplified, and transmitted to the receiving cathode ray beam which is moving across a fluorescent screen in synchronism with the scanning beam. The varying discharge currents modulate this receiving beam and hence the screen at the receiver.

Increase in Light Values

The Iconoscope apparently solves one of the worst problems of television, that of getting sufficient light from each point so that the resulting photocurrent can be effectively amplified for use at the receiver. In his description Dr. Zworykin states that a desirable picture would involve some 70,000 picture elements. If there are twenty pictures per second, the time of transmission of each element would be $1/1,400,000$ of a second. This is unimportant provided that the light intensity is sufficient to actuate the photocell in this small time. This is where the difficulty lies, however, for the photocell delivers a current depending upon the product of the light intensity and the time during which this light acts. If the time be decreased, the current is reduced. With a scanning disc the current falls as the square of the number of picture elements because the time decreases for any increase in the number of holes. It has been virtually impossible, therefore, to televise outdoor scenes because of the difficulty of getting enough light.

Again following Dr. Zworykin's reasoning, suppose it be desired to televise this outdoor scene. A camera with a lens working at a speed of $F 4.5$ would focus on a plate about $1/10$ lumen. Now, if a scanning disc were used to take this picture apart and transmit it into a photo-

cell of average sensitivity, say, 10 micro-amperes per lumen, a single picture element would produce a current of the order of 1.43×10^{-11} ampere. In the time available this would produce a charge of 1×10^{-17} coulomb, corresponding to about 63 electrons. All this means that tremendous amplification is necessary if an outdoor scene is to be transmitted successfully.

The trouble with the scanning disc system of taking the picture apart is that the light from a single point of the scene affects the photocell for such a short space of time. If the photocell could see all of the picture all of the time, as is true of the human eye, the efficiency or light gathering power compared to that of a disc scanner would increase as the number of picture elements. Thus with 70,000 elements the Iconoscope, which accomplishes this seeing-all-at-once, is theoretically 70,000 times as efficient as the scanning disc and hence the amplification may be reduced to a vast degree. Actually the efficiency of the Zworykin device does not reach this figure, but it is stated to be several thousand times as good as the scanning disc.

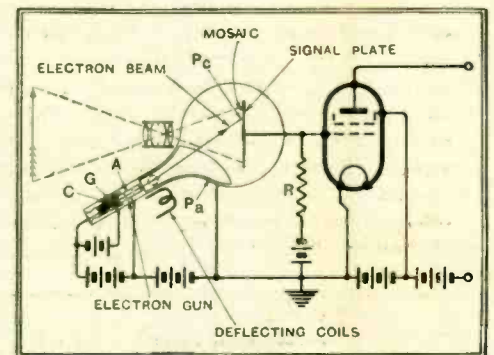


Fig. 1.—Elements of the Iconoscope device.

The mosaic of photocells has the entire picture focused upon it, resulting in the continuous emission of electrons according to the degree of light and shade in the picture. Once in each repetition of the picture the charge on the condenser acquired by each element of the mosaic is released by the cathode ray beam.

The fact that the transmitting screen is 4×5 inches in size is no indication that the receiving screen is limited to this size. In fact, Zworykin claims methods of projecting the picture from the fluorescent end of the cathode ray tube upon a larger external screen by lenses and mirrors.

Dr. Zworykin's paper, when available for publication, will contain many most interesting facts with reference to the composition of the mosaic, the size of the cathode ray beam when it hits the screen, the detail secured, etc. In the opinion of well-known American engineers it marks another landmark in the history of television.

New Class "B" Output Valve

Operating Data and Curves for the Marconi and Osram B.21

FROM the point of view of the battery user, Class "B" amplification is one of the most important of recent developments, and it is interesting to see that the Marconiphone and Osram G.E.C. Class "B" valve departs from normal practice in several particulars. The valve consists of the usual two triodes in a single glass envelope, but these triodes have com-

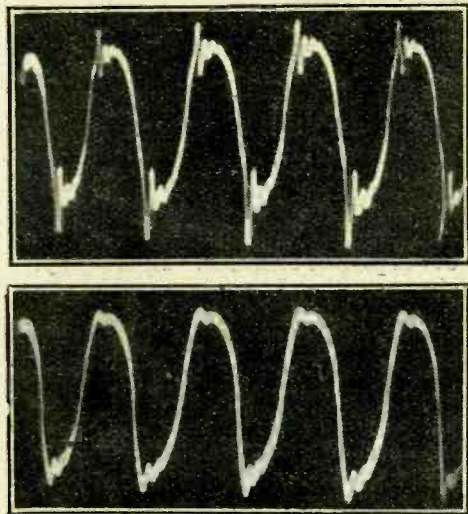


Fig. 1.—The upper oscillogram shows the output of a zero-bias Class "B" valve, and the lower that of the B.21.

paratively low amplification factors. At zero grid bias, therefore, the anode current is quite high, and the anode current cut-off point is not reached until some 4 to 6 volts negative bias is applied to the grids. The valve, therefore, is normally biased by this amount, and this leads to several important points.

First, grid current does not flow for a small signal input, with the result that the input impedance is high, and the system is more like a triode Q.P.P. arrangement than true Class "B." Secondly, with a large input grid current does not flow throughout the whole cycle of the input voltage, but only during a portion of it. The input impedance, therefore, is much higher than that of the zero-bias type of valve, and less power is required to operate it.

One important result of this lies in the possibility of reducing the ratio of the driver transformer, in some cases to a 1:1 ratio. Under certain conditions, moreover, it even becomes practicable to employ a step-up ratio. There is, therefore, an appreciable gain in amplification and a smaller signal input is necessary at the grid of the driver for full output.

Of even more importance, however, is the reduction in the tendency towards the generation of parasitic oscillations. These are often found in the circuit comprising the leakage inductance of the transformer and the stray capacities, and occur in that valve circuit which is for the moment idle. Due to the lower amplification factor of the B.21 there is not this same tendency towards parasitic oscillation, and the makers claim that it is consequently easier to obtain good quality reproduction. The point is well brought out by the oscillograms of Fig. 1, which are both taken for an output of 250 milliwatts. The upper photo shows the waveform of the output of a zero-bias type Class "B" valve when fed with a sine wave input. It will be seen that a fairly strong high-frequency oscillation is superimposed on the main output. The lower oscillogram refers to the B.21 valve, and it will be obvious that, although there is still a high-frequency oscillation present, it is much smaller in amplitude, and the reproduction obtainable is correspondingly improved.

Operating Conditions

Three alternative operating conditions are recommended by the makers. The first is for maximum economy, and with 120 volts anode supply a bias of $4\frac{1}{2}$ volts is needed. The load impedance must be 18,000 ohms, and the driver transformer can have a step-down ratio of 1.5:1 from the L.21 driver valve. The standing anode current of the output valve is then 1.7 mA. and the output is 750 milliwatts.

The moderate economy condition leads to an output of 800 milliwatts for the same anode voltage, and the bias can be only 3 volts. The load now becomes 12,000 ohms and the driver transformer can be between 1.5:1 step-down and 1:1 ratio.

The condition for maximum output, however, necessitates an L.P.2 driver and an 8,000 ohm load on the Class "B" valve, the standing anode current of which increases to 3.5 mA. The output is 1,200 milliwatts with a 120 volts H.T. supply, and 2,000 milliwatts with 150 volts. In this latter case $4\frac{1}{2}$ volts bias is needed, and the standing current becomes 4 mA.

Considerable latitude in the operating conditions is thus permissible.

As is usual in Class "B" working, it is advisable to connect a 0.005 mfd. condenser across each half of the output transformer primary. When using the lower values of load impedance a somewhat higher capacity is better.

Fig. 2 shows the characteristics of the valve, and Fig. 3 the grid current curves.

Constructionally, the bulb of the valve is unusually shaped, and the upper narrow portion grips a mica bridge holding the electrode assembly, and so increases the rigidity. Instead of a single fine grid for each triode, two rather coarse-mesh concentric grids are used, thus giving an unusually robust construction. It is, of course, fitted to the standard 7-pin base.

To sum up, it will thus be seen that the valve differs radically from other types, and, although it consists actually of two valves in a single glass envelope, its filaments consume no more than 0.2 ampere at 2 volts. The input impedance is high, some 36,000 ohms, resulting in a reduced tendency towards parasitic oscillation, and the valve needs negative grid bias.

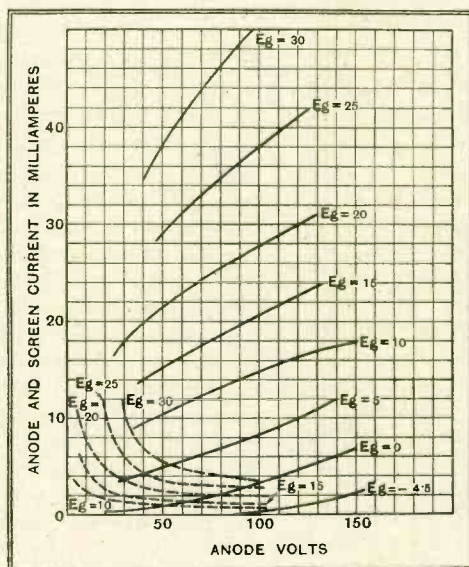


Fig. 2.—Anode volts-anode current curves of the B.21.

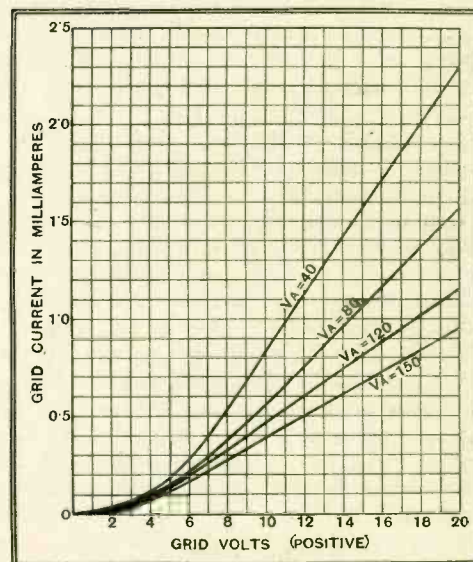


Fig. 3.—Grid volts-grid current curves of the B.21.

New Catalogues Received

Wright & Weaire, Ltd., 740, High Road, Tottenham, London, N.17.—25-page booklet describing "Wearite" components well illustrated and containing many useful theoretical diagrams and explanatory drawings of coil assemblies. The price is 3d.

A. F. Bulgin & Co., Ltd., Abbey Road, Barking.—Of the 80 pages contained in this well-illustrated and informative catalogue 25 are devoted to a Technical Manual dealing with the many applications of Bulgin components.

F. C. Heyberd & Co., 10, Finsbury Street, London, E.C.2.—1934 catalogue of Radio Mains Equipment; a 36-page booklet dealing with H.T. units, battery chargers and mains transformers. Twelve pages are devoted to eliminator kits, a theoretical circuit diagram being given for each model. The price is 3d. post free.

Binaural Reception

An Acoustic Illusion Telephonically Achieved

By HARVEY FLETCHER

Acoustical Research Director
Bell Telephone Laboratories

ABILITY to locate sounds is mainly due to interaction between the two ears. Stopping up one ear renders location of sounds almost impossible. Interesting experiments with telephone links to demonstrate this facility are described in this article.

DURING the winter and spring of last year a strange figure inhabited the American Academy of Music in Philadelphia. Looking him full in the face, one met unblinking eyes and a slight smile, fixed and unfading; and this evidence of inhumanity was confirmed by looking at him in profile, for just in front of his ears microphones were set into his cheekbones. Thus Oscar, a tailor's dummy, though less than human in appearance, was given one capacity that was more than human; that of instantly communicating to others exactly what he heard, exactly as he heard it. To listen through the receivers connected to Oscar's microphones was to put oneself in Oscar's place. This capacity of Oscar's gave him an important position in the tests of musical reproduction conducted by the Bell Laboratories in co-operation with Dr. Leopold Stokowski and the Philadelphia Symphony Orchestra.

Locating Sounds

When one hears a sound one can usually locate approximately its point of origin—its distance and direction. The mechanism by which this location is accomplished is not altogether understood, but the interaction of the two ears seems to have much to do with it, for stopping up one ear destroys the ability almost completely. In listening to an orchestra under the two conditions the difference in effect is quite similar to that between a view seen in full perspective with both eyes and in flat panorama with only one.

It is to be expected that any two sound-apprehending devices could double for the ears. Two microphones, placed the same distance apart as human ears, could be independently connected by two receivers. A person putting the receivers



to his two ears would be acoustically transported to the location of the microphones no matter at what distance from them he might actually be, hearing all sounds as he would if his ears were in the positions of the microphones. Oscar duplicates the conditions of normal hearing as nearly as possible, not only by supporting the microphones the proper distance apart, but by modifying the sound field near them as a human head modifies it near the ears.

In the extent to which they approach the conditions of normal hearing, systems for transmitting sound can be roughly divided into four classes, as represented in Fig. 1. In "monaural" systems, such as the commercial telephone, a single transmitter is connected to a single receiver. "Diotic" systems, in which the transmitter is connected to two receivers, one for each ear, are familiar to those who have used double head telephone receivers. "Mixed" reception is found in the similar use of double receivers to monitor a loud-speaking public address

the two receivers, only a few experimental examples have been built.

From the familiar monaural condition the change to the diotic produces mainly the effect of an increase in the loudness and fullness of the sound, and of a shift of its apparent source to the centre of head. Changing to the mixed condition adds a roughness to the sound, but leaves its loudness and apparent source as they were when reception was diotic. With the final change to the binaural condition the apparent sources of sound move to approximately their proper locations in space, and the apparent reverberation is greatly reduced.

Importance of Frequency Response

To provide for the experiments in Philadelphia, a binaural system which would reproduce speech and music faithfully in all respects, microphones, amplifiers and receivers of the highest quality were used in the two channels, transmitting extremely wide ranges of frequency and volume. Since the response of a receiver depends upon the person's ear upon which it is placed, perfect reproduction requires a different equalisation for each person. In these experiments, however, only a single equaliser was used, which was an average for a group of listeners. By its use the frequency characteristics of the system were corrected, so that all observers agreed that the reproduction was exceptionally faithful.

Striking evidence of the naturalness which can be secured with such a binaural system was obtained at several formal demonstrations in Philadelphia. When the guests had put to their ears the receivers connected to Oscar, who was in another room, someone would say confidentially in Oscar's ear, "Please move over." A surprisingly large number of the guests would start to obey the command before realising that it came from

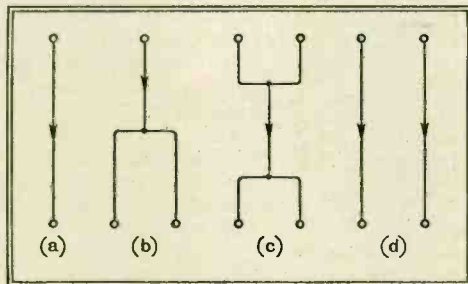


Fig. 1.—Systems of transmission can be roughly divided into four classes: monaural (a), diotic (b), mixed (c), and binaural (d).

system, in which two microphones are used to pick up the programme and their outputs are mixed. Of "binaural" systems, in which the outputs of two microphones are separately conducted to

Binaural Reception—

the receivers. Afterwards someone would whisper in first one and then the other of Oscar's ears, and would tear paper, jingle keys or thump a tambourine to illustrate the fidelity of the system to sounds of high frequency. Finally Oscar would be brought out and set in the midst of the audience, so that they could compare for themselves the direct with the transmitted sounds.

Experiments showed that the advantage of using Oscar, instead of two microphones less dramatically mounted, was confined to cases in which the sounds originated quite near the microphones. For tests of the reproduction of music, therefore, two microphones were hung from a bar. It was found that, when the localisation effect of the system is disregarded, the best place for the microphones is relatively near the orchestra, where the tones are brilliant because absorption has not diminished the high frequency components as it has by the time the sounds reach remote parts of the hall. The localisation is such, however, that observers sitting at the rear of the hall, where they can see the orchestra, prefer to have the microphones near them, even at the expense of tonal brilliance, for otherwise they find themselves discomforted by being acoustically in one place and visually in another.

This effect has even been noticed by observers in another room, where a screen placed the source of sound at a certain apparent visual distance.

In comparisons of binaural with loud speaker reproduction, even the inconvenience of wearing head receivers does not prevent most observers from preferring the binaural system. In an attempt to rate the worth of the binaural system, observers were asked to note their preference between monaural reproduction of the full frequency range and binaural reproduction of various limited frequency ranges. Even when all frequencies over about 2,800 cycles per second were suppressed in the binaural system more than a third of the observers preferred it.

To give a wider public the unique experience of being put in the other man's place by a trick of the ear, a binaural system has been set up. In this Oscar II will appear in a glass booth somewhat similar to that shown in the title picture, and observers who hold to their ears a pair of telephone receivers will feel as if transported to Oscar's position, there to be addressed by his companion. The system will furnish to those who use it dramatic proof that there is no longer any limitation, except expense, to the acoustic fidelity which electrical transmission systems can achieve.

the general mass of people does not know what it does want, and the manufacturers, assuming that what is thought is wanted is a large number of foreign stations, continue to offer sets in which quality of reproduction is subservient to the demand for the reception of distant stations. In the course of my everyday life I come across a very large number of listeners of all classes, and I know of only two people who neglect the reception of B.B.C. programmes entirely for foreign stations; it so happens that both these people are completely devoid of any sort of musical or educational appreciation. Many people wish from time to time, to tune in distant stations for the sake of special programme items, but, with several foreign stations at their present quality and power, quality of reproduction is just as important as when receiving the local B.B.C. transmissions. Radio can give exceedingly good and natural entertainment, but the time must surely come when the public will wake up to the possibilities of the science and then, perhaps, we will have some technical progress in the direction of quality of reproduction.

Quality Should Come First

As much money should be devoted to quality as is now spent on increasing selectivity and sensitivity to make reproduction from a local station really worth listening to, for the cheap set sounds very bad on a good transmission. The consequence of selling large numbers of sets giving distorted reproduction is to drive still more firmly into the public mind the idea that the sounds produced are the kind of sounds that radio is expected to produce. Were this truly the case, there would be every justification for the B.B.C. to spoil the quality of its transmissions to an extent where it would be equal to that of the average commercial set; if such did happen it would be found that the final results were so bad that the radio industry would die out. In case anyone takes exception to this statement, I would like to point out that I did not meet with a single radio-gramophone at the show which was capable of getting the best out of a good gramophone record;

Thoughts on Olympia

By a Critic of Quality

In the Following Article a Wireless Engineer Gives His Personal Impressions of the Show

I SET out to examine the exhibits at the Radio Show from a viewpoint differing from that of the official *Wireless World* reporters, because I am not so concerned with giving a complete description of the various manufacturers' achievements as in indicating what I think are desirable or undesirable trends of development.

I am one of those who have always held very strong views on the necessity of preserving the true function of radio apparatus, namely, to give in the homes of subscribers to the broadcasting service a true and faithful reproduction of what that service offers. This being so it is natural that I should examine the show to see what progress has been made in this direction.

Most manufacturers are of the opinion that the largest amount of money is to be made by selling the largest possible number of sets. Past experience shows this opinion to be a sound one, but, as the largest sales are made by the cheapest articles, it follows that cheapness calls for the sacrifice of excellence, so that we have a state of affairs in which the receiver most suited to the needs of the listener is generally much too expensive for him. The portable set craze of a few years ago was the start of the trouble. At that time sets were not very good no matter what the price paid, but some mis-inspired genius conceived the idea of making still worse sets, but appealed to the public to appreciate the convenience of

portable radio. Tens of thousands of these sets were sold; and I am convinced that 99.9 per cent. of them were never shifted out of the room in which they were first placed; we have the result that performance was spoiled to secure a property that the public did not require or appreciate, and, at the same time, the public taste was so spoiled that a demand for good sets has not yet made itself evident. It is notorious that



WIRELESS AND THE POLICE. Few police organisations dare forgo the benefits of radio. Here is a scene in the radio receiving room at police headquarters, Rio de Janeiro, which has just been equipped with a Marconi installation.

Thoughts on Olympia—

to do this calls for an exceedingly good amplifier and loud speaker which will do useful work up to far more than 6,000 cycles, although it is a commonplace that records cut off below this figure; I mention the point to show a close connection between the comparative merits of a record going through a good L.F. apparatus, and a good B.B.C. transmission going through a poorly designed set. Present reproduction is obtained in spite of receivers and not owing to their inherent "excellence" of design. With one or two solitary pioneers excepted, we would be in a bad way indeed were it not for a responsible technical press.

The Superhet Stampede.

The superheterodyne principle of reception seems to have become the master rather than the servant of the manufacturer. It can fairly safely be assumed that this journal was responsible for the return of the superhet. To favour, but it does not follow that *The Wireless World* recommended that every manufacturer (with one or two notable exceptions) should go "super mad." This type of receiver is very suitable for the home constructor owing to the ease with which it can be made to work satisfactorily; on the other hand, for equal selectivity and sensitivity, the straight multi-stage set is a very troublesome beast for the amateur. It would seem to be equally troublesome to the professional, who has little excuse, with all his facilities, for rushing to the superheterodyne principle where the straight set, properly designed, would meet the case better.

It should be borne in mind that the manufacturer can and does purchase ready-made ganged coils and condensers for superhets., and almost any schoolboy could finish the design of the set. It takes real brains, however, to design a really good straight receiver, for the usual canned or iron cored coils are not by any means good enough, and possess certain disadvantages which preclude their use in a satisfactory design; the consequence is that the technician has to design "from the ground up," and that, I fancy, is a task beyond the capabilities of many in the industry.

I was interested to find several firms who were making a speciality of building a "limited number of high grade receivers for the connoisseur." In one or two cases there was evidence of real thought and research behind the receivers shown, but a word of warning might not be out of place to those manufacturers contemplating entering this field. In every ten or so listeners there is one man who wants something better than he can find in the ordinary way, and that man is going to choose his special set on performance and nothing else. The inclusion of a conventional set in an elaborate cabinet, and a multiplicity of valves does not make a "high grade set for the connoisseur" although the showy outside may appeal to the bloated plutocrat; most of the real searchers after something good whom I have met have usually been somewhat hard up, so everything should be devoted to the one purpose of giving superlative performance; one manufacturer told me he started with an "exquisite cabinet" and fitted the set in afterwards; the idea is, at any rate, original, but has little else to commend it.

Moving-coil speakers continue to get smaller and cheaper, and some people may say that putting this type of speaker

within the reach of everybody is progress, but I must confess that I do not see how it can be. The function of a loud speaker is to translate into sound what is put into it electrically, and I did not find any manufacturer showing on his stand how this was done with less distortion than heretofore. If the midget set idea is responsible, then the midget set is a menace to the future of broadcasting.

The real novelty merchants this year were the valve makers, and some very interesting and amusing things can be done with the new types now available. The wholesale adoption of A.V.C. has, in most cases, only been made possible by the work done in valve laboratories, so we will give credit here in the proper place. In the space at my disposal I cannot say much about valves, but a point that is not sufficiently realised about Class B amplification is that it is only really useful on substantially constant modulation; the power provided is truly astonishing considering the size of the valves, but it should be remembered that this power is only undistorted when the output stage is going "all out" with the circuit arrangements usually given: most Class B output stages require positive bias. The constantly varying modulation of transmissions carrying music means that, for most of the time, the power stage is under-run and a particularly unpleasant form of distortion is set up which can be very irritating to sensitive ears. Do not, therefore, design your new A.C. set and expect to get from two 5-watt what you would obtain from two 25-watt valves.

Components generally showed a great improvement, both in the elimination of unworthy designs and in the introduction of new features of great use to the home constructor. It can safely be said that component manufacturers are giving better value for money, but it is disappointing to find that the perfect volume control has not yet been invented.

I think the time has come to abolish the scheme of piping through fifth-rate grammo-



CAR RADIO: MILITARY VERSION. A typical scene during the recent manoeuvres in Hampshire, showing a wireless car in action.

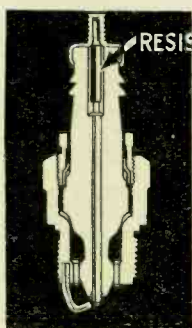
phone records for the edification of the public through the medium of speakers on exhibitors' stands. This proves nothing to anyone beyond the fact that the B.B.C. is up against enormous difficulties in turning out presentable noises. I would imagine that actual demonstration on the stands would give the public an opportunity of hearing for themselves the difference between the various sets offered; if exhibitors were rigidly tied down to receiving and reproducing only, say, the Regional programme, at not more than 5 watts output, we would soon be able to separate the grain from the chaff. Were such an obviously sensible arrangement put into force, I can well imagine the howls of protest that would go up from the less capable manufacturers, but it would be a good thing for technique, and that is all that concerns me.

A bright show, a pretty show and, in all probability, a selling show, but rather a disappointment for the student of quality reception. I think I will leave it at that.

The Radio Industry

AMONG the latest productions of the Ever Ready Co. are two special H.T. batteries for sets including Class "B" amplification. Type No. W.1210 is rated at 135 volts plus 18 volts for grid bias purposes, and tapings are arranged in accordance with suggestions recently put forward in *The Wireless World*.

It is understood that Scotland Yard and other police authorities are already using, in their wirelessly equipped vehicles, a new type of Champion sparking plug, in which the necessary interference-suppressing apparatus is built into the body of the plug, and connected in series with the central electrode. Various



RESISTOR

Complete with interference suppressor: section through the new Champion sparking plug.

types of plug, to suit different engines, are available with this special feature.

Valves for the current season are fully described in the latest edition of the Mullard Valve Guide for 1933-4. This 88-page booklet

is full of technical information, and, apart from data relating purely to valves, a number of circuit diagrams are given, together with advice on the best operating conditions for the latest types. Copies are available for readers.

Tungsram have just introduced an equivalent of the American R.C.A. Type 88, full-wave mercury-vapour rectifier. It is rated for an A.C. input of 500 volts to each anode, and for a continuous D.C. output of 125 mA.

Changes of address: the Leeds branch of Siemens Electric Lamps and Supplies, Ltd., is shortly to be moved from 129, Park Lane, to 54, Wellington Street, Leeds, 1. The new telephone number will be Leeds 27395.

The Automatic Radio Gramophone Co., Ltd., notify us that their new address is: Crown Street Hall, Brighton.

Spare parts for "Standard" wet H.T. batteries, which are no longer to be obtained from the original manufacturers, are now being produced by the Wet H.T. Battery Co., of 26, Lisle Street, London, W.C.2.

Mr. T. W. Small, inventor of the well-known "Capehart" record changer, is now in London, staying at the Carlton Hotel. He would welcome a visit from British manufacturers who might be interested in the production of his new fully automatic record changer, operating without the use of gears, chains or sprockets.



Full List of Exhibitors

Local addresses of firms are given in some instances

EXHIBITOR.	STAND.	EXHIBITOR.	STAND.	EXHIBITOR.	STAND.	EXHIBITOR.	STAND.
Amalgamated Press, Ltd. Fleetway House, Farringdon St., London, E.C.1.	26	Columbia Graphophone Co., Ltd. 98, Clerkenwell Rd., London, E.C.1.	33A	Hustler, Shimpson & Webb, Ltd. 317, Hoe St., Walthamstow, London, E.17.	12	Radio Gramophone Development Co., Ltd. 18-20, Frederick St., Bir- mingham.	13
Balcombe, Ltd., A.J. 52-53, Tabernacle St., London, E.C.2.	23	Cossor, Ltd., A.C. 21, Waterloo St., Glasgow.	31	Hutchison, E. W. 496, Crow Rd., Jordanhill, Glasgow, W.2.	58	Radio Instruments, Ltd. 124, West Campbell St., Glasgow.	63
Ballantine, Robert 1034, St. Vincent St., Glasgow, C.2.	65	Cuthbertson & Co., Ltd. 11, West Nile St., Glasgow, C.1.	66	Igranic Electric Co., Ltd. 50, Wellington St., Glasgow.	23	Robertson, James 95, West Nile St., Glasgow, C.1.	22
Belling & Lee, Ltd. Cambridge Arterial Rd., En- field, Middlesex.	56	Dephohn, J. Stuart 32, Kilmarnock Rd., Glasgow.	49	Iliffe & Sons Ltd. Dorset House, Stamford St., London, S.E.1.	52	Ross & Adam, 63, Gordon St., Glasgow.	73
Bernard Jones Publications, Ltd. 58, Fetter Lane, London, E.C.4.	62	Dulcetto-Polyphon, Ltd. 2-3, New man St., London, W.1.	7	Itonia, Ltd. 58, City Rd., London, E.C.1.	39	Scottish Radio Retailers' Asso- ciation. 156, St. Vincent St., Glasgow, C.2.	59
Biggar, Ltd., Alexander 102, Sauchiehall St., Glasgow, C.2.	18	Econasign Co., Ltd. 92 Victoria St., London, S.W.1.	2	Johnson Talking Machine Co., Ltd. 96, Clerkenwell Rd., London, E.C.1.	54	Siemens Electric Lamps & Sup- plies, Ltd. 23, Cadogan St., Glasgow.	11
Black, Ltd., Michael 80, Blythswood St., Glasgow, C.2.	28	Edinburgh Rubber Co. 182, Rose St., Edinburgh.	8	McMichael Radio, Ltd. Wexham Rd., Slough, Bucks.	27	Thompson, Diamond & Butcher, 34, Farringdon Rd., London, E.C.1.	55
Blackadder, William 101, Union St., Glasgow, C.1.	60	Edison Swan Electric Co., Ltd. 153, West George St., Glasgow, C.2.	37	Macbeth & Sons, Thomas 45, Gt. Western Rd., Glasgow.	48	Thomson & Brown Bros., Ltd. 63, Mitchell St., Glasgow.	53
Block Batteries, Ltd. Abbey Rd., Barking, Essex.	67	Epoch Radio Mfg. Co., Ltd. Exmouth House, Exmouth St., London, E.C.1.	61	Marconiphone Co., Ltd. 10, West Campbell St., Glas- gow.	35	Turner, James 2340-2344, Dumbarton Road, Yoker, Glasgow.	20
Britannia Batteries, Ltd. 233, Shaftesbury Ave., London, W.C.2.	69	Ever Ready Co. (G.B.), Ltd. Hercules Place, Holloway, London, N.7.	30	Muir & Bryden, Dumbreck Rd., Glasgow, S.1.	57	Ultra Electric, Ltd. Erskine Rd., London, N.W.3.	42
British Blue Spot, Ltd. 37-39, Clyde Place, Glasgow.	4	Ewing & McIntosh, 425-7, Sauchiehall St., Glasgow, C.2.	1	Mullard Wireless Service Co., Ltd. 56, Bothwell St., Glasgow.	36	Varley (Oliver Pell Control, Ltd.) 11, Bothwell St., Glasgow.	25
British Broadcasting Corporation Broadcasting House, London, W.1.	74	Ensign, Ltd. 70-78, York St., Glasgow	47	Murdoch, McKillop & Co., Ltd. 101, Hope St., Glasgow, C.2.	21	Westinghouse Brake & Saxby Signal Co., Ltd. 82, York Rd., King's Cross, London, N.1.	6
British Rola Co., Ltd. Minerva Rd., Park Royal, London, N.W.10.	19	Ferranti, Ltd. Hollinwood, Lancashire.	38	Newnes, Ltd., George 8-11, Southampton St., Lon- don, W.C.2.	17	Whiteford & Co., James 5, Oswald St., Glasgow, C.1.	9
"Broadcaster" Long Acre, London, W.C.2.	51	Forbes Bros., Ltd. 50, Sauchiehall St., Glasgow, C.2.	71	North British Machine Co., Ltd. 200, Clyde St., Glasgow, C.1.	16	Whiteley Electrical Radio Co., Ltd. Victoria St., Mansfield, Notts.	70
Brown & Co. (Simplex), Ltd. 116, West Nile St., Glasgow, C.1.	24	General Electric Co., Ltd. Magnet House, 71, Waterloo St., Glasgow.	34	Partridge, Wilson & Co. 200, St. Vincent St., Glasgow, C.2.	11	Wireless & Gramophone Trader Dorset House, Stamford St., London, S.E.1.	3
Bulgin & Co., Ltd., A. F. Abbey Rd., Barking, Essex.	72	Gramophone Co., Ltd. 98, Clerkenwell Rd., London, E.C.1.	33	Paterson, Sons & Co., Ltd. 144-152, Buchanan St., Glas- gow.	46	Wireless World	52
Clarke & Co. (M/c), Ltd., H. 24, Oswald St., Glasgow.	44	Harper & Co., William 93, Holm St., Glasgow.	40	Philips Lamps, Ltd. 6-8, Cadogan St., Glasgow.	43	Woolfson, Ltd., Philip 165, Trongate, Glasgow.	50
Cohen, S. W. 7-13, King St., Glasgow, C.1.	15	Hellesens, Ltd. Morden Rd., S. Wimbledon, London, S.W.19.	45	Portadyne Radio, Ltd. Portadyne Works, Gorst Rd., London, N.W.10.	64	Wylie, Hill & Co., Ltd., R. 20, Buchanan St., Glasgow.	5
Cole, Ltd., E. K. Elco Works, Southend-on-Sea, Essex.	32	Hunter, James R. 42, West Nile St., Glasgow, C.1.	10	Pye Radio, Ltd. Africa House, Kingsway, London, W.C.2.	41	Young's (Glasgow), Ltd. 40, Stockwell St., Glasgow, C.1.	63

Broadcast Brevities

By Our Special Correspondent

A New "Music Hall"?

I AM able to reveal that the B.B.C. is conducting negotiations for acquiring an old skating rink in Maida Vale and transforming it into a dazzling "Music Hall." Here, in a vast and lofty building covering an area of 58,000 square feet, the Corporation will run a restaurant, green rooms for artistes, and several minor studios in addition to the large hall from which vaudeville and variety will be broadcast free from the restrictions attaching to Broadcasting House.

Secret Negotiations

Up to the moment of writing the utmost secrecy has been observed in connection with these arrangements, although it has long been apparent to informed onlookers that the B.B.C. was straining at the leash in regard to studio accommodation. The B.B.C. tenure of "No. 10," the famous wharf studio, is exceedingly precarious as the L.C.C. has the power to take over the building at very short notice, and may exercise its prerogative; yet the wharf is the B.B.C.'s only real large studio, apart from the Concert Hall at Broadcasting House, which is admittedly too small to accommodate the National Orchestra.

Space for 250 Singers

At Maida Vale it should be possible to rehearse the entire orchestra of 117 players as well as the National Chorus of 250 voices.

Until recently the hall was used as offices for the Ministry of Health.

The Big Three

THIS morning at 10 o'clock Colonel Dawnay enters upon his duties as Director of the B.B.C.'s Output Department. Structural alterations have already been effected at Broadcasting House to enable the new Director to keep in close touch with the Director-General and the Controller.

Sir John Reith for America

The party is likely to be broken up for a little while in the near future when Sir John Reith responds to the invitation of Mr. Aylesworth, President of the National Broadcasting Company of America, to attend the opening of "Radio City," the great new centre of entertainment between Fifth and Sixth Avenues, New York.

Strange . . .

Sir John will probably be included among the speakers, and as the ceremony will be broadcast and relayed across the Atlantic, British listeners will have one of those rare opportunities of hearing the "D.G." on the ether. Strange that Sir John should cross the Atlantic to speak to his own flock, but this is a strange world, as the boxer said when he "came to" in the television studio.

The Boxing Match

Which reminds me that the boxing match in Studio Bb last week made a good showing on the television screen although the figures were rather small.



WHERE IS IT? The mystery building in West London which, according to our Special Correspondent, the B.B.C. hopes to transform into a "Music Hall" for vaudeville shows as well as choral and orchestral concerts.

Problem for Television Talkers

I learnt one thing on that occasion, namely, that the television talker requires a technique rather different from that of the ordinary broadcast speaker closeted in a talks studio. There is nothing more irritating than a close-up of an immovable face continuing for ten minutes!

How our profound but undemonstrative speakers will get over the difficulty I know not, but I am convinced that plastic features and sparkling eyes are a necessity.

Electric Piano Broadcast

IT was delightful to hear the Neo-Bechstein piano broadcast on Saturday last, and gratifying to reflect that the innovation was the outcome of a suggestion first made in these columns.

The instrument gives most puzzling effects. Sometimes one detects the authentic pianoforte tone but more often the impression is of an orchestral combination with organ background.

Bedtime Stories

FOR a long time there has been a bathroom in Broadcasting House. Now there is a bedroom, which has been placed at the disposal of Empire announcers for use between their spells of night duty.

I understand, however, that the occupants will not make their announcements from the bedside, although several of the tribe at Broadcasting House would be quite capable of announcing in their sleep. In fact, they often do.

Mr. Stanley Baldwin

TWELVE talks under the general title, "National Character," will be broadcast during the autumn. On September 25th, Mr. Stanley Baldwin, M.P., will introduce the series in a twenty-minutes' broadcast on the National wavelength.

The subject is one very much after Mr. Baldwin's heart; for the series will attempt to describe the salient features of the British character both in its strength and weakness. An interesting aspect of the series will be the introduction of a foreigner at the microphone, to tell listeners about various aspects of our national character as they appear to him.

Hitler Relay Declined by B.B.C.

THE publication in a B.B.C. journal of sympathetic remarks concerning the German broadcasting chiefs who have been sent to the Oranienberg Internment Camp, brought an unexpected offer from the Reichs Rundfunk Gesellschaft of a special relay from the Camp.

Apparently the intention was that British listeners should have an opportunity of hearing a first-hand account of the happy and orderly conditions obtaining in the Camp. The item was offered to the B.B.C. for Tuesday evening, August 22nd, but the B.B.C. declined the honour. It is significant that the relay, which would have been broadcast throughout Germany at the same time, was cancelled.

They Dreamt They Dwelt . . .

IT is scurvy treatment for the B.B.C. Publications Department to be harried from pillar to post, seeing that it is from the activities of this branch that the Corporation derives a goodly percentage of its income.

. . . in Marble Halls

Nevertheless, it is the Publications who have had to move into that old chateau, No. 16, Portland Place, which in the last week or two has been transformed into a modern office. It was the Publications Department which was farmed out in Southampton Street, Strand, in the old Savoy Hill days, so it is natural, I suppose, that they should be the first to leave the crowded pleasure dome in Portland Place.

Cause and Effect

A FRIEND of mine was not surprised to read last week of the decision to transfer "Nine Days' Wonder" from Olympia to the Palladium. He was attending the revue, and was actually seated near to Mr. George Black, of the General Theatres Corporation. Half-way through the show, when the audience was rocking with laughter, a loud voice was heard to say, "My word! This would make George Black sweat if he heard it!"

A few minutes later George Black was hurrying towards the stage door to interview Mr. Maschwitz, and the sequel was made public next morning.

Correspondence

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

Correspondence should be addressed to the Editor, "The Wireless World," Dorset House, Stamford Street, S.E.1, and must be accompanied by the writer's name and address.

Valves or Stages

WITH reference to the suggested new designation for receiving sets given in your issue for August 4th, we should like to express the opinion that the suggested idea of describing a set by its stages is likely to lead not only to a very great deal of confusion but also to open up the path for misrepresentation.

As an indication of the confusion that is likely to arise, it would appear to us that, working to the suggested definition given in your leader, the Ferranti "Gloria" Console, described on pages 78 and 79 of the same issue, is actually a seven-stage receiver and not a six-stage as described by you, seeing that in the second detector there are three anode-to-cathode electron streams.

When the Ferranti Company first placed its receivers on the market, it described its three-valve mains receiver plus a rectifier as a three-valve set, and, as the result of considerable experience, it was found that this led to endless confusion, bearing in mind that the people who buy sets in general know next to nothing about them.

Further, the standard practice in the case of American receivers, was to include the rectifier as a valve, and such competition has had to be met in a suitable way.

We have always made it very clear in our specification as to the purpose of each individual valve, but we think that it is utterly absurd for manufacturers to be placed in the position of having to tell the man in the street that certain of the valves in their receivers are valves, whilst the rectifying valve, which is probably more correctly a valve than any of the others, is not a valve.

It appears probable that to describe a set by the number of its valves or by the number of its stages is likely to be very misleading in any case, and does not, in these days, necessarily give any indication of the performance of the receiver, so for this reason Ferranti, Ltd., have this year gone still farther than any of the foregoing proposals, and do not in any of their descriptions call their sets by the number of valves that they contain, although this may be found from the technical data included in the literature concerning the sets in question.

FERRANTI, LTD.

J. BAGGS, Sales Department Publicity.

The Correct Application of A.V.C.

MAY I be permitted to express some views on the application of A.V.C. to receivers in this country in view of the recent correspondence on this subject?

Firstly, I am entirely in agreement with Mr. Redfern that A.V.C. is undoubtedly desirable in the serious listener's receiver, but only when that receiver has been designed as a whole to incorporate A.V.C. and to overcome its associated disadvantages (such as those enumerated in Mr. Haynes' letter). Apart from the valuable correction of fading, an inexperienced person can leave the volume control set and tune in station after station without getting on the nerves of other people present by

making a series of blasts and over-loading the output valve. Perhaps I had better use the word "almost," because automatic volume control, i.e., automatic levelling up of the volume delivered by the loud-speaker on all stations, will never be possible unless broadcasting stations come to some agreement as to the minimum and maximum modulation limits desirable. At present the difference in modulation levels is only too evident when operating an A.V.C. receiver with a milliammeter in the anode circuit of one of the controlled valves. Actually, the function which we loosely call "A.V.C." is concerned only with the carrier amplitude and not the modulation depth, so that two stations whose field strengths are equal at the aerial may produce average volume levels at the loud speaker in the ratio of about 2 to 1. This is annoying, but cannot be helped. However, the manual volume control is a convenient compensator.

The strongest criticism against A.V.C. is the apparent loss of selectivity. When tuning from one to another of two adjacent stations with a good A.V.C. receiver the

side bands are so enormously amplified by the A.V.C. action that there is no silent gap between the two stations. Because of this effect, A.V.C. is entirely unsuitable for inclusion in simple sets with few or flatly tuned circuits where the resonance curve of the tuned circuit does not fall away very steeply at the sides. Although this reduction of selectivity is stated to be apparent only, nevertheless the selectivity of the receiver as a whole is definitely reduced if it cannot, with A.V.C., receive as many stations free of interference as it can without.

The criticisms on the score of background mush have been adequately dealt with by Mr. Redfern, but it does not appear to be generally realised that, apart from quiet A.V.C., which is a luxury only likely to be found in highly priced instruments, it is quite a simple matter to suppress this interference as well as all other between-station noises.

If the receiver be fitted with a device giving visual indication when the set is in resonance with the wanted station, why then we can short out all the undesirable noises between stations with a silencing switch and tune in our station quietly and accurately, the switch being opened only when the station has been correctly tuned in; so that instead of the quality varying from a high-pitched cacophony gradually down to the natural tone, the natural tone is there immediately the station is heard. This meets most of the criticisms fired at A.V.C., and works delightfully in practice, particularly when signals can be faintly heard in the "silent" position, so that the operator can tell whether the programme is desirable before inflicting it on other listeners.

As regards atmospheric interference it is difficult to be certain whether or not A.V.C. is beneficial, and one must not make wild claims. It has been found possible, during the recent thundery conditions in London to receive the London Regional on an A.V.C. set with a 100-foot aerial with scarcely any interference, although distant stations were unintelligible through mush and crashes. This is due to the receiver being rendered so insensitive by the strong carrier of the local station that no appreciable amplification is given to the static picked up by the aerial.

There seems to be no justification in practice for contrasting the two systems of simple and delayed A.V.C., for when the former is correctly applied the "throttling effect" is quite negligible on a weak signal. It has been found possible to make a six-valve A.C. superhet. with loose H.F. and I.F. couplings for selectivity and a diode-tetrode for A.V.C. with no delay action, which has an absolute sensitivity of 2.5 microvolts over the tuning range, i.e., to produce the standard output of 50 milliwatts. This is considerably better than some receivers using the same number of stages and delayed A.V.C.

Per pro ELDECO RADIO, LTD.,
R. C. RICKARD.

London, W.1.

ON WHAT AUTHORITY?

HERE is a reproduction of a notice to consumers typical of many issued by electricity supply authorities. They probably believe themselves that they are justified in insisting that wireless sets should be connected to the lighting circuit; otherwise

MEXBOROUGH URBAN DISTRICT COUNCIL.

ELECTRICITY DEPARTMENT

NOTICE.

Consumers are reminded that Wireless Sets must not be used on a Heating circuit, and the employees of this Department have instructions to disconnect any apparatus which contravenes the regulations in this way.

J. B. FELTHAM, M. Inst.E.E.
Engineer and Manager.

they would surely not have the audacity to issue such notices.

We believe that the lighting rate can only be exacted where electricity is used for purposes of illumination, and we have already offered space in our correspondence columns to any supply authority which cares to argue the point.

READERS' PROBLEMS

I.F. Transformer Tuning

WHILE operating his superheterodyne receiver (modelled on the original Monodial), a correspondent has noticed that signal strength is appreciably increased by removing the screening cover of one of the I.F. transformers; he asks us to say what may be deduced from this experience.

It would appear probable that the transformer in question is tuned to too high a frequency. The effect of removing the cover is to increase the inductance of the coils and so to lower the resonant frequency. It is quite possible that, by this alteration, the out-of-tune circuit is accidentally brought into line with the others.

A Process of Elimination

THE circuit adopted by a reader for his four-valve battery set might have been chosen for no other purpose than to illustrate the principles of fault finding by a process of elimination! Similarly, the fault that exists provides a particularly good example of how a logical line of reasoning may be applied.

In Fig. 1 is reproduced in skeleton form the part of the receiver in question. The fault takes the form of an almost continuous rustling or "frying" noise, evident while the set is being operated as a radio receiver, but entirely absent on switching the pick-up into circuit. Removal of the H.F. valve does not lessen the noise, although, of course, it prevents the reception of signals.

As the pick-up is connected to the grid circuit of the first L.F. amplifier, it can be assumed quite definitely that from this point onwards no fault can exist, and, further, that the batteries, etc., which are common to all valves, are in order. Again, the fact

"frying" noise is often due to the leakage of high-tension current through a path of fairly high, but changing, resistance.

Anti-Interference Aerials

SEVERAL questions have lately been received from sufferers from man-made static on the question of fitting screened aerial down-leads as a palliative. Articles which appeared in the issue of August 18th will have already provided the answer to most of these questions, but there are one or two other points that might be cleared up.

A screened aerial down-lead can do nothing to reduce interference of the type that affects all parts of the aerial more or less equally. For instance, strong radiation from an overhead tramway line will be found almost always to come within this category. The same applies to overhead power wires, which will probably affect the horizontal part of the aerial just as much as the down-lead.

Little benefit is likely to accrue from fitting a shielded down-lead unless a good part of the aerial can be erected well clear of the source of interference.

Before going to the trouble of altering the aerial, it is a good plan to try the effect of fitting a simple filter in the supply leads of a mains-operated set. A large proportion of the interference may be reaching the receiver in this way.

From the L.F. Point of View

THERE is nothing basically wrong with tuned anode H.F. coupling, but nevertheless it has rather gone out of fashion during the last year or two. Probably the most serious objection that can be urged against this system is that it allows L.F. impulses to be fed back directly to the

THESE columns are reserved for the publication of matter of general interest arising out of problems submitted by our readers. Readers requiring an individual reply to their technical questions by post are referred to "The Wireless World" Information Bureau, of which brief particulars, with the fee charged, are to be found at the foot of this page.

circuit of the H.F. valve, a suitable decoupling system. The values of the decoupling components must be effective both at H.F. and L.F.; the usual 1,000 ohms and 0.1 mfd. is almost useless.

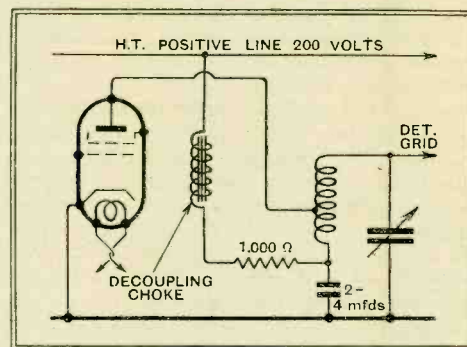


Fig. 2.—Reducing voltage loss: decoupling for a tuned-anode H.F. stage.

A reader who has constructed an H.F.-det.-2 L.F. set with a tuned anode H.F. coupling finds that motor-boating can only be prevented by inserting such a large value of decoupling resistance that the sensitivity of the H.F. stage is seriously impaired.

In asking our advice, he says nothing about the capacity of the associated bypass condenser; if he has not tried a large capacity (from 2 to 4 mfd.) we recommend him to do so. If this course fails, we suggest the use of a high-inductance choke as a decoupling device in the manner shown in Fig. 2; this should give good L.F. decoupling without undue loss of H.T. voltage.

As there is a faint possibility that this choke may be ineffective as an H.F. decoupling device, the existing 1,000-ohm resistance might be left in circuit, as indicated in the diagram.

As You Were

THE practice of fitting "noise suppressors" in sets with A.V.C. seems to have given rise to a misconception as to the "background noisiness" of sets with this form of control.

For instance, a correspondent, who is undecided as to whether to fit automatic volume control, appears to think that this addition to his set will result in a noisier

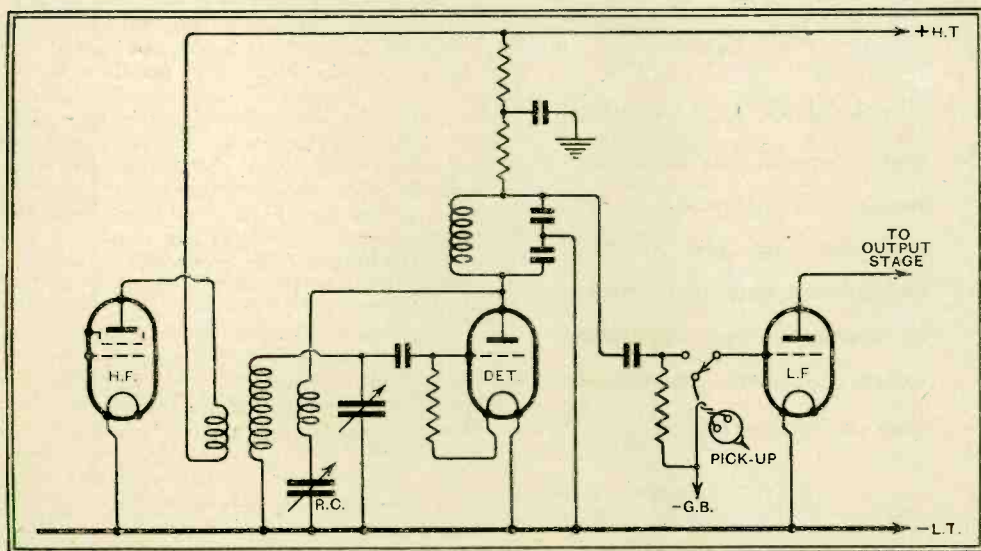


Fig. 1.—A simplified circuit diagram to illustrate the tracing of faults by a process of elimination.

that removal of the H.F. valve makes no difference indicates that the fault cannot lie in this valve or in the circuits preceding it.

All that remains, therefore, is the detector valve, and here, or in the associated circuits, the defect is certain to be found. A

detector grid from the source of H.T. supply, and thus L.F. oscillation or motor-boating may be provoked.

Short of employing some other form of H.F. coupling, the only way to prevent this kind of feed-back is to employ, in the anode

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.

back-ground than previously, and that a suppressor will be virtually necessary.

This is a mistake. Automatic volume control does nothing whatever to increase background noises, but it does rather tend to make these noises more evident. This is because the set, when tuned to a powerful carrier wave is automatically desensitised, and if the ratio of signal-to-noise is favourable the background will appear to be quiet.

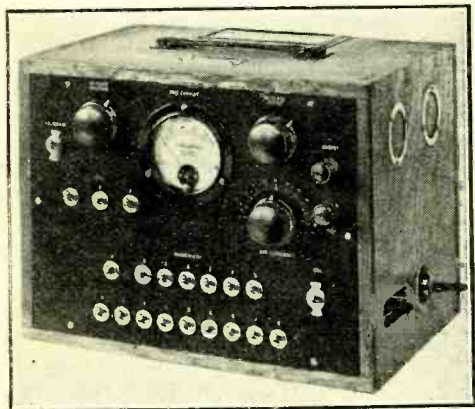
Noise suppression in A.V.C. sets is a luxury and a desirable refinement, but it is by no means a necessity.

Building the New Monodial

IT is perhaps as well to point out that, in assembling the new Monodial Super, it is necessary that the ganged tuning condenser should be raised above the baseboard by interposing the distance pieces (or spacing tubes) supplied with the condenser. Otherwise the height of the spindle will be found unsuitable for the special dial which was used in the original model.

NEW MAINS-OPERATED AUDIO-FREQUENCY OSCILLATOR

DESIGNED especially for laboratory use, the new A.C. mains-operated audio-frequency oscillator introduced by Standard Telephones and Cables, Ltd., Connaught House, Aldwych, London, W.C.2,



Mains-operated audio-frequency oscillator, a Standard Telephones product.

covers a range of 20 to 10,000 c/s in a number of graduated steps. The circuit consists of three valves, an oscillator, an amplifier, and a mains rectifier for H.T. supply, and provision is made for checking the frequency on controlled 50 c/s supply mains.

The output has a very small harmonic content, hum level is low, and the frequency stability is within ± 0.2 per cent. throughout.

The construction follows conventional wireless practice, for all components are mounted on a stout metal chassis and housed in a strong oak cabinet fitted with a carrying handle, the price is £42.

A thermo-ammeter set and an attenuator are available; the former costs £12 10s. complete, while the price of the latter is £15.

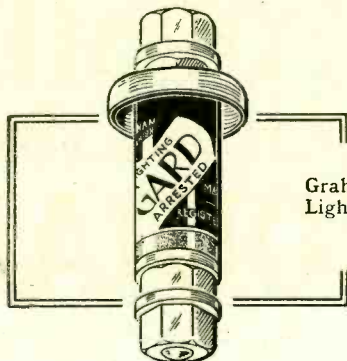
This instrument will serve for test and measurements on L.F. amplifying equipment, L.F. components, as well as for inductance and capacity bridge work.

LABORATORY TESTS

A Review of Manufacturers' New Products

GRAHAM FARISH LIGHTNING GARD

AT this season there is always the possibility that an outdoor aerial may be struck by lightning. Admittedly the risk



Graham Farish Lightning Gard

is small, but as adequate safety devices are now obtainable at small cost it is hardly worth while exposing the receiver to this danger, for far more serious consequences than a damaged set may result.

The Graham Farish Lightning Gard has been designed to afford protection in such cases, and it consists of an insulated barrel into each end of which is screwed a brass stud. These are separated by a thin annular washer. The device must, of course, be located outside the building so that a direct path to earth is available.

The aerial down lead and the lead to the aerial terminal of the set join to the top terminal on the Gard, while the lower terminal is joined direct to an earth connection. The earth wire from the set can be taken either to the same earthing point or to any other that may be convenient inside the building.

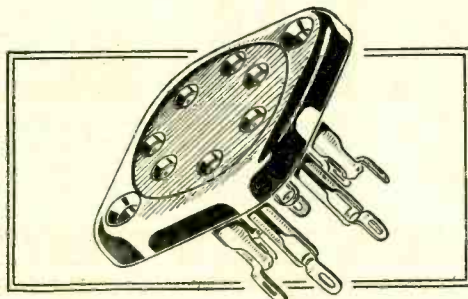
The device in no way affects reception, but in the event of the aerial being struck by lightning the charge ionises the small spark gap and passes direct to earth.

The price is 1s. 6d., and the makers are Graham Farish, Ltd., Masons Hill, Bromley, Kent.

PREH SEVEN-PIN VALVE HOLDER

A SEVEN-PIN valve holder for chassis mounting, and suitable for use with Class "B" output valves, has been introduced by the Preh Manufacturing Co., Ltd., 13-15, Broadwater Road, Welwyn Garden City, Herts. The sockets are made from phosphor-bronze strip, bent and shaped to form a resilient contact for the pins. These are assembled on a moulded bakelite base.

Several different makes of Class "B" valves were inserted in the holder, and in



Preh seven-pin valve holder suitable for Class "B" output valves.

every case a perfectly satisfactory contact was made between the valve pins and their respective sockets. Although rigidly fixed to the base plate, the sockets possess sufficient resilience to ensure correct alignment in all cases, for the valve slides into its socket quite smoothly and without undue pressure.

Soldering tags, which are part of the socket, are provided, and the price is 1s.

DISTANT RECEPTION NOTES

MONTE CENERI has definitely closed down for alterations and will not be at work again until towards the end of September. Kalundborg, therefore, remains clear, and is providing very fine reception at present.

I had thought that the transmission interfering with Huizen on 1,875 metres was Kaunas, but I have now identified it as a Russian station. Interference has been very severe on some recent days.

Last year Mexico, Cuba, the Argentine and a number of other countries in South America brought high-powered transmitters into operation. The range of many of these stations was so great that they were very well heard in this country. A great deal of interference was caused with U.S.A. transmissions and it was decided to call a Pan-American Conference to try to straighten matters out.

That conference is sitting at the present time, and high hopes are entertained that its deliberations will be successful. It is all to the advantage of long-distance listeners in this country that they should, for last winter one not infrequently found Argentine stations jamming those in the U.S.A. and vice versa.

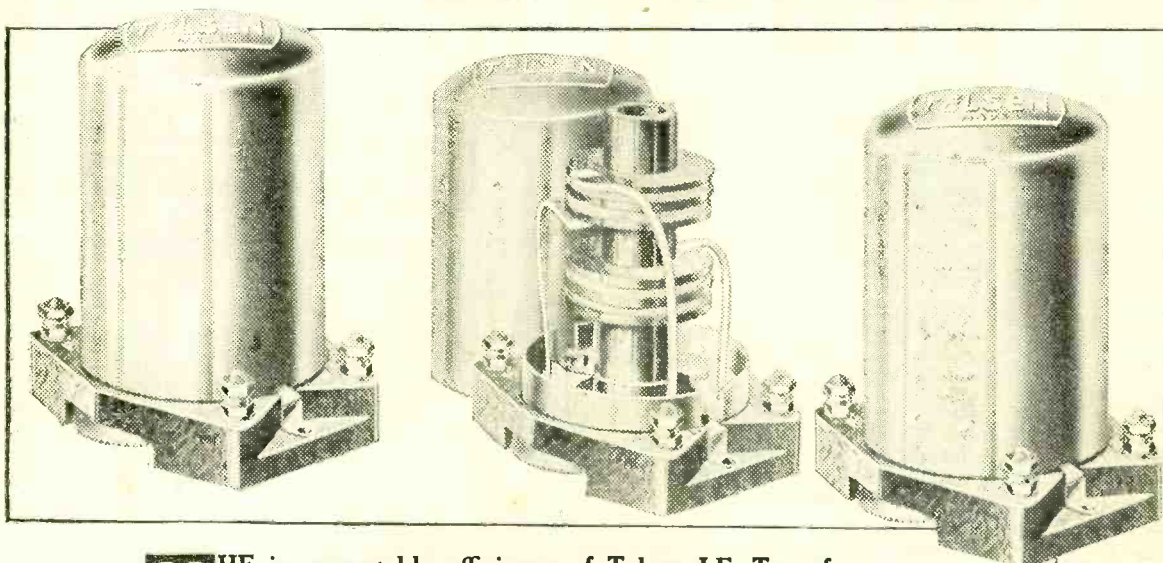
Now that the evenings are drawing in numbers of medium-wave stations are to be received at any time after about 7 p.m., and by eight o'clock even with a smallish set one has as big a selection of alternative programmes as could be desired.

Motala continues to come through well on the long waves. Other good stations between 1,000 and 2,000 metres are Huizen (Hilversum programmes), Radio-Paris, Warsaw and Kalundborg.

Between 200 and 550 metres Prague, the Poste-Parisien, Langenberg, Breslau, Heilsberg, Toulouse, Rome, Strasbourg, Bero-münster, Stockholm, Leipzig and Vienna are nearly always to be found coming in well when required. Stations now returning to form are Brno, Belgrade, Berlin Witzleben, Katowice, Bordeaux, Genoa, Bratislava, Moravska-Ostrava, Hörby, Frankfurt and Gleiwitz. D. EXER.

Theory of Thermionic Vacuum Tubes, by E. Leon Chaffee, Ph.D. Written primarily as a textbook based on the author's lectures at Harvard University, it comprises a very complete book of reference on matters relating to low-power valves. The author states that a second volume dealing with power amplifiers, rectifiers, etc., is in preparation. Pp. 652 + xxiii., with 362 diagrams and 6 plates. Published by McGraw Hill Publishing Co., Ltd., New York and London. Price 36s.

Three TELSEN I.F. TRANSFORMER COILS *are specified for the* 'NEW MONODIAL SUPER'

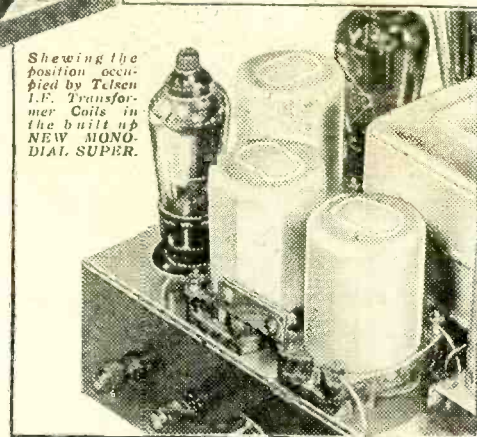


THE incomparable efficiency of Telsens I.F. Transformer Coils makes them the first choice for every superhet. Each Coil consists of two tuned circuits, comprising a band-pass intermediate frequency filter tuned to 110 k.c. by two pre-set balancing condensers fitted in the base. These condensers can be adjusted for different values of stray capacities, by means of the small milled wheels projecting from the sides of the base, the filter coupling also being adjustable for optimum conditions of quality and selectivity. The designer of the famous NEW MONODIAL SUPER acknowledged the pre-eminence of these outstanding coils by specifying them in his set. Follow his lead. Insist on Telsens I.F. Transformer Coils—whether you build the NEW MONODIAL SUPER or any other good superhet.

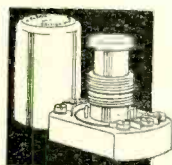
Price per coil

7/6

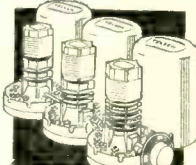
Showing the position occupied by Telsens I.F. Transformer Coils in the built up NEW MONODIAL SUPER.



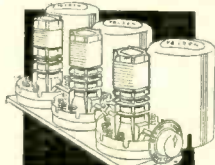
TELSEN NOW COVER EVERY COIL REQUIREMENT — AT LOWEST PRICES !



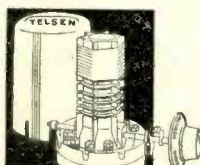
**TELSEN
IRON-CORED
SCREENED COILS**
Single 8/6
Twin Matched 17/-
Triple Matched 25/6



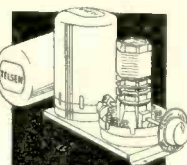
**TELSEN
SUPERHET COILS**
(Type No. S 330) 21/6



**TELSEN
BAND-PASS &
OSCILLATOR
COIL UNIT**
21/6



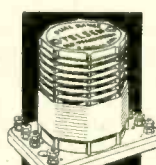
**TELSEN
SCREENED TUN-
ING COILS**
Single 7/-
Twin Matched 14/6
Triple Matched 21/6



**TELSEN
BAND-PASS COIL
UNIT**
14/6



**TELSEN
DUAL-RANGE
AERIAL COIL**
5/6



**TELSEN H.F.
TRANSFORMER
COIL**
4/6



**TELSEN
OSCILLATOR
COIL**
7/6

TELSEN FOR EVERYTHING IN RADIO

ANNOUNCEMENT OF THE TELSEN ELECTRIC CO., LTD., ASTON, BIRMINGHAM

Advertisements for "The Wireless World" are only accepted from firms we believe to be thoroughly reliable.

MISCELLANEOUS ADVERTISEMENTS

NOTICES.

THE CHARGE FOR ADVERTISEMENTS in these columns is

12 words or less, 3/- and 3d. for every additional word.

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

SERIES DISCOUNTS are allowed to Trade Advertisers as follows on orders for consecutive insertions, provided a contract is placed in advance, and in the absence of fresh instructions the entire "copy" is repeated from the previous issue: 13 consecutive insertions 5%; 26 consecutive, 10%; 52 consecutive, 15%.

ADVERTISEMENTS for these columns are accepted up to **FIRST POST ON MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Stamford Street, London, S.E.1, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 28, Renfield Street, Glasgow, C.2.

Advertisements that arrive too late for a particular issue will automatically be inserted in the following issue unless accompanied by instructions to the contrary. All advertisements in this section must be strictly prepaid.

The proprietors retain the right to refuse or withdraw advertisements at their discretion.

Postal Orders and Cheques sent in payment for advertisements should be made payable to **LILFEE & SONS Ltd.**, and crossed & Co. Notes being untraceable if lost in transit should not be sent as remittances.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

RECEIVERS FOR SALE.

ARMSTRONG Latest Universal A.C. D.C. 4-valve Chassis, specially efficient S.G. circuit, pentode output; 75/-; with 5 valves, 114/-.

ARMSTRONG 1934 Battery 3 Chassis, metal Construction, 2 tuned circuits, S.G., pentode output, built-in speaker, 45/- with valves 69/-; above chassis have remarkable performance, 2 years' guarantee, approval—Armstrong Co., 100, King's Rd., N.W.1. [3395]

H.M.V. 532 10-valve Superhet. Radiogram, A.C., new (cost £84); first cheque for £40 secures—A.E.L., 198, South Park Rd., Wimbledon, S.W.19. [3347]

3-STAGE Amplifier, D600 output, valves, twin "Unit" motors, pick-ups, speakers, A.C. motor, M.L. converter, 6v. 5a. and 650v. 0.1a. cut-out, etc.; first £15 secures—Riley, 70, Broadway, Chesham. [3372]

40/-—Ediswan D.C. all-electric, S.G., det. and pentode, without valves, worth more to break up; transformers, output choke, 2,000v., with drum drives, coils, smoothing unit, resistances and condensers, etc.

£3/19/6—Matas Radio 2-valve, A.C., with Ultra speaker, complete with valves, unopened; list £8/10—Kay, 167 City Rd., London, E.C.1. [3352]

DEMON RAD'O PRODUCTS—Monodials built, converted, repaired, or fitted; official Wireless League repairers; fully equipped laboratory; estimates free; trade supplied—White House Rosehill Park West, Sutton, Surrey. Tel.: 4591. [3389]

"WIRELESS WORLD" New Monodial, built and supplied as kits; your old Monodial converted, including components and valves, £11; trade supplied—London Radio Development Services, Ltd., 56, Hazel Rd., Kensal Rise, N.W.10. 'Phone: Willesden 0385. [2987]

CIFEL D.C. 2-valve Sets, detector, pentode, Magnavox M.C. Osram valves, packed in makers' unopened carton; at £3/19/6, c.o.d., carriage paid; also Mavox D.C. 2-valve, detector, power, Sonochorde M.C., £3/12/6. W. Burns and Co., 287, City Rd., London, E.C.1. [3374]

1933 Gambrell Halford A.C. 7.8 Superhet Chassis, complete valves, speaker, 4½ watts, undistorted output, new March, under makers' guarantee until February, 1934, must sacrifice, moved D.C. district; £15, or offer; cost £29/10—45, Ellington Rd., Cranleigh Gardens, Muswell Hill, N.10. [3355]

NOTICE for Special Bargains.—T. W. Thompson and Co., of 17, Strutton Ground, Westminster, have just purchased a large consignment of H.M.V. and other components, including mains amplifiers, Marconi transformers, chokes, rotary converters, speakers, condensers, and thousands of other parts, all of which will be advertised in a display advertisement in next week's "Wireless World." Do not buy until you have perused this advertisement; tremendous bargains will be offered. [3377]

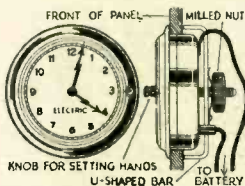
MAINS EQUIPMENT

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. Have Motor-Dynamo 10 amps. complete, £6; Valve set 6 amps, £4; another 40 volts, 2 circuits, 3 amps., and 4 amps., bargain; £8.—Nash Products, Ltd., Stechford, Birmingham, 9. [3371]



FIT THIS ELECTRIC CLOCK TO YOUR SET!

NO MAINS NEEDED!
KEEPS CORRECT TIME!
NO WINDING!

Works off small battery lasting 12 months, or can be plugged into G.B. Battery without affecting reception. Uses practically no current. Fits into hole 3½" dia. in any panel up to ½" thick. Easy to fix—no screws required. Only 1" from front of panel to back of case. Swiss movement. Hands set from front. Nickel plated bezel. Useful addition to any set.

RIVERSIDE MFG. CO., LTD.,
Dept. 20, Crisp Rd., Hammersmith, W.6
Telephone: Riverside 6392.

12/6
COMPLETE WITH BATTERY
POSTAGE 6D

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.

NUMBERED ADDRESSES.

For the convenience of private advertisers, letters may be addressed to numbers at "The Wireless World" Office. When this is desired, the sum of 6d. to defray the cost of registration and to cover postage on replies must be added to the advertisement charge, which must include the words Box 000, c/o "The Wireless World." All replies should be addressed to the Box number shown in the advertisement, c/o "The Wireless World," Dorset House, Stamford Street, London, S.E.1. Readers who reply to Box No. advertisements are warned against sending remittance through the post except in registered envelopes: in all such cases the use of the Deposit System is recommended, and the envelope should be clearly marked "Deposit Department."

DEPOSIT SYSTEM.

Readers who 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.

The time allowed for decision is three days, counting from receipt of goods, after which period, if buyer decides not to retain goods, they must be returned to sender. If a sale is effected, buyer instructs us to remit amount to seller, but if not, seller instructs us to return amount to depositor. Carriage is paid by the buyer, but in the event of no sale, and subject to there being no different arrangement between buyer and seller, each pays carriage one way. The seller takes the risk of loss or damage in transit, for which we take no responsibility. For all transactions up to £10, a deposit fee of 1/- is charged; on transactions over £10 and under £50, the fee is 2/6; over £50, 5/-. All deposit matters are dealt with at Dorset House, Stamford Street, London, S.E.1, and cheques and money orders should be made payable to Lilfee & Sons Limited.

SPECIAL NOTE.—Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post. When sending remittances direct to an advertiser, stamp for return should also be included for use in the event of the application proving unsuccessful.

Mains Equipment.—Contd.

VORTEXION, Wimbledon, for 99.9% reliable transformers.

IF You Haven't Tried Them Yet Ask Someone who has, or call and inspect complimentary letters.

ALL Standard Models Delivery by Return; all secondaries centre tapped.

GUARANTEEED 12 Months, and within 5% normal and 2½% super models, neat shrouding, with detachable feet, as used by Government Departments, etc., etc.

VORTEXION—New monodial transformer, 200-250, 50 cycles, 425-0.425, 120 m.a., 4v. C.T. 3a., 4v. C.T. 1a., 4v. C.T. 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.

VORTEXION—Ferryport 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.

VORTEXION—250-0-250, 4v. 1 to 2a., 4v. 2 to 4a.; open type 10/6, shrouded 12/6; post 9d.

VORTEXION—Super model for H.T. 8 or 9 or 10, 4v. 1 to 2, 4v. 2 to 4; open type 14/6, shrouded 16/6; post 1/-.

VORTEXION—2½-watt Monodial A.V.C. model; open type 14/6, shrouded 16/6; post 1/-.

VORTEXION—5-watt Monodial A.V.C. model, 400-0-400, 120 m.a., 4v. 6a., 4v. 3½a., 4v. 2, 4v. 1a., super screened; 20/-, shrouded 24/-.

VORTEXION—350-0-350, 120 m.a., 4v. 2 to 5a., 4v. 2 to 4a., 4v. 2.5a.; open type 14/6, shrouded 16/6.

VORTEXION—400 or 450 or 500v., 120 m.a., 4v. 2 to 5, 4v. 2 to 5, 4v. 2 to 5; open type 19/-, shrouded 23/-.

VORTEXION—400 or 450 or 500, 150 m.a., 4v. 4a., 4v. 2.5, 4v. 2, 4v. 2, 4v. 2, core size 2¼in.x1¼in., a super job, 2% regulation; 35/- shrouded with terminals, less terminals, 30/-, open type 26/-; post 1/3.

VORTEXION Auto Transformers to B.E.S.A. Specification, 100, 110, or 120v. to 200, 220 or 240 volts, 60 watts, 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.

VORTEXION 600-watt Transformers; £4/10, carriage free.

VORTEXION 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.

VORTEXION 200v. 30 m.a. Eliminators, 110 or 220 input with 4v. 4a. winding; 37/6.

VORTEXION—Transformers made to your specification. All standards in stock. 'Phone all hours.

VORTEXION (S. A. Brown), 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [3117]

ML Rotary Transformer (H.F.A.), D.C. to A.C., 85 watts output—333, Green Lanes, Harringay. [3346]

TANTALUM for A.C. Chargers, H.T. and L.T.—Blackwell's Metallurgical Works, Ltd., Garston, Liverpool. [2139]

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]

Mains Equipment.—Contd.

SERADEX Radio Products, as specified by the "Wireless World" and other wireless journals.

SERADEX Battery Chargers, new illustrated catalogue of battery chargers, rectifiers, eliminators, etc., now ready; free for stamp.

SERADEX Mains Transformers, as specified for "Glasgow Herald," Kelvin A.C. Three, super type, with engraved terminal strips, heavy aluminium clamps, screened primaries, 200-250 volts.

SERADEX V.T.1, 250-0-250v. 60m.a., 2-0-2v. 1a., 2-0-2v. 3-4 amps; 17/6.

SERADEX V.T.7 Special Model for Monodial Superhet, as specified, with primary terminals, and secondary leads, colour coded; £11/17/6.

SERADEX W.H.3, for use with Westinghouse H.T.8 or H.T.9, 240v. 200m.a., tapped at 200v., 2-0-2v. 2½a., and 2-0-2v. 2-4a.; 21/-.

SERADEX Filter Chokes, new improved models, low D.C. resistance, and capacity, high inductance and carrying capacity.

SERADEX 4030 Choke, 40h./20h., carry 30m.a., resistance 850 ohms; 4/6.

SERADEX C.30 Heavy Duty Constant Inductance Choke, 30h. at 120 m.a., resistance 280 ohms; 15/-.

SERADEX C.504 Super-power Constant Inductance Choke, 50h. at 200 m.a., 100 ohms resistance; £11/11/6.

SERADEX Heavy Duty Resistors, type G.1500, 15 watts, up to 1,500 ohms 2/3; 5,000 ohms 2/6; 50,000 ohms. 2/9; type G.3000, 30 watts, 8d. advance on above prices; intermediate sizes at no extra cost.

I.D. Brings Full Range of Catalogues From Makers.—Note new address after September 4th.

TREVOR PEPPER, 575d, Moseley Rd., Birmingham, 12. Phone: Calthorpe 1618. Telegrams: Seradex, Birmingham. [3375]

HOYNE'S Transformers and Chokes (the Best Obtainable, perfect insulation, regulation and reliability, used exclusively by discriminating set manufacturers, all fitted with tapped and screened primaries, filaments all centre tapped, stout cast aluminium clamps fitted to all models, also clearly marked terminal strips.

HOYNE'S Components are Guaranteed for One Year.

HOYNE'S Transformers Built to Your Specifications, at very competitive prices.

HOYNE'S New Monodial Super Model, 425-0-425v. 120 m.a., 4v. 3a., 4v. 1a., 4v. 1a., 4v. 6a., 17/6, post 1/3; super model, 24/-, post 1/3; chokes for same, 10h., 20h., 16/6 the pair, post 1/-.

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

HOYNE'S—250-0-250v. 60 m.a., 4v. 1-2a., 4v. 2-4a.; 4v. 1a.; 12/6, post 1/-.

HOYNE'S—350-0-350v. 60-70 m.a., 4v. 2-3a., 4v. 3-4a., 12/6, post 1/-, Ferrocart III model.

HOYNE'S—350-0-350v. 70-80 m.a., 4v. 2-3a., 4v. 3-4a., 4v. 1-2a.; 13/6, post 1/-.

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

HOYNE'S—500-0-500v. 140 m.a., 4v. 2-4a., 4v. 4-6a., 4v. 2a., 4v. 2a.; 27/6, carriage 1/6; weight 12lb.

HOYNE'S—0-110-135v. 90 m.a., 4v. 2-4a., suitable for H.T.6 or 7; 10/-, post 9d.

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

HOYNE'S—0-200-240v. 200 m.a., 4v. 2-4a., 4v. 1-2a., suitable for H.T.8 or 9; 14/6, post 1/3.

HOYNE'S—Line transformers and chokes always in stock; we can also supply all components.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 3303. [3107]

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CABINETS.

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

DYNAMOS, ETC.

M.I. Converter, 12-18 volts to 400 volts, 150 m.a., perfect order; £3, or offer.—Gayford, Little Waltham, Chelmsford. [3350]

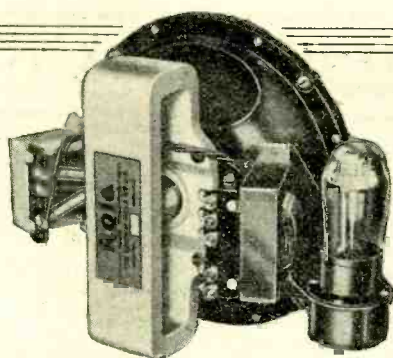
ROTARY Converters, E.D.C. Co.'s manufacture, as new, D.C. to A.C., with output of 220 watts.—Apply Electricity Works, Newquay, Cornwall. [3335]

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. [3225]

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GRAMOPHONES, PICK-UPS, ETC.

B.T.H. Cinema Type Pick-ups, brand new, 17/6. carriage paid, cash with order, or c.o.d. Send for list.—Ward, 12, Tredegar Rd., Bow, E.3. Tel.: Advance 3668. [3363]



ROLA CLASS B SPEAKER AMPLIFIER Unit

Are You a Battery
Set Owner?

If so . . .

You can fit a Rola Class B Speaker Amplifier Unit in 5 seconds and increase the volume and sensitivity about 5 times. Write to-day for full particulars and for the Rola folder.

Model A—
for MULLARD P.M.2B, B.T.H. PD220,
COSSOR 220B, STANDARD 13BI, HIVAC
B220, MARCONIPHONE B21, G.E.C. B21,
CLARION B22.

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

PRICE

(Both Models
Without Valve)

57/-

Price with Valve 71/-

ROLA
the World's Finest Reproducers

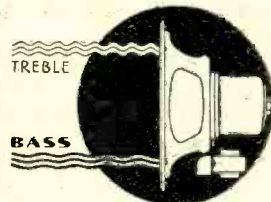
THE BRITISH ROLA CO. LTD.,

Minerva Rd., Park Royal, N.W.10.

Phone: Willesden 4322-3-4-5.

**ROLA
SPEAKERS**

for better
Radio Reception



LOUD-SPEAKERS.

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. 4th floor; office No. 582a. Phone No.: Holborn 6609. [1425]

4 Bakers F.P. A.C. moving coil speakers, as new, half price.—Box 7938, c/o The Wireless World. [3393]

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]

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.

THESE speakers are identical to Senior R.K., but for cone diameter. [3362]

NOTICE for Special Bargains.—T. W. Thompson and Co., of 17, Strutton Ground, Westminster, have just purchased a large consignment of H.M.V. and other components, including mains amplifiers, Marconi transformers, chokes, rotary converters, speakers, condensers, and thousands of other parts, all of which will be advertised in a display advertisement in next week's "Wireless World." Do not buy until you have perused this advertisement; tremendous bargains will be offered. [3379]

CHAL ELECTRIC offer Brand new boxed set manufacturers' surplus Rola Speakers, all fitted hum buckers, state of Power Pentode Transformer F6 11C-175v. D.C. (2,000 ohms); 90-130v. D.C. (2,500 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]

TRANSMITTERS.

QUARTZ Oscillating Lenses; 2/6.—Smith, Bryn Rodyn, Colwyn Bay. [3358]

VALVES.

HIGH Efficiency American Tubes, all types; 7/6-10/-, 26, Moss Grove, Urmston. [3360]

GUARANTEED Brand New, and any valve differing from the makers' characteristics will be exchanged free; all latest types.

H.L. 210s, H210s, L210s, 210H.L.s, 210H.F.s, P.M.1H.F.s, P.M.2s, P.M.2As, L.P.2s, 220Ps, 215Ps, P.H.s, 41M.H.L.s, M.H.4s, A.C./H.L.s, A.C./2H.L.s, 354Vs, D.C./3H.L.s, 1821s, M.L.4s, A.C./Ps, 164Vs, 104Vs, P.M./24s, 442B.U.s, 1807s, 84V.B.s, 84Vs, M.S.4Bs, M.S.G./H.A.s, A.C./S.G.s, A.C./S2, 41M.S.G.s, D.S.B.s, 215/S.G.s, P.M.12s, P.M.12As, Pen.4Vs, V.M.S.4s, M.M.4Vs, P.T.41s, P.T.41Bs, D.P.T.s, A.C./Pens, 620Ts, 680Ps.

ALL the Above Valves at Full List Prices; prompt delivery; send for list.

NEWMAN, 303, Roman Rd., E.3. [2892]

ALL Types of Brand New American Valves in Stock, 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. [3364]

COMPONENTS, ETC., FOR SALE.

R. **SELECTED** Parts for Sale, as new; any 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.

AMPLION Public Address Microphone, £3; Ready Radio Senior Instamat matching 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. 30m.a., 240v. input, 30/-; Six-Sixty eliminator, 200v. 25m.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 super het. coils, 5/-; 3-range oscillators, 7/6; 8-way bases, 4/6; K.B. universal gramophone motor, auto stop, 10in. turntable, 30/-; new; T.C.C. 2,000mf. electrolytic, 9/-; T.C.C. ditto, 250mf. 100v., 8/6; Novotone J., 30/-; Igranic L.F. choke coupling units, 3/9; Lotus new 4-gangs, 15/9.

RYALL'S Mains Condensers, 4mf., 250v. working, 2/6; 4mf., 500v. working, 4/6; 4mf., 750v. 6/6; 2,000v., 17/6; Ryalls condenser blocks, 2-4mf., 2-2mf., 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 60m.a., resistance 260 ohms, 6/9; 20h. at 100m.a., 8/9; 10h., 8/9, for Monodial; 40h. at 100m.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 6p.m.

R [3354]

**ALL LOUDSPEAKERS
ARE CLAIMED TO BE
PERFECT EXCEPT THE**

HARTLEY TURNER

But still our customers tell us that our imperfect speaker sounds more realistic than any of the others. Curious!

D.C. Model **7 Gns.**

A.C. Model **8 Gns.**

**DEMONSTRATIONS DAILY AT OUR OWN
ROOMS, AND AT**

**LONDON RADIO SUPPLY CO.,
11 OAT LANE, NOBLE STREET, E.C.2.**

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Hire Purchase Terms

If you cannot call write for our 32-page technical booklet "NEW NOTES IN RADIO," sent for a 1½d. stamp.

**HARTLEY TURNER RADIO LTD.,
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Tel: Hounslow 1854**

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TRANSFORMERS

**CONSTRUCTORS
AND SET MAKERS**

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**NEON TRANSFORMERS
RADIO TRANSFORMERS
our Speciality.**

Quotation on application.

**CHALLIS
TRANSFORMERS Ltd.
RUGBY.**

Components, etc., for Sale.—Contd.

PREMIER Summer Sale.

THE Last Week.

10% Discount on All Orders of £1 and Over.

MANY Prices Reduced Apart from Discount.

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. 6/-, 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.

IERRANTI 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/-.

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 H.T.10 Transformer, 200v. 100 m.a., rectified, with 4v. 3-5a. c.t. L.T. and screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER Mains Transformer, output 135v. 80 m.a., for voltage doubling, 8/6; 4v. 3-4a. c.t. L.T. 2/- extra; Westinghouse rectifier for above, giving 180v. 30 m.a., 8/6.

PREMIER Mains Transformers, output 250-0-250 volts, 60 m.a., 4v. 1-2a., 4v. 2-3a. 4v. 3-4a. (all c.t.), with screened primary; 15/-.

PREMIER Mains Transformers, output 350-0-350 volts, 90 m.a., 4v. 3-5a., 4v. 2-3a. (both c.t.), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts, 100 m.a., 4v. 4-5a., 4v. 2-3a., 4v. 2-3a., with screened primary; 15/-.

PREMIER Auto Transformers, 100-110/200-250 volts or vice versa, 60-watt, 7/9; 100-watt, 10/-.

SPECIAL Offer of Manufacturers' Type Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a., 4v. 3a. (both c.t.), 8/6; H.T.8 transformer, with 4v. 3-4a. (c.t.), 8/6; with rectifier, 18/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts, 120 m.a., 4v. 5a., 4v. 2a., 6v. 1a. (all c.t.); 17/6.

FILAMENT Transformers, polished and engraved terminal boards, N.P. terminals, 4v. 3-4a., 5/-; 10v. 3a., 6/6; 12v. 1a., 5/-; 4v. 4-6a., 6/6; 14v. 4a., 6/6; 22v. 1a., 6/-; 6v. 2a., 5/-; 9v. 1a., 5/-; 35v. 3a., 15/-.

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.

(This advertisement continued on next page.)

'SOUND'

FOR ALL POWER EQUIPMENT
FROM 2 TO 150 WATTS
UNDISTORTED OUTPUT. FOR
QUALITY AMPLIFICATION
CONSULT:—

TANNOY

STANDARD EQUIPMENT FOR
ALL PURPOSES, AND FULL
RANGE OF P.A. SPEAKERS.

Tannoy Products (Guy R. Fountain Ltd.),
Canterbury Grove, West Norwood,
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EQUIPMENT

FIRST CLASS REPRODUCTION

AN UNREPEATABLE
OPPORTUNITY
TO SECURE A REAL R.I.H.

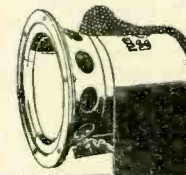
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GUARANTEED NEW
AT BARGAIN PRICES

Specification:—6in. diameter
cone Moving Coil Loudspeaker
giving full bass response and
handling the output from the
heaviest power valve. Far
superior to many small modern
moving coil speakers. Weight
30 lbs. Field winding to suit
6, 100, or 250 volts D.C.
Send cash with order or C.O.D.

Telephone: Holborn 6609

O. H. SEEKAMP, FIRST AVENUE
LONDON, W.C.1



R. K. SPEAKER
Originally listed
at £8.6.0
Now offered for
30/-
A.C. MODELS
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Write for Illustrated
Catalogue of
**RADIO-
GRAMPHONE
CABINETS**

of exclusive modern design,
made by craftsmen in high-
ly figured Oak, Walnut or
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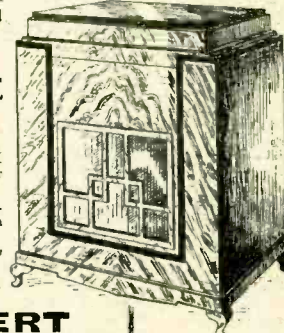
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Cabinets made to order a
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Maker, under licence, of the
HOWE BOX BAFFLES.
Recommended by the B.B.C.
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Lamplugh Radio Ltd. Coventry
Silver Ghost Reproducers MASTERS OF SOUND

MOTOR CYCLE

Every
Thursday
3d.

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

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. a.c. 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., 39/6; 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, 4x4x2x2 mfd., 6/-; 6x4x2x2x2 mfd., 37/5v. 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 Calorstat 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. [3388]

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., 519, London Rd., West-cliff-on-Sea. [3283]

GENUINE Manufacturers' Surplus by Leading Makers.

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

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

A.C. H.T. Eliminator 220 V to 240 V with 4 tappings; total output 150 V at 25 m.a.; for use with D.W.2 or Phillips 1821 valve; price 35/-, carriage 1/3.

MAINS Transformers for Eliminators, output 250-0-250 at 60 M/A., 4 V at 1 Amp; state input when ordering; price 6/6, postage 9d.

14 mfd. Block Condensers, 250 V a.c. 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 three sections, 4,500 ohms, 3,000 ohms, 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.

2 Separate 60 Watt Resistances on One Tube, 2,500 ohms and 500 ohms, 1/6 each, postage 4d.

3 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 V d.c. working, 6d. each, postage 2d.; 4 mfd condensers, 250 V d.c. 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 same day.—Surplus Radio, 32, Queensway, Penders End, Middx. [3252]

CLIX

Chassis Mounting

VALVEHOLDERS

Specified

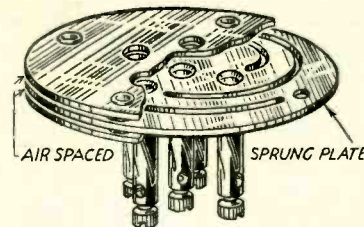
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EXHIBITION SETS

Wireless World

MODERN BATTERY FOUR
also Amateur Wireless: SIGNPOST FOUR,
TRIODYNE; Practical Wireless: 1934 SUPERSET

CLIX "AIRSPRUNG"



ANTI-MICROPHONIC, NON-METAL
4-Pin, 1/2. *5-Pin, 1/3.
STANDARD TYPE: 4-Pin, 8d. 5-Pin, 9d.
FLOATING TYPE: *7-Pin, 1/-

* Specified for the Modern Battery Four.

Obtainable from all Dealers.

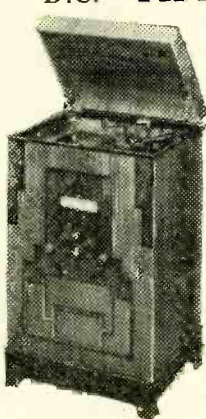
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LECTRO LINX LTD., 79a, Rochester Row, S.W.1.

25 GNS. H.S.P.

A.C. D.C. RADIOGRAM



WITH
GARRARD
AUTO
RECORD
CHANGER
As Illustrated

A product of outstanding performance and merit.

Send for Illustrated Lists.

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We are Actual Makers. Handsome Cabinet, Radiogram plays eight tunes, Coil Speaker. Agencies vacant.

H.S.P. WIRELESS CO. LTD.,
Langford Works - Weston-Super-Mare.

Components, etc., for Sale.—Contd.

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.), 8/9; 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.1.L.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 75/-); Universal Radio 3-valve kits, ready assembled on chassis, 12/6 (list 45/-).

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

READY RADIO Meteor Screen Grid 3-valve "A" Kit, complete with cabinet, permanent magnet speaker (less valves), £3/7/6, with 3 Mullard valves, £4/10 (list £8/17/6); Mullard Radio for Million 3-valve A.C. kit, complete with 3 Mullard A.C. valves (Pen. 4V, 354V, S.4V), £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).

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. [3390]

MILDMAY RADIO EXCHANGE Offers the Following, sound and perfect:—

FERROCART F1, F2, F3, 25/-; Radio Pax, 35/-; Colvern triple coil unit, type C.A.1, 32/6; K.G.R. coils, 5/6; Lewcos Band Pass filter, 7/-; S. Peak coils, 5/6; Lewcos A.W.C. chokes, 6/-; Lissen 3-gang superhet coils, 14/-; Lewcos frame aerials, 10/-.

WESTINGHOUSE H.T.1, with Rich and Bundy transformer, 30/-; H.T.8, 11/6; Heyberd 250x250, 4 volt, 6 amps., 4 volt 1 amp., 15/-; R.I. E.Y.35, 15/-.

METERS. Weston type 506, 0-10 volts, 0-20 amps., 7/6; 301, 0-10m.a., 20/-; 506, 0-50m.a., 15/-; 0-150 volt, 15/-; Ferranti triple range, 250 volt, 10 volt 100 m.a., 30/-; valve tester, 55/-.

B.T.H. Senior P.M. Speaker, 50/-; Junior, 20/-; Celestion P.P.M., 20/-; W.B.P.M.3, 20/-.

ALL Post Paid; c.o.d. extra.

CLISSOLD 5001.

24, Mildmay Grove,

LONDON, N.1. [3356]

PEPPER Offers the Following under Usual Guarantee, cash refunded if dissatisfied.

MANY of Last Week's Bargains Still Available.

NOVOTONES, Type S; listed £5; boxed, 42/6.

EPOCH E.8 Speakers, with 8in. cones, 2,500 fields as new, 13/6; Ampion ditto, 6,500 fields, 12/6; Magnavox D.C.142, 2,500, boxed, £17/6; Watmet units, 3/6.

FERRANTI B.1 Chokes, 10/6; R.I. Hypercore, second-hand chokes, 9/3; 60h. 35 m.a. chokes, tapped for pentodes, 9/11; ditto, 60h. 50 m.a., 10/9.

BINOWAVES, boxed, A, C, and E, 2/11 each; P.W. Dual-waves Star-turns Titans, M.M.3 stars, Wearite Touchstones, T.G.S.C.s, despatch selector units, Formo dual-range, with bases, Talismans, R.2R.s, etc., 1/11 each; Lissen triple S.W., 2/11; T.O.S.G., 4/3; B.P.F.G., 5/3; O.T.1, O.T.2, 4/11; O.2s, 4/6; O.3s, 2/3; Varley B.P.9 and 10, 5/3 each; Telsen W.76, 3/9.

CARRIAGE Paid over £2.—Trevor Pepper, 575d, Moseley Rd., Birmingham, 12. [3376]

M.R.D. Co.'s Second Clearance Week, prior to restocking; all carriage paid, or call.

10/- Parcels Contain 8 Assorted Resistances, 8 fixed condensers, 1 potentiometer, 1 2-gang condenser, trimmers, 1 T.C.C. 2 mfd. cond., 5/- parcels contain 6 resistances, 6 condensers, 1 potentiometer, 1 T.C.C., 2 mfd. cond., 2/6 parcels contain 3 resistances, 3 condensers, 1 handsome S.M. dial.

ALL Parcels Guaranteed Perfect, and untested value. —Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [3394]

CHAL 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 50/6, at 18/-; Uniknob 2-gang, fitted as above, complete 10/-; Utility 2-gang, fitted as above, 8/6.

COILS (6 sets each only).—Colvern Ferrocarr, 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; record changers, Garrard, 200-250 A.C., complete with pick-ups, list £10, at £7/10.

(This advertisement continued on next page.)

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

PICK-UPS.—B.T.H. Senior 1933, with volume control, list 2 guineas, at 29/-; Harley 1933, with volume control, list 27/6 at 15/-.

MAINS Transformers.—Philips, with screened primary, 250-0-250 at 75 m.a., 4 volts 1 amp., 4 volts 5 amps., 12/6; 500-0-500 at 120 m.a., 4 volts 2.5 amp., 4 volts 2 amps., 4 volts 5 amps., 23/-; 450-0-450 at 120 m.a., same L.T. windings as 500 job, 22/-; 350-0-350 at 120 m.a., same L.T. windings as above, 21/-; all L.T. windings and C.T.

CHOKES.—50 henry 75 m.a. (300 ohms) 8/6; 50 henry 60 m.a. (400 ohms), 8/6; 20 henry 120 m.a. at 350 ohms, at 10/6; 30 henry 60 m.a. (350 ohms), 6/6.

SMOOTHING Condensers.—C.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 tapplings, 20 mfd., 4+4+2+2+2+2+1+1 at 11/-, 11 mfd., 4+2+2+2+1, at 6/9.

ASK for Special Quotation for Anything You May Need.—Chal-Electric, No. 6, Conduit St., London, W.1. [3392]

NORTH LONDON WIRELESS MART, 54, Malden Rd., N.W.5, offers the following surplus—all guaranteed:—

CELESTION Soundex P.M., M.C. speakers, with universal transformers, in sealed boxes, 15/-.

MULLARD Grid Leaks, all sizes, 4d. each, 3/- dozen; Philips Resistances, 1 watt, all sizes, 6d. each, 5/- doz.

MANUFACTURERS' Type Matched D.R. Coils, 6d. each, 5/- doz.; Cydon double drum extensors, 6/6.

ASSEMBLY Packet.—6 lengths genuine Systonlex, 6 yards twin silk red and black flex, 6 yards single 2 mm. flex, roll insulating tape, 1/2 gross solder tags, 6 yards 22g. T.C. wire, 3/3.

COLVERN K.21, K.22, K.23 coils, 14/-; pair K.B.L.C.'s and K.G.R.: 14/-.

NORTH LONDON WIRELESS MART, 54, Malden Rd., N.W.5, offers the above surplus. [3391]

BIRMINGHAM RADIO MART'S Weekly Selection guaranteed Manufacturers and Bankrupt Stocks; all perfect.

RESISTANCES.—Erie, H.M.V., etc., 100 to 100,000 ohms; our assortment, 3/- doz.; different values.

POTENTIOMETERS, wirewound: Radiophone, 5,000, 15,000, 50,000, 100,000 Magnum 25,000, Colvern 3,000, 6,000; all 2/3.

TRANSFORMERS.—Wearite 350/350 9/6; H.T.8, 8/6; R.I.300/300, 12/6; all with filament windings, not stripped models; Philips, 200/200, 4/-.

CONDENSERS.—Polar-Tub 3-gang, 10/6; 2-gang, 6/-; Radiophone 4-gang superhet, 10/-; 2-gang, 6/-; all screened with trimmers; fixed T.C.C., Dubilier, etc., 0.0001 to 0.01, 3/- doz.; our assortment.

CONDENSER Packs.—T.C.C. 4+4+1, 3/9; 4+4+1+1+5, 4/6; T.C.C. 800 wkg., Helsby 500 V.A.C. working, 3/9; T.C.C. 15mfd. electrolytics, 1/-.

DUAL FADERS.—Magnum, 2/9; A.E.D., 3/3; H.F. chokes, Varley, Pye, Radiophone, screened 1/6.

NEW Amplion Six Console Rola Speaker, 28G., push-pull, one only, 8 guineas.

METERS.—Raynarts famous 2 3/4 in. nickel flush, any reading above 25mA., 5/9; Full list stamp.

THOUSANDS Bargains.—Converters, telephones, short-wave gear, speakers.—The Square Dealers, "Raymart," 19, John Bright St., Birmingham. [3365]

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

A.C. H.T. Eliminators, 200-250v. 50 c. input, 150v. 30 m.a. output, 2 pos. tapplings, one fixed, one variable, Westinghouse rectified, finest components, guaranteed; special summer price, 25/-; post 1/3; also in 100-110 volts.

GENUINE Reisz P.A. Microphones, for all amplifiers up to 60 watts, straight line response; 55/-; plated stand with rubber suspension, 15/-; post free.

EX-EKCO Mains Transformers, suitable Ferrocart III, tapped input, 200-250 volts, outputs 350-0-350v. 60/70 m.a., 4v. 2 a., 4v. 3 to 4 a. 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.

PHILIPS Mains Transformers, 200-250v. input, outputs, 200-0-200v. 40 m.a., 4v. 1 a., 4v. 3 a., a super bargain; 4/6, post 9d.

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

WESTINGHOUSE Metal Rectifiers, guaranteed, 120v. 15 m.a., 3/-; 120v. 20 m.a., 3/3; post 6d.

WONDERFUL Summer Offer of Electric Clock, complete movements, 200-250v. A.C., 50 cycles; 16/6, post 6d.; write full details; snap yours now.

D.C. Motors, various makes, B.T.H., Emerson, etc., all in perfect condition, guaranteed, 230v., make fine dynamos, 250-50v., 1 1/2 amps., nearly new; 22/6, real bargain.

CHASSIS Valve Holders, 4- and 5-pin, 3d. each, 2/6 doz.; Dubilier 1 watt metallized 25,000, 10,000, 6d. each; 50,000, 100,000, 5 watt, 1/- each (vacuum), post above 1/4d.; T.C.C. 15 m.f. 100v. working, 1/3; 9 m.f. (4+4+1) 500v., 5/-; Wego 2 m.f. 1,000 volt., 2/-; 9 m.f. (4+2+2+1), 500v., 3/6, post 6d.; T.C.C. 4 m.f. 500v., 2/3, post 3d.; in perfect condition.

SEND for Our Bargain List, all goods 3 days' approval against cash, or c.o.d.

EBURY BRIDGE RADIO Co., 33, Ebury Bridge Rd., S.W.1 (near Victoria Station; No. 11 bus to Ebury Bridge). Sloane 8407. Closed Thursday afternoon. [3383]

THREE Wearite Superhet Intermediates, 10/- set; 120v. wet nickel iron battery, 30/-—Hawtreys, 3, Brocas Terrace, Eton. [3349]



The capabilities of all Savage amplifiers are quoted in terms of "undistorted power output"—but in more senses than the purely theoretical one. Savage reproduction shows you just how good really good reproduction can be. Savage has had years of experience in amplifier work of all kinds—experience that has been turned to good account in the latest models. It is *that* that makes the difference—but come and hear Savage "undistorted power output" for yourself. Or, if you are unable to get along, write for particulars stating the class of amplifiers in which you are interested. No obligation, of course.

SAVAGE SOUND SYSTEM
56/58, CLERKENWELL ROAD, LONDON, E.C.1
Phone: Clerkenwell 3068.9.

For PERFECT VOLUME CONTROL — WATMEL POTENTIOMETERS

Our Policy this year is to specialise in Potentiometers. You can, therefore, be certain when purchasing a Watmel Potentiometer that you are obtaining the very best from a firm that is concentrating on this type of component.

This resistance meets with the requirements for a volume control which will have an equal variation of volume for the rotation of the knob. This is specially important for the control of the grid bias of the new variable-Mu valves.

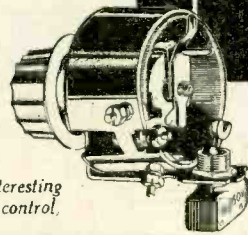
Here is illustrated the Watmel Type 2 Potentiometer with mains switch.

Price.
Square Law Winding 8/6
Without Mains Switch 6/6
Type 1.
Standard Winding 5/0

Please write for the interesting Watmel book on volume control, Free.

Watmel POTENTIOMETERS
GIVE THE BEST CONTROL

WATMEL WIRELESS Co., Ltd., Imperial Works, High Street, EDGWARE.
Telephone: Edgware 0323



Components, etc., for Sale.—Contd.

8/9—3-gang 0.0005, on die-cast chassis, trimmers, with illuminated drum drive, made for H.M.V.—Kay, 167, City Rd., London, E.C.1. [3353]

MAINS Transformers, 350-0-350v., 100 m.a., 4v. 5a. c.t., 4v. 2a., 4v. 2a., 200-250v. input; 10/6, postage 1/-; Amalgamated Services, 161, Wardour St., W.1. [3348]

SPECIAL Clearance Bargains.—Projectors (9, 16 and 35 mm.), 30/-; Cameras, from 20/-; everything for Movies, Walkies and Talkies; inspection invited.

ILLUSTRATED ENTERPRISES, 159, Wardour St. (facing Film House), London, W.1. Phone: Gerrard 6889. [3004]

EPTON First Again! Just in and a few only! Utility 2-gang Mica Condensers, complete with Horizontal Full-vision scale, Uniknob model, escutcheon, etc.; 8/11.

REGENTONE Cabinets; Radiophone Potentiometers; Fixed Condensers and Banks (Dubilier, T.C.C., Wego); 1 1/2 watt, 1-watt, and 5-watt Resistors (Dubilier, Loew); Coils, Transformers, etc. Complete List in:—

EPTON'S Bargain Bulletin.—Send stamp to 93, New Rd., Chingford, E.4. [3397]

WEST END RADIO STORES' Special Set Manufacturers' Bargains.—Marconi 535 walnut radiogram cabinets, a few only, 39/6, carriage forward; other types in stock.

HEAYBERD Mains Transformers, 350-0-350v., 4v. 4a., 4v. 2a., 6/6; British H.T.8 trans., 200v., 180 m.a., 4v. 3a., 4v. 1a., 4/9.

NEW 27.6 Harlie Pick-up, with volume control, 12/6; Harlie tone selector, 2/9, boxed.

UTILITY 2-gang 0.0005, with external trimmer, 3/6; Polar 3-gang 0.0005, fully screened, 7/6.

T.C.C. 4 mfd. 400v., working condensers, type 80, 3/6; ditto 250v., working, 2/6.

N and K Farrand Inductor Speakers, new, 22/6; Wates 2-watt resistances, 20,000 ohms to 5 meg., 3d. each.

T.C.C. 8.25 mfd. 250v., working condenser, banks tapped, 2/6; Wates distance switches, single pole 3/11, double pole 4/6.

BROWNIE 2-valve A.C. Chassis, wired, metal rectifier; 17/6; postage extra on all orders.—West End Radio Stores, 14, Lisle St., Leicester Sq., London. Also at 382, Coldharbour Lane, Brixton. [3396]

TELEPHONES, hand, 4/6; pedestal, 7/6; bells, 3/-; microphones, 1/-, 2/6 and 4/6; transformers, 2/6; block condensers, 2M.F., 1/-; 4M.F., 2/-; 8M.F., 4/-—Below.

SYNCHRONOUS Motor, 220V, 1 phase, any cycles, A.C., suitable for electric clocks, etc., 10/-, post free; single value microphone amplifiers, 7/6; Hot wire milliamperes, 0-500 M.A., 4/-—Below.

WATERTURBINE one to two horse power, with reduction gear and drive, £3/10; desiccating machine, fitted vacuum pump, gauges, 110V d.c. motor, etc., would convert to splendid air compressor for spraying; £2/10.—Below.

SPARK Coils, ten inch, complete, in good order, £3; one inch, 6/6; two inch, 15/-; ignition coils, 5/-; rotary converter, 12V. D.C. input, 30V. 1A. A.C. output, 15/-; X-Ray contact switchboard, as new, £2/10.

DYNAMOS, for charging, 100v.-20a. £7; 220v.-15a., £8; 100v.-10a., £4; 60v.-15a., £5; 40v.-8a., £3/15; 30v.-10a., £3/5; 20v.-8a., 30/-; 12v.-5a., 20/-; also cut-outs, meters, regulators, resistances, etc.—Below.

GALPIN, 31, Bonfield Rd., Lewisham, London, S.E.13. goods cash with order or C.O.D.; all goods guaranteed; Works and Stores, 14, Loampit Hill, Lewisham, S.E.13; all correspondence to private address.—Write me your wants, all letters answered. [3359]

NEW Boxed Surplus.—Gramophone motors complete with turntable, etc., B.T.H. Sychro Blue, 25/-; Collaro Empire, 40/-; carriage paid.—Radio, 183, Laburnum Grove, Portsmouth. [3373]

PHANTOM Converter, 200 D.C. to 230 A.C. 35/-; Ferranti O.P.M.3, Igranic G chokes, 8/6; Ekco D.C., H.T., L.T., G.B., 22/6; S.G.3. D. C. receiver, £2/15—Jervis, Dryden Rd., Fleetwood. [3369]

MOVING Coil Milli-Amperes, 0-50, 10/6 each; 2 milliamps and 120v., 17/6 each; other ranges in stock; alterations, repairs of every description.—The Victa Electrical Co., 47, High St., Battersea, S.W.11. [3355]

A.F.8 C/-; A.F.4, 8/6; A.F.3, 12/6; A.F.12C., 6/6; R.I. Hypermu, 7/6; G.E.C. Hiflux, 8/6; Radiophone 366c 4-gang with cover, 12/6; Oilham H.T. charger, 18/-; cash or c.o.d.—Bolton, 13, Ashville Rd., Leytonstone, E.11. [3368]

FERRANTI A.F.4, 7/9; A.F.3, 11/6; A.F.5, 18/6; O.P.M.1C., O.P.M.2C., O.P.M.5C., O.P.M.2, 14/-; O.P.1, O.P.3C., O.P.6C., 7/6; B.1, B.2 chokes, 10/-; set 4 Lewcos Supr.; Sixty Coils, 18/6.—Bostock and Stonhill, 1, Westbourne Terrace, S.E.23. [3367]

DISPOSAL of Edison-Bell Radio Works.—Amateurs should write for complete list of speech amplifiers, eliminators, valves, and all new radio components, for sale at knock-out prices to clear quickly; 100 Plessey 3-gang condensers, 10/- each.—Write, Engineer, Edison-Bell Works, Gleggall Rd., S.E.15, for list, or, better still, call and inspect. [3259]

RADIO Auction.—Sold to highest bid received by next Thursday! Blue Spot pick-up, type 33; parts for Ferrocart III as kit or separate, with valves; Ferranti 50 milliammeter; Rola P.M. loud speaker with nalgogans; firescreen baffles; Colvern and Wearite I.F. transformers; Edystone transmitting and receiving gear; full list on application.—Snowden, Sandilands, Walton-on-Thames. [3370]

NOTICE for Special Bargains.—T. W. Thompson and Co., of 17, Strutton Ground, Westminster, have just purchased a large consignment of H.M.V. and other components, including mains amplifiers, Marconi transformers, chokes, rotary converters, speakers, condensers, and thousands of other parts, all of which will be advertised in a display advertisement in next week's "Wireless World." Do not buy until you have perused this advertisement; tremendous bargains will be offered. [3381]

CLASS "B" COMPONENTS.

SOUND SALES, Ltd., for Class "B" Components. List "B.B." on request.—Tremlett Grove, Highgate, N.19. [0301]

MISCELLANEOUS.

EASY Payments.—We supply, by easy payments, components, accessories, and sets, any make: 10% down; balance spread over 11 months.—Send list of requirements to London Radio Supply Co., 11, Oat Lane, London, E.C.2. [0337]

ENGINEERS and Technical Workers of All Kinds.—A proper training by post in your spare time will take you through your right examination, the employment is waiting. Our advice on all careers free.—Dept. 92, The Bennett College, Ltd., Sheffield. [0395]

NOTICE for Special Bargains.—T. W. Thompson and Co., of 17, Stratton Ground, Westminster, have just purchased a large consignment of H.M.V. and other components, including mains amplifiers, Marconi transformers, chokes, rotary converters, speakers, condensers, and thousands of other parts, all of which will be advertised in a display advertisement in next week's "Wireless World". Do not buy until you have perused this advertisement: tremendous bargains will be offered. [3382]

AMBITIOUS Men.—Qualify for a well-paid post by studying at home with the T.I.G.B. Write to-day for "The Engineer's Guide to Success," 144 pages, free, which contains the widest selection of engineering and wireless courses in the world, and shows you how to become A.M.I.E.E., A.M.I.Mech.E., A.Rad.A., etc. State branch, post or qualification that interests you.—The Technological Institute of Great Britain, 82, Temple Bar House, London, E.C.4. (Founded 1917. 19,000 successes.) [3236]

PATENT AGENTS.

PATENTS and Trade Marks, British and foreign.—Gee and Co. (H. T. P. Geo. Member R.S.G.B. and A.M.I.R.E.). 51-52, Chancery Lane, London, W.C.2. Phone: Holborn 1525. [0001]

REPAIRS.

REPAIRS.—Rebuilding to any set; highest quality work only; lowest charges; estimates given free; distance no object.—L. Eastwood, Radio Manufacturers' Consultant, Late of His Master's Voice and Marconi Wireless Telegraph Co., Telephone: Clerkenwell 4520. Address: 60, Horder Rd., Fulham, S.W.6. [3345]

GUARANTEED Repairs by Experts; specialists for repairs to S. G. Brown and Amplion radio apparatus, also loud-speakers, headphones, pick-ups, Blue Spots, any type rework, remagnetised and adjusted; 4/-; post free, mains transformer repairs; terms to trade.—Howell, 91, Morley Hill, Enfield, Middlesex. [9716]

REPAIRS to Loud-speakers, transformers and headphones, 4/-; Blue Spots or Wufas, 5/-; post free; moving coils a speciality, new cones fitted; eliminators and mains transformers quoted for; prompt service; satisfaction guaranteed; discount to trade.—Loud Speaker Repair Works, 5, Balham Grove, London, Battersea 1321. [0304]

TUITION.

R.T.I. Training Methods are Recognised; write for particulars of home study for radio appointments; secure "Certificate of Proficiency" and become "A.M.T.I."—Radio Training Institute, 85, New Oxford St., London, W.C.1. [2947]

QUALIFIED Radio Engineers are Always in Demand, and our Home Study Course will enable you to qualify for a good post; many students already placed this season; prospectus free.—Northern Counties Wireless School, Preston [0399]

FINANCIAL PARTNERSHIPS.

PARTNERSHIP available, Brighton, suit Technical wireless man. £250; additional £100, genuine scope, exceptional opportunity.—Box 7934, c/o The Wireless World. [3336]

EXCHANGE.

EXCHANGE Your Set or Components for a 1934 Receiver; best allowance.—Radio Exchanges, 114, Ramuz Drive, Westcliff-on-Sea. [3234]

HIGH Allowances Made on Second-hand Goods in Part Payment for New Sets or Components; easy payments available; we have tremendous stocks tested second-hand goods; send list of your requirements for quotation.—Bostock and Stonnill, 1, Westbourne Terrace, S.E.23. [3366]

WANTED.

WANTED, Westinghouse charger, any model, A.C.—Crannage Radio, Uckfield, Sussex. [3262]

SPOT Cash for Modern Components, etc.—Economic Radio Co., 96-98, South Lambeth Rd., S.W.8. [3291]

SECOND-HAND Goods in Part Payment for New, private experimenter.—Box 7926, c/o The Wireless World. [3357]

MODERN Straight Five, "Wireless World," June, 1932, receiver unit chassis only, without valves; £4 offered if to specification.—B. Lewis, 31, Elwill Way, Beckenham. [3361]

HIGH Class Radio Sets and Parts Wanted for Cash, no obsolete parts please; parcels may be sent, same receiving immediate attention.—Mildmay Radio Exchange, 24, Mildmay Grove, London, N.1. Clissold 5001. [3197]

SITUATIONS VACANT.

YOUNG Man, 17-20, for service dept. of radio stores, N. London, good technical knowledge of modern receiver.—Write, stating wages, experience to Box 7932, The Wireless World. [3384]

If You Wish to Enter the Wireless Profession with a Thorough Training, or if you wish to improve your present position you will need the certificate issued by Britain's leading wireless college. This is not a correspondence college. Apparatus of all leading makes installed for instructional purposes. Boarders accepted. Training fees can be paid after appointment. Prospectus free.—Wireless College, Colwyn Bay. [0383]

Your complete guide to the construction of Radio Power Units. A 32-page publication which deals fully and clearly with the theory and practice of the subject, giving full working instructions and diagrams for the building of eight different units—AC and DC—from modest to super-power output.

Published by Ferranti, it may be looked upon with confidence as a responsible and authoritative treatise. As such, it is only natural that the components recommended are of unsurpassed quality and unquestioned reliability. The fact that many of these components bear the Ferranti name will be taken as a guarantee that the completed Power Units are entirely safe and exceptionally efficient.

This Booklet W522, as well as a 16-page list of all Ferranti Mains Components, will be sent, post free 4d. Address enquiries to Dept. "W."

The full range of Ferranti Mains and General Radio Components may be inspected at Stand No. 38, Scottish National Radio Exhibition, Glasgow; also at Stand No. 20, Main Hall, Northern National Radio Exhibition, Manchester.

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INDEX TO ADVERTISEMENTS.

	PAGE
Amplion (1932), Ltd.	15
Arden Agency	15
Automatic Coil Winder & Elec. Equipment Co., Ltd.	15
Barber & Colman, Ltd.	16
Belling & Lee, Ltd.	16
Birmingham Sound Reproducers, Ltd.	15
Black, Alexander, Ltd.	18
Black Batteries, Ltd.	4
British Blue Spot Co., Ltd.	4
British General Manufacturing Co., Ltd.	16
British Inst. of Eng. Tech.	16
British Radiophone Co., Ltd.	11
British Rola Co., Ltd.	11
British Thomson-Houston Co., Ltd.	17
Bryce, W. Andrew & Co.	17
Bulgin, A. F. & Co., Ltd.	16
Burton, C. F. & H.	Front Cover
Challis Transformers, Ltd.	12
City Accumulator Co., Ltd.	1
Colvern, Ltd.	Front Cover
Concordia Electric Wire Co., Ltd.	4
Cosser, A. C., Ltd.	6
Dubilier Condenser Co (1925), Ltd.	3
Eastlick, J. J., & Sons	

	PAGE
Electradix Radios	
Electro Dynamic Construction Co., Ltd.	16
Epoch Radio Manf. Co., Ltd.	16
Eta Tool Co., Ltd.	
Ferranti, Ltd.	15
General Electric Co., Ltd.	5
Gilbert, J. C.	12
Grosvenor Electric Batteries, Ltd.	
Hartley Turner Radios, Ltd.	12
Haynes Radio	
Hayward, F. C. & Co.	4
Higgs (Great Britain), Ltd.	7
H.S.P.	15
Igranite Electric Co., Ltd.	8
Jackson Bros.	
Lampugh Radio, Ltd.	12
Leclro Linx, Ltd.	13
Lyons, Claude, Ltd.	
Marconiphone Co., Ltd.	
Metropolitan Vickers Electrical Co., Ltd.	
Milnes Radio Co.	
Partridge & Mee, Ltd.	17

	PAGE
Partridge, Wilson & Co.	16
Pepper, Trevor (Seradex)	15
Peto-Scott Co., Ltd.	
Picketts	
Pilco, Ltd.	vi.
Players	
Radio-Grampophone Development Co.	Back Cover
Reproducers & Amplifiers, Ltd.	2
Riverside Manf. Co., Ltd.	10
Rotax, Ltd. (M. Equipment)	9
Savage, W. Bryan	14
Scott Sessions & Co.	10
Seskamp, O.	12
Tannoy Products	12
Telsen Electric Co., Ltd.	Front Cover & 9
Tungsum Electric Lamp Works (G.B.), Ltd.	Inside Front Cover
Vinces Dry Batteries, Ltd.	2
Watmel Wireless Co., Ltd.	14
Westinghouse Brake & Saxby Signal Co., Ltd.	Inside Back Cover
Whiteley Electrical Radio Co., Ltd.	7
Wilburn & Co.	17
Wingrove & Rogers, Ltd. (Poivy)	

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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 Exchange, Quotations and Gramophone Music. 6.0, Programme for Children. 6.45, News. 7.30, Gaelic Talk. 7.15, German Lesson. 7.30, Time Signal. 7.31, Concert by the St. James's Brass and Reed Band. 8.30, Soprano Solos by Eileen Hayden. 8.45, Concert by the Station Orchestra. 9.15, Baritone Solos by A. McNeecy. 9.25, Talk by Liam O'Goghan: The Sacred Places of Ireland. 9.45, Sponsored Programme. 10.45, News, Weather and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Selection from The Flying Dutchman (Wagner); Autumn Song (Elgar); Romance (van Goens); Selection from Lakmé (Delibes); Intermezzo (Lindsay); Gavotte (Massenet); Minuet in D (Schubert). 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Music, followed by News. 10.0, Chimes, Weather and Exchange. 10.5, Sardanas, by the Albert Martí Cobia. 11.0, Concert Relay. 12 Midnight (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes, Tourist Talk and Dopolavoro Announcements. 8.20, (Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.40 (approx.), Concert of Chamber Music. Ita Lombardo d'Angelo (Pianoforte) and Gioconda de Vito (Violin). Pianoforte Solos: (a) The Harmonious Blacksmith (Handel), (b) Caprice (Scriabin); Violin Concerto in G (Buck); Pianoforte Solo: Fantasia and Fugue in G Minor (Bach-Liszt); Violin Solos: (a) Saraband (Garguilo), (b) Melody (Mussorgsky); Pianoforte Solos: (a) Clair de lune (Debussy), (b) Golliwog's Cakewalk (Debussy); Violin Solos: (a) Ave Maria (Schubert-Wilhelmy), (b) Caprice No. 17 (Paganini-Principe); Pianoforte Solo: Ballad No. 4 (Chopin); Violin Solo: Scherzo (Wienawsky). In the interval, Fashion Notes. After the Concert, Dance Music, relayed from the Gran Café del Levante. 10.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—6.55 p.m., Time, Announcements, and Orchestral Concert. 8.0, Talk. 8.30, Concert by the Garde Royale Orchestra. 10.0, Popular Songs. 10.30, Time and News. 10.45 (approx.), Cigany Music from the Ruminski Kralj Restaurant.

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—12 Noon, Weather. 12.5 p.m. (approx.), Gramophone Concert: Overture, Pique Dame (Suppé); Carnival in Venice (Benedict); Overture, Morning, Noon and Night (Suppé); Overture, Der Opernball (Heuberger); Egyptian Serenade, Aminta (Lincke); Overture, Die Feisenmühle (Reissiger); Third Waltz Potpourri (Robrecht); Potpourri of Wanderlieder; Serenade, Il Bacio (de Michel); Annen-Polka (Joh. Strauss); Potpourri, Auf Fahrt und Walfahrt; Tenor Solo: Hast du schon einmal zugleich geweint, gelacht? (Müllacker); Über Berg und Tal (Sommerfeld). Weather and Market Prices after the Concert. 12.55 p.m., Time Signal. 1.45, News. 2.0, Gramophone Concert—Famous Dance Bands: Paul Whiteman's Band: (a) Mississippi Suite (Grofe), (b) Suite of Serenades (Herbert); Jack Payne's Band: (a) Sunny Days (Jason and Burton), (b) Melody (Friend), (c) Dreams; Mitja Nikisch Band: Song (Brown and Robinson); Barnabas von Geczy Orchestra: I want nobody but you (Santiago Lopez); Juan Lozas Orchestra: (a) Autumn (Otono), (b) Plegario (Bianco); Ambrose's Band: (a) My Secret Passion (Young), (b) You've got me crying again (Newmann-Jones), (c) Stormy Weather. 2.45, Programme for Children. 3.30, Weather and Exchange. 3.45, Political Dialogues—Leadership (Plato). 4.0, See Hamburg. 5.0, Dialogue: The New Style in Oratory. 5.20, Concert of Light Music. 6.0, Poems. 6.5, Religious Address. 6.35, Wireless Technical Talk. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, To-day's Motto. 8.5 (approx.), Programme in Various German Dialects. 9.0, Military Band Concert from London. 9.40, Prussian Marches on Gramophone Records: Preussens Gloria (Pfeke); Unsere Marine (Thiele); Durch Kampf zum Sieg (Blon); Durch Nacht zum Licht (Laukien); Cadet March (Sousa); Florentine March (Fueki); Old Comrades (Teike); Entry of the Gladiators (Fueki). 10.15, News. 10.45, Weather. 11.0, See Munich.

SUN. MON. & TUES. PROGRAMMES

WEDNESDAY

SEPTEMBER THE SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON A music hall programme. Promenade concert from Queen's Hall.
REGIONAL
MIDLAND Opening of the Second Annual Radio Exhibition at Nottingham.
REGIONAL
NORTH Songs from "A Shropshire Lad," by A. E. Housman.
REGIONAL
WEST Instrumental concert.
REGIONAL
SCOTTISH Running commentary on the Highland Games, from the Green of Charlestown, of Aboyne.
REGIONAL
BELFAST The Fourth Holiday Parade, relayed from Portrush.

ABROAD

BARCELONA 7.0 p.m. The Station Trio.
BARI 8.40 p.m. Chamber music.
BRUSSELS 9.0 p.m. Concert from the Kursaal, Ostend.
(No. 1)
COPENHAGEN 8.10 p.m. The Station Symphony Orchestra, conducted by Nicolai Malko.
EIFFEL TOWER 8.30 p.m. Symphony concert, conducted by E. Flament.
HUIZEN 7.55 p.m. The V.A.R.A. Orchestra, relayed from The Hague.
OSLO 8.2 p.m. The Station Orchestra, conducted by Hugo Kramm.
ROME 9.45 p.m. Selection from opera: "Le Maschere," by Mascagni.
STRASBOURG 8.30 p.m. Synphony concert from the Casino, Vichy.
TURIN 8.30 p.m. Operetta: "The Merry Peasant," by Fall.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.30 p.m., Concert of Light Music, conducted by Max Reug. 5.10, Folk Songs—Report of the Singing at Bad Freienwalde on August 8th (on Gramophone Records). 5.25, Dialogue: The Last Windmill of Berlin and its Miller. 5.45, Zelter and Schubert Song Recital by Marianne Zarns (Soprano): Part I, Zelter: Erster Verlust; Wo geht's Liebchen; Die Spröde; Die Bekehrte. Part II, Schubert: An den Mond; La pastorella; Das Rosenband; An die Nachtigall; Seligkeit. 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 Breslau. 8.0, Lottery Announcements. 8.5, Folk Songs. 8.35, Concert by the Berlin Wireless Chorus. 9.25, Talk. 9.35, Order in the Alphabet—Radio Sequence. 10.0, News. 10.15 (approx.), Dance Music. In the interval from 11.0-11.5, Topical Talk. 12 Midnight, 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.—5.45 p.m., Gramophone Music. 5.55, Hungarian Transmission: Talk, Reading and Pianoforte Concerto in E Flat (Mozart). 6.55, Report. 7.0, See Prague. 9.5, See Brno. 10.0, See Prague. 10.15 (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 Hans Kaufmann (Bass): Beresina-Lied (Legler); Reiterlied (Lyra); Jägers Abendlied (Reichardt); 's Glatzer Roserl (Scorria); Deutsches Erwachen (Scorria). 2.30, Gramophone Concert: Potpourri, Walzer auf Walzer (Geisler); Der verliebte Hampelmann (Rust); Duett: Schön ist jeder Tag, den du mir schenkst (Meisel); Ballgellüster (Meyer-Helmund); Ballettreigen (Carst); Viennese Song: Schrammeln, spielt's ma no an Tanz (Nitzlader); Polka-Mazurka, Frauchenzer (Joh. Strauss). 3.0, Market Prices. 3.15, Talk. 3.30, Educational Talk. 4.5, Pianoforte Recital by Eva Ebner-Robert: Aufschwung (Schumann); Warum (Schumann); Grillen (Schumann); Der Linden-

baum (Schubert-Liszt); Gnomeneigen (Liszt). 4.35, Readings from the Works of Upper Silesian Poets. 5.5, Song Recital by Lilly Jeschoheek (Soprano): Willst du dein Herz mir schenken (Bach); Sehnsucht (Hurka); An meine Laute (Reichardt); Mayreigen (Himmrl); Io t'anno (Risghini); Das Geheimnis (Gross); Die Spröde (Hyrka); Schäferlied (Haydn); Liebestaumel (Reichardt); Schon klopft mein liebender Busen (Mozart). 5.35, Market Prices, followed by Talk. 5.55, Quartet No. 35 in D, Op. 64 (Haydn). 6.30, Talk. 6.50, Weather, News and Meat Market Prices. 7.0, Transmission for all German Stations: Ihr frommen deutschen Landsknecht gut—Programme of Songs, Rhymes and Jests about the Mercenary Soldier. 8.0, Topical Programme. 8.30, Dance Music by the Station Orchestra, conducted by Bruno Janz. Soloist: Helmut Hallendorf (Tenor). 10.0, Time and News. 10.20, Talk: The Tasks of a National Literature. 10.40, Dance Music by the Conny Franz Band, from the Jahrhunderthalle. 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.25, German Transmission: News, Technical Talk and Talk on Culture and Civilisation. 7.0, See Prague. 9.5, Concert by the Station Orchestra, conducted by Bakala. Soloist: Igno Mann (Songs). Overture, Mignon (Thomas); Songs: (a) Aria from L'Africaine (Meyerbeer), (b) Aria from Carmen (Bizet); Suite, Rossiniana (Respighi); Songs: (a) Aria from La Gioconda (Ponchielli), (b) Aria from The Girl of the Golden West (Puccini); Ballet Music from The Queen of Sheba (Goldmark). 10.0, See Prague. 10.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by Leemans. 12.30 p.m., Pianoforte Recital by Jacques Stehmann. Lesguinka (Lapimov); Sonata in D (Scriabin); Three Preludes (Stehmann). 12.45, Concert (cont'd.). 1.0, Le Journal Parlé. 1.10, Gramophone Records. Le credo du paysan (Goublier); La voix des chênes (Goublier); Ballet Music from The Cid (Massenet). 1.35, Soprano Song Recital by Mlle. Isabelle Draye. Aria from Resurrection (Handel); Aria from Salammbô (Reyer); A no lilac (Goeyens). 1.50, Gramophone Music. 5.0, Symphony in F (Brusselsians), by the Station Symphony Orchestra, conducted by Kumps. 5.30, Programme for Children. 6.5, Literary Review. 6.15, Recitation of Poems by Germaine Knops. 6.30, Concert by the Small Station Orchestra, conducted by Leemans. Recueillement (de Breville); Nocturne

(Cnausson); Aux étoiles (Duparc); Réverie (Debussy); Aspiration (Dubois); Gramophone Record: Invitation au voyage (Duparc); En bateau (Debussy); The Nile (Leroux); Escapes (Ibert). 7.15, Weekly Radio Review and Film Notes. 7.30, Medical Talk. 8.0, Concert by the Radio Orchestra, conducted by Kumps. Golliwog's Cake Walk (Debussy); Rhapsody in Blue (Gershwin); Fox-trot (Ravel); Ronde burlesque (Schmitt); Suite of Viennese Waltzes (Gillon). 8.45, Talk: The Middle Classes. 9.0, Concert, relayed from the Kursaal, Ostend. After the Concert, Le Journal Parlé, followed by Symphony No. 3 in A (Brahms), on Gramophone Records. 10.55, Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Concert, conducted by Felleman, relayed from the Grand Hotel, Antwerp. 1.0 p.m., Le Journal Parlé. 1.10, Concert Relay (cont'd.). 5.0, Dance Music, relayed from the Kursaal, Ostend. 6.0, Gramophone Records, with Commentary: Phaeton (Saint-Saëns); Wallenstein's Camp (d'Indy). 6.45, Gramophone Music: Fourteen Songs (Simson); Overture, Alphonso and Estrella (Schubert). 7.15, Reading. 7.30, Book Review. 8.0, Arnoede—Radio Sketch (Putman). 8.45, Knokkelbeen—Operetta in Three Acts (Hullebroeck). In the first interval, Gramophone Records: Hungaria (Ducet); Schön Rosmarin (Kreisl); La Craquette (Clerice); Polka rondo (Balleron); The Clock is playing (Blauw). In the second interval, Le Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra: March (Lindemann); Waltz from Casanova (Lincke); Overture, Marinarella (Fueki); Selection from La Bohème (Puccini-Tavan); Fantasia on Themes from Coppélia (Delibes-Petras); Romanian Potpourri (Welsch); Italian Serenade (Schleheck); English Song and Waltz (Fuchs-Michailov); Serenade (Amadei). In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Romanian Music on Gramophone Records. 7.40, Educational Talk. 8.0, Violin Solos. 8.30, Talk. 8.45, Horn Solos. 9.45, Pianoforte Recital by Etienne Bernhardt: Fantasia and Fugue in G minor (Bach-Liszt); Spanish Rhapsody (Liszt); Spanish Dance (Fall); The Juggler (Teich). 9.45, Radio Journal. 10.0, Concert, relayed from the Piccadilly Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 7.20 till Close Down.—5.0 p.m., Concert by the Concert Orchestra. 6.15, Talk. 6.45, Song Recital by Palitai. 7.20, Schön war die Welt im K.u.K.—Radio Play (Biky). 9.20, News. 9.40, Pianoforte Recital by Karolyi: Sonata in B minor (Chopin); Legende (Liszt); Rhapsody No. 12 (Liszt). 10.15, Weather Report, followed by Music by the Alexander Bura Cigany Band. 11.0, 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, and Weather Forecast. 12.15 p.m., Talk. 12.25, String Ensemble Concert, relayed from the Bellevue Strandhotel. 1.15, Educational Talk. 1.45, Interval. 2.30, Programme for Children. 3.0, Orchestral Concert, relayed from the Wivex Restaurant. 5.0, Gramophone Music. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, French Lesson. 6.45, Weather, Announcements and News. 7.15, Time Signal. 7.30, Agricultural Talk. 8.0, Chimes from the Town Hall. 8.2, Humorous Item, followed by Weather Forecast. 8.10, Concert by the Station Symphony Orchestra, conducted by Nicolai Malko. Soloists: Elise Brenis (Songs) and Louis Preis (Violin). Overture, Ruranythe (Weber); Songs from: (a) Amadis de Gaule (Lully), and (b) L'Enfant prodige (Debussy); Symphonie classique (Prokofiev); Prélude à L'Après-midi d'un Fanne (Debussy); Andante and Finale from the Violin Concerto in B minor (Saint-Saëns); Suite from Tsar Saltan (Rimsky-Korsakov). 10.15, News. 10.30, Reading (Jacobsen). 10.55, Dance Music relayed from the Arena. In the interval at 12 Midnight, Time 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, Happy Hour. Part I. Orchestral Music: Signature Tune; Overture, Die Fledermans (Joh. Strauss); Demande et réponse (Coleridge-Taylor); Song: Mountain Lovers (Squire); Vienna, City of my Dreams (arr. Reeve); Selection from Wild Violets (Stolz); Song: A Bachelor Gay (Tate); The Dance of the Tea Dolls (Smith

SEPT. 6th

WEDNESDAY

continued

Hagan); The Warbler's Serenade (Parry). Part II. Dance Music: Maybe I love you too much; Waiters on Parade; Peter, Peter; No more love; Da Dar, Da Dar; One Tiny Tear; That's what life is made of; I've got to sing a Torch Song; Spanish Eyes; The Shadow Waltz; Signature Tune. 12.00 Noon, French Programme. 4.30 to 6.0, Programme in English by the I.B.C. 4.30, Programme for Children. 5.0, Gramophone Concert for Portsmouth and Southsea Listeners: Signature Tune; The Night by the Sea; Selection from The Merry Wives of Windsor (Nicola); Any time, any Day, Anywhere (Washington); Selection from The Geisha (Jones); Song: I shall remember you; O'er the Hills to Ardentenny (Lauder); Drifting down the Shalimar (Monaco); Petite Suite (Debussy). 5.30, Organ Recital with Songs for Isle of Wight Listeners: American Patrol (Meacham); Indian Love Call (Primi); Nola (Arndt); Song: Only a Rose (Primi); A Perfect Day (Haydn Wood); Song: Down Vauxhall Way (Oliver); Kashmiri Love Song (Woodforde-Finden); Signature Tune. 6.0, French Programme. 10.0 (approx.) till Close Down. Programme in English by the I.B.C. 10.0, Dance Music: Signature Tune; Bells of Normandy; Let me explain; Standing on the Corner; Put a little Springtime; You did everything for me; Have you ever been lonely? Round the Bend of the Road; Balloons; How can you say No? (Dublin); Mediterranean Madness; Bananas; It's no use. I'm in love; The World is so small; Love Tales; The Village Band; Southern Serenade; Here's hoping; Signature Tune. 11.0, Sound Film Music: Signature Tune; Sittin' in the Dark; Selection from Die Fledermaus (Strauss); You are my Heart's Delight, from The Land of Smiles (Lehar); Song: Dark Red Roses; There's something about a Soldier (Gay); Song: I'll stay with you (Woods); Song from The Blue Angel (Hollander); Selection from Show Boat (Kern); Signature Tune. 11.30, Concert by the I.B.C. Ireland, Ltd.: Signature Tune; Come back to Erin; The Clatter of the Clogs (Flynn); Serenade d'amour (Blon); Banio Solo: Fashionette (Gloway); Irish Song Medley (arr. Griffiths); Ideale (Tosti); Ireland, Mother Ireland (Loughborough); Selection from The Gipsy Princess (Kálmán); Birthday Serenade (Lincke). 12.5 a.m. (Thursday), I.B.C. News Bulletin in English. 12.10 (approx.), Club Concert for Knutsford Listeners: Signature Tune; The Chum Song; Nine Little Miles from Ten-Ten-Tennessee (Sherman); Heebie Jeebies (Atkins); It's a Glory; Really Blue (Venute); Nightfall (Lewis); Alice Blue Gown (Tierney); Sleepy Valley (Sterling); Tea for Two (Youmans); What could be sweeter than love (Brooklyn); I want to be happy (Youmans); Give me a Tune (Scott); My Baby (Gilbert); To-day I feel so happy (Abraham); Signature Tune. 1.0, Dance Music: Signature Tune; Bells of Normandy; I'm getting sentimental over you; My Heart was made for love; In a Second-hand Store; In old Vienna; Dancing Butterfly; In the Valley of the Moon; I can't remember; Maria my own; Meet me in the gloaming; When the Wild, Wild Roses bloom; Lover; Stormy Weather; Sweetheart Darlin'; Falling Star; The Gold Digger's Song; Where are you tonight. 1.57, I.B.C. Goodnight Melody. 2.0 (approx.), 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.—2.30 p.m., News for the Saar District. 2.40, Talk: Listen Everybody! 3.0, Weather. 3.10, Time and Exchange. 3.30, Programme for Young People. 4.25, Exchange. 4.30, Concert. 5.45, Exchange. 6.0, Talk: Yesterday's Events. 6.25, Topical Talk. 6.45, Review of the Day's News. 6.50, Time, Programme Announcements, Weather and Exchange. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Recital of Max Reger Pianoforte Music. 8.45, See Stuttgart. 9.15, Die Hosenknopf—A Peasant Play in One Act (Neal and Ferner). 10.0, Topical Talk. 10.15, Time and News. 11.0 (approx.), See Munich.

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

805 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., Johann Strauss Concert by the Hamburg Philharmonic Orchestra,

conducted by Eibenschütz: Overture, A Night in Venice; Perpetuum mobile; Selection from The Gipsy Baron; Waltz, The Blue Danube; Overture, The Queen's Kerchief; Egyptian March. 5.0, Dialogue—Style in the North German Dialect Ballad. 5.30, Hamburg, Bremen and Lübeck—Report on Events in the Senates and Houses of Burgesses of the Hanseatic Free Cities. 6.0, Variety Programme. 6.25, Reading of New Patriotic Poems, with Introductory Talk. 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, The Warriors of Helgeland—Play (Ibsen). 9.45 (from Bremen), Concert of Choral Music by Bremen Composers: Gondoliera (Lefmann); Indian Lullaby (Lefmann); Feldeinsamkeit (Wendel); Bitte (Wendel); Am Brünnele (Nössler); Minnelied (Nössler). 10.10, News. 10.30, Topical Talk. 10.40, Concert by the Kampfbund Chamber Orchestra: Concerto grosso in B, No. 1 (Handel); Barocco, Suite for Small Orchestra (Atterberg). 11.10, Serenade from Munich.

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., Concert by the Small Station Orchestra, conducted by Eugen Wilcken: March, Mit Schwung und Tücke (Wilcken); Overture, Fatintza (Suppé); Peasant Dances (Pacher-negg); Kermesse villageoise (Filipucci); Selection from Manon Lescaut (Puccini); Ballet Music from Othello (Verdi); Intermezzo; Humoresque (Reger). In the intervals at 1.20 and 2.0, News. 2.30, Sponsored Gramophone Music. 3.0, Market Prices. 3.20, Practical Hints for the Housewife. 3.30, Programme for Children. 4.0, Educational Talk. 4.30, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner: Overture, Romeo and Juliet (Tchaikovsky); Selection from The Valkyrie (Wagner); L'apprenti sorcier (Dukas); Second Polonaise in E flat (Liszt); Waltz from Ritter Pasman (John Strauss); Overture, The Hermit's Bell (Mailart). 5.50, Dialogue on Ju-Jitsu. 6.15, Market Prices. 6.20, Talk: Leaders on the Masses in Ancient and Modern Germany. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Weather and News. 8.10, Viennese Melodies and their History—Talk with Gramophone Illustrations. 8.40, Mandoline and Zither Recital: March, Dem Ziel entgegen (Lenke); Der Wald—Fantasia on Themes from Mendelssohn's Choral Music (Wolke); Abschied (Fahr); Descriptive Piece, Fremd und Leid (Rückert); Wine, Woman and Song (Strauss); Paraphrase on the Song Spinn, Spinn (Wormsbacher); March, Durch Nacht zum Licht (Laucke). 9.20, Talk: Modern Dances in their New German Settings. 9.40, Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken and the Erich Börschel Dance Band. In the interval at 10.15, News. 12 Midnight, Close Down.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—12.10 p.m. till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 12.10, Cello and Pianoforte Recital by van Maanen and J. Rosekrans: 'Cello Solos: (a) Adagio (Bach), (b) Sonata (Birkenstock); Pianoforte Solo: Impromptu, Op. 142, No. 3 (Schubert); 'Cello Solos: (a) Variations on a Duet from The Magic Flute (Mozart-Beethoven), (b) Allegretto grazioso (Schubert). (c) Après un rêve (Fauré), (d) Gavotte (Popper). 12.55, Gramophone Music. 1.10, Concert by a Children's Choir. 2.10 to 2.40, Interval. 2.40, Religious Reading. 3.10, Trio Concert, with Songs: Extract from Judas Maccabaeus (Handel); Five Songs from Blide stemmen (Schultz); Trio No. 5 (Mozart); Songs (Franz): (a) Im Rhein, (b) Widmung, (c) Auf dem Meere, (d) Aus meinen grossen Schmerzen, (e) Für Einen; Andante (Mann); Five Songs; Selection from Le roi d'Ys (Lalo). 4.40, Programme for Children. 5.40, Agricultural Talk. 6.10, Programme to be announced. 6.40, Police Notes. 6.55, Religious Notes. 7.10, Gramophone Music. 7.40, Festival Service for the Thirty-fifth Anniversary of the Coronation of H.M. Queen Wilhelmina, relayed from the Nieuwe Kerk, Amsterdam. 9.40, News, followed by Gramophone Music. 11.10 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW. Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Concert by the Small Station Orchestra, conducted by de Groot: Overture, The Nuremberg Doll (Adam); The Wedding of the Winds (Hall); Selection from Gasparone (Müllacker); Ein Puppenhaus (Engelmann); Gramophone Music: Le Carmagnole; Réve (d'Ambrosio); Melody, Oechi neri (Mateo); Le jardin de Cupide (Eugène); Dance (Lucchesi); Gramophone Music: Zornestral (Bierenbroodspot); Tosti Potpourri (God-

frey); Betrothal (Vesley); Meditation (Gounod). 1.40 p.m., Concert by De Flierefluiters, conducted by Ray Forest. 2.40, Programme for Children. 3.25, Interval. 3.40, Programme for Children (contd.). 5.10, Organ Recital by Steyn. 5.40, Concert by Eddy Walis and his Orchestra: Selection from The Last Waltz (O. Straus); The Song of the Violin (Schebek); Selection from Der Rosenkavalier (R. Strauss); Pensio a te (Tosti); Moment musical (Schubert-Thiel); Extracts from Mozartiana (Tchaikovsky-Weninger); Song and Tarantella (Volpatti); Selection from The Bird Fancier (Zeller); Kashmiri Love Song (Woodforde-Finden); Launisches Glück (Hilger); Drinking Song (Eisler-Uhl); Hungarian Melodies. In the interval, 6.10, Recitations, and at 6.40, Talk. 7.25, Recital of Jewish Songs by Leo Fuld. 7.40, Talk. 7.48, News. 7.55, Concert by the V.A.R.A. Orchestra, relayed from The Bagne. Soloist: Marie Vos (Soprano): Overture, The Barber of Seville (Rossini); Cavatina from The Barber of Seville (Rossini); Ballet Music from Sylvia (Delibes); Waltz, Frühlingsstimmung (Strauss); Banditenguop (Strauss); Frisch durchs Leben (Strauss); Air and Overture from Die Fledermaus (Joh. Strauss). 8.55, Concert by Gaspar Lajos and his Gypsy Band. 9.40, Concert by De Flierefluiters, conducted by Ray Forest. Soloist: Busch (Songs). 10.40, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, Financial Notes and News. 8.15, Reading. 8.30, Press Review. 8.40, Radio Concert. In an interval at 9.0, News and Weather. 11.30, Dance Music by the Billy Arnold Jazz Band, relayed from the Hollywood Restaurant.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12 Noon, Concert by the Station Chamber Orchestra, conducted by Wilhelm Keiper: Hofballtänze (Lammer); Overture, Der Erlenhügel (Kuh-lau); Suite, The Tale of Czar Saltan (Rimsky-Korsakov); Selection from La Gioconda (Ponchielli); German Dances (Schubert). 12.50 p.m., News. 1.0 to 2.30, Orchestral Concert, conducted by Wolf. Festival Overture (Leutner); Humoresque (Dvorak); In den Spinnstuben (Dvorak); Hungarian Rhapsody No. 1 (Liszt); Selection from Paganini (Lehar); Ballet Music from Ritter Pasman (Strauss); Chinese Rhapsody (Gabriel-Marie); March, Heldengrüsse (Döring). In the interval at 2.0, News. 3.0, Handwork for Children. 3.30, Exchange and Time Signal. 3.50, Programme for Young People. 4.30 (from Dortmund), Radio Report of the Dortmund Horse Races. 4.45, Talk: Protecting the Private House from Air Attacks. 5.0, Recital on Two Pianofortes. 5.30, Topical Talk. 5.40, Talk for Women: The Companion Help. 6.0, Concert by the Fröhliche Fünf. 6.45, News, Weather and Sports Notes. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, News. 8.5, Concert by the Station Orchestra, conducted by Kühn: Suite from Idomeneo (Mozart-Busoni); Suite No. 3 (Tchaikovsky). 8.45, See Stuttgart. 9.15, A Flying Visit. 9.40, See Heilsberg. 10.0, News. 10.30, Serenade by the Fröhliche Fünf. 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., Hugo Wolf Song Recital on Gramophone Records. 3.35, Market Prices and Weather. 4.0, Till Eulenspiegel and his Servant—Radio Play for Children (Günther Eich). 4.50, Songs by Fred Alberto's Mouth Organ Quartet. 5.20, Reading (Käte Scholle). 5.50, Market Prices, Weather and Time. 6.0, Book Review. 6.20, Talk: A Journey in a Balloon. 6.40, Talk. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Recital of Old and New Folk Dances. 8.45, See Stuttgart. 9.15, Concert by the Leipzig Symphony Orchestra, conducted by Hans Weisbach: Symphony in B flat (Haydn); Fifth Symphony in C minor, Op. 67 (Beethoven). 10.15, News. 10.35, Gramophone Concert of Rhineland Songs.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Programme for Children. 7.30, Relay from the Fair. 8.0, Literary Programme. 8.30,

Programme from Belgrade. 10.30-11.0, Programme in English by the I.B.C., International Broadcasting Club Concert: Yes, Mr. Brown; Leave a little for me; If you would learn to live; Ich liebe dich, my Dear; Bon Voyage; In a Shanty in Old Shanty Town; This is my love Song; He's got a Wife and Family at Home; Will you dance through Life with me. 11.0 (approx.) Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—Luxembourg Programme. 7.30 p.m., Concert of Classical Music. 8.20, Recital of Songs. 8.50, News in French. 9.0, Pianoforte Recital. 9.30 Music by the Luxembourg Composer, Mertens. 9.45, News in German. 9.55, Concert of Light Music. 10.30, Dance Music or Gramophone Music.

MADRID

EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.6 p.m., Chimes, Exchange, Radio Journal, Programme for Women, Request Gramophone Records, and Dance Music. 9.15, Topical Review. 9.30 to 11.0, Interval. 11.0, Chimes, Time, and Topical Review. 11.20 (approx.), Scenes in Bohemian Life—Play (Murger, art. Pacheco). 1.15 a.m. (Thursday), Topical Review. 1.30, Chimes and Close Down.

MADRID

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

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 1 kW.—8.30 p.m. till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.10 p.m., Concert by the Ostrava Mining Band, conducted by Kumpán: Florentine March (Fück); Waltz, Gebirgskinder (Ziehler); Song: Am Meer (Schubert); Overture, Martha (Plotow); Potpourri, From Old Times (Bernhard); Sunday Polka (Hudec); March, The Marshal (Benes). 7.0, See Prague. 9.5, See Brno. 10.0, 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 p.m., Orchestral Concert, conducted by Ernst Hagel: Overture, Prinzess Goldschuh (Rust); Suite, Im Zirkus (Lanten-schläger); Waltz, Badener Grusse (Kanter); Potpourri, Springtime and Love (Roberts); Ein Sommerachtsfest (Siede); Der Tag von Potsdam (Schmalstich); March, Bergeheil (Egger). 5.45, Dialogue: Gliding as a National Sport. 6.5, Musical Programme. 6.25, Talk: The Mysterious Eel. 6.45, Time, Weather and Market Prices. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, Military Band Concert, conducted by Wilhelm Gundelach: March, Ritter von Schöpp (Päpke); Jubel-Ouverture (E. Bach); Waltz, The Wedding of the Winds (Itali); Potpourri, Elektrische Funken (Häuser); Frühlings Erwachen (E. Bach); Parade March from Fridericus Rex (Roland); March, Unter dem Siegesbanner (Blon). 9.0, Waldfrieden—One-Act Play (Ludwig Thoma). 9.40, Concert of Light Music. 10.20, Time and News. 11.0, Dance Music. 12 Midnight, Close Down.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; 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., Vocal and Instrumental Concert: Fantasia for Flute and Pianoforte (Thoen); Norwegian Songs for two Voices; 'Cello Solos: (a) Larghetto (Jändel-lubay), (b) Chanson villageoise (Popper), (c) Ständchen (Schubert), (d) Slav Cradle Song (Neruda), (e) Die Biene (Schubert); Norwegian Duets. 6.30, Talk for Girls: Girl Guides. 7.0, Advertising Notes, Weather and News. 7.30, Talk: The Past Summer's Weather. 8.0, Time Signal. 8.2, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Iphigenia in Aulis (Glück); Selection from Der Freischütz (Weber); Selection from The Flying Dutchman (Wagner); Selection from Le Bourgeois Gentilhomme (Richard Strauss). 9.0, Jacob Sande reads from his own Works. 9.30, Agricultural Report. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Recital

of Songs. 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., Dopplavoro Notes, Tourist Report, Agricultural Notes and Giornale Radio. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Orchestral Concert. Soloists: Esmeralda Corti (Soprano), Castagna (Bassoon). Overture, Ruy Blas (Mendelssohn); Soprano Solos: (a) Nonna, sorridi (Tosti), (b) Vatinio (Tirindelli); Sonata (Porpora-Gini); Andante and Rondo for Bassoon (Milde); Soprano Solos: (a) Ogorano, le rose (De Curtis), (b) Vieni (Denza); Allegretto (Tchaikovsky); Introduction and Polonaise for Bassoon (Demersseman); Overture, Russian and Ludmilla (Glinka). In an interval, Talk. 10.0, Songs. 10.55, News.

PARIS

EFFEL 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 Music. 7.0, Le Journal Parlé. 8.30, Symphony Concert, conducted by Edouard Flament. Soloist: Brunian (Clarinet). Old French Songs (Bey); Larghetto for Clarinet and Strings (Mozart); Variations sur une bourrée d'Anvers pour Double Quintet (Flament); Divertissement from Miarka (Georges); Andante cantabile (Tchaikovsky); Song (Léhar); Norwegian Dances (Grieg); Waltz, The Blue Danube (Joh. Strauss). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.15, Le Journal Parlé. 7.30, Literary and Musical Programme by Mlle. Claude Marthel and Dorival: Les elfes (Thomé); Recitation, Nella (Victor Hugo); La ballade du désemparé (Bemberg). 8.0, Talk on Economics. 8.5, Insurance Societies' Report. 8.30, Concert by the Station Orchestra: Overture, Les noces de Jeannette (Massé); Waltz, Amorette (Gungl); Berceuse (Dupont); Elegy (Rachmaninov); Selection from Le roi d'Ys (Lalo); Overture, Morning, Noon and Night (Suppé); Selection from S.A.R. (Caryl); Cantique d'amour (Georges); Mazurka naturaliste (Ganne); Polka, Le Rhin (Métré). 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 Records: Boutin d'Or (Pierne); Waltz (Hirschmann); Mousette (Piccolini); En Sella (Courtade). 8.0, Weather and Press Review. 12 Noon, Educational Talk. 12.15 p.m., Concert: Whitsun Cantata (Bach); Sonata for Violin and Piano (Beethoven). 12.50, Organ Recital, relayed from the Gaumont Palace: Selection from Miss Decima (Andran); Pagan Moon (Bryan); In a Persian Market (Kettelberg); Selection from Forty-Second Street (Dubin). 1.0, Exchange and News. 1.5, Musical and Dramatic Programme: Overture, Preciosa (Weber); Hungarian Dances Nos. 2, 5 and 6 (Brahms); Three Pieces (Schumann); (a) Die Lotoshlume, (b) Der Nussbaum, (c) Die beiden Grenadiere: Scenes 3 and 5 from Act 4 of Polyette (Cornellie); Scene V, Act II of Berenice (Racine); Scene VIII, Act II of Andromaque (Racine); Scene IV, Act V of L'école des Femmes (Molière). In the interval at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Notes. 7.10, Dance Music on Gramophone Records. 7.50, Commercial Prices and News. 8.0, Gramophone Records: Une soirée au Grand Théâtre; Dans les Magasins (Borel-Clerc); Le Tambour de Bécon (Borel-Clerc); Act III of Mamam Colibri (Bataille); Two Items by Grock. 8.30, News and Weather. 8.40, Review by Bonnard. 8.45, Gramophone Records: Duet from Veronique (Messager); Ballet Music from Virginie (Bruneau). 9.0, Oh, Papa—Operetta in Three Acts (Yvain), relayed from the Théâtre des Nouveautés.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relay by W2XK on 48.86 metres and 25.27 metres.—7.30 p.m., Pontiac Home Forum. 8.0 to 9.30, New York Relay. 8.0, Betty and Bob. 8.15, Words and Music. 8.30, Happy Days in Dixie. 9.0, Southern Symphonies. 9.30, Frances Ingram. 9.45, News and Markets. 10.0, Uncle Tom and Betty. 10.15, Tarzan of the Apes. 10.30, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Piano Classics. 11.15, Sports. A Song. 11.30, Pittsburgh Spotlights. 11.45 to 2.30 a.m. (Thursday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Baritone Solos by John Herlick. 12.30, Musical Programme. 1.0, Crime Clues. 1.30, Potash and Perlmutter. 1.45, Phil Cock. 2.0, Music Magic. 2.30, Programme to be announced. 3.0, Pan American Concert, from New York.

PORSGRUND.—See Oslo.

SEPT. 6th

WEDNESDAY

continued

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—3.50 p.m., Weather. 3.55 to 4.0, Exchange. 5.45, Gramophone Music. 5.55, Talk: Future Productions of the Cinema. 6.5, Agricultural Report. 6.10, Gramophone Records. 6.25, News in German. 6.30, German Transmission: Talk for Workers. 7.0, Chimes and News. 7.10, Concert by the Ondrick Quartet and Janhaus (Bass): Merry Ditties (Ferenc); Trio for Violin, Viola and Cello (Terrasse). 7.50, Talk on Technical Schools. 8.5, On the Berounka River under the Tetin Castle—Play (Krofta). 9.5, See Brno. 10.0, Time and News. 10.15, Announcements in French. 10.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW. and Geneva, 395 kc/s, 760 metres.—3.28 p.m., Time Signal from Neuchâtel Observatory. 3.30 (from Lausanne), Concert by the Radio Lausanne Orchestra, conducted by Moser. 5.0, Interval. 6.0 (from Lausanne), Programme for Children. 7.0, Radio Report from Military Manoeuvres. 9.0, Concert by the Radio-Suisse Romande Orchestra, conducted by Moser. Part I, Music of Geneva: Concert pour Ninette on Ninon (Dupré); Melody for Cello and Orchestra (Guignard); Soloist: The Composer: Orchestral Suite, Rêve d'enfant (Wetraz); Toscan Study (Breitenstein); Overture, Argentine Night (Chatain). Part II, Music of Vienna. 9.50, News. 10.0 (from Geneva), Dance Music. 11.0 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call IRO, 680 kc/s, 441 metres; 50 kW. Relay by Naples, 941 kc/s, 319 metres; and 2RO, 11,810 kc/s, 25.4 metres, from 5.15 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, Dopplavoro Notes and Tourist Report. 6.57, Report of the International Institute of Agriculture (in Italian and English). 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time, Announcements and Gramophone Music. 8.25, Giornale Radio and Sports Notes. 8.30, String Quartet in F (Dvorák). 9.15, Conferimento a vostra pregiata—Comedy in One Act (Filippo Righini). 9.45 (approx.), Selection from Le Maschere—Opera (Maschini). After the Concert, Dance Music from the Casina Valadier. 10.55, 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., Business and Professional Women's Club Talk. 9.10, Pop Concert, from New York. 9.30, Texas Cowgirl, from New York. 9.40, Talk: The Mind Age. 9.45 to 10.0 (approx.), Lady Next Door, from New York. 12.45 a.m. (Thursday), Stock Reports and Baseball Scores. 1.0, Variety Programme, from New York. 1.30, Popular Programme. 1.45, Musical Programme. 2.0, Ferde Grofe's Orchestra, from New York. 2.15, Popular Programme. 2.30, Variety Programme. 3.0, Popular Programme, from New York. 3.30, Ship of Joy, from New York, followed by 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.—5.0 (from Basle), Programme for Children. 5.30 (from Basle), Concert of Light Hungarian and Gipsy Music by the Radio Quartet. 6.30 till Close Down. Programme from Zurich. 6.30, Programme for Women. 7.0, Time, Weather, and Market Prices. 7.10, Gramophone Music. 7.30, Elementary English Lesson. 8.0, Zither Music. 8.30, Talk: Travelling in Greece. 9.0, News. 9.10, Old Italian Music. 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., Programme for Children. 5.45, Gramophone Music. 6.45 (from Göteborg), Songs to the Lute. 7.15, Weather and News. 7.30, Military Band Concert, conducted by Per Berg,

relayed from Umeå, 1,301 kc/s, 231 metres. 8.30, Talk. 9.0, Song, Violin and Piano forte Recital by Sara Granström, Sven Kjellström and Ingrid Kjellström. Songs: (a) In Sveriges bygd (Allén), (b) Inland natten och Isannier (Peterson-Berger), (c) Jag minns (Alfvén), (d) En dalmatstrall (Wiklund). Duet for Violin and Piano forte (Berwald): Two Songs (Silhelina); Song (Melartin). 9.30, The Practical Corner. 9.45, Weather and News. 10.0, Dance Music by Anders Band, relayed from Berns Hall. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Concert of Light Music. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Light Music on Gramophone Records. 2.0 to 3.30, Interval. 3.20, Orchestral Concert, conducted by Bouillat, relayed from the Casino, Vichy. Overture, Chérubin (Massenet); Au jardin des fêtes galantes (Razigade); Lyric Suite (Grieg); Melody; Prélude pour la mort de Tintagiles (Cools); Selection from Sigurd (Heyer); Waltz, Moonlight on the Alster (Fétras). 5.0, Talk on Electricity. 5.15, Orchestral Concert, conducted by Roskam: March, El Capitan (Souza); Selection from La Traviata (Verdi); Extase (Ganne); Waltz, Transaktionen (Joh. Strauss); Serenade, Il Bacio (Micheli); Suite internationale (Tchaikovsky). 6.0, Trio Concert, relayed from Lille, 1,130 kc/s, 265.4 metres. 7.0, Talk: Helping Blind Workers. 7.15, Talk in German on Handwork. 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Symphony Concert, conducted by Paul Paray, relayed from the Casino, Vichy. Soloist: Umberto Benedetti (Cello). Overture, Chérubin (Massenet); Suite (Saint-Saëns); Cello Solos: (a) Elégie (Fauré), (b) Die Spinnerin (Dunkler); Spring Song (Mendelssohn); Le tombeau de Couperin (Ravel). 10.30 (approx.), Press Review. 10.35, Concert, relayed from the Grand Kléber Tavern. Conductor: Benime, March, Regimentskinder (Pucik); Waltz, Donauwellen (Ivanovici); The Parade of the Tin Soldiers (Jessel); En parconrant mon album à musique (Bailion); Potpourri of Old American Popular Melodies, Fox-Cocktail (Salabert); Potpourri, Old Alsace (Meyer).

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relay by Freiburg, 527 kc/s, 570 metres.—12.2 p.m. (approx.), Concert from Leipzig. 1.15, Time and News. 1.30, Extracts from Lohengrin—Opera (Wagner), on Gramophone Records. 2.30, See Frankfurt. 2.40, Programme arranged by the Post Office, with Gramophone Music. 3.30, Programme for Boys. 4.30 (from Freiburg), Orchestral Concert, conducted by Karl Körner: March, Hoch Badner Land (Häfele); Bilder aus Ostpreussen (Notz); Rheinischer Sang (Hannemann); Oberländer for Two Violins and Orchestra (Gungl); Meissner Porzellan (Frankel); Rhapsody on Swabian Songs (Kämpfert). 5.45, Talk: Better Advertisement for Small Traders. 6.10, Talk: Be German and speak German. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Breslau. 8.0, See Leipzig. 8.45, Havana in Baden—A radio Report from the Tobacco Research Laboratories in Forchheim. 9.15, Wind Instrument Concert, relayed from London. 9.40, Reminiscences of the Great War—The Battle of Heligoland. 10.0, Time and News. 10.15 (approx.), Dance Music on Gramophone Records. 11.0, See Munich. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.15 p.m., Chansonnettes. 6.30, Accordion Solos. 6.45, Sound Film Music. 6.50, Talk. 7.15, News. 7.30, Songs by a Russian Choir. 7.45, Instrumental Solos. 8.0, Military Music. 8.15, Opera Music: Selection from (a) Hamlet (Thomas), (b) La Dame blanche (Boieldieu), and (c) Carmen (Bizet). 8.30, Programme by a Viennese Orchestra. 8.45, Sound Film Music. 9.0, Sponsored Concert: Recuerdo de Corrida (Menichetti); Extract from L'Arlesienne (Bizet); Selection from The Gipsy Princess (Kálmán); One-step, Blonde or Brunette (Maciocchi); The Death of Aase from Peer Gynt Suite (Grieg); Fox-trot, Maklout (Menichetti); Varavilla (Rizzi); Hungarian March (Berlioz). In the interval, Songs. 10.15, News. 10.30, Concert for Listeners in Morocco: Parisette (Prodhomme); Dans une charette from Ciboulette (Hahn); Gouttes d'eau (Petit); Salut demeure chaste et pure from Faust (Gounod); Vindobona (Léopold); Melody (Mercier); Pompée valsaute (Poldini); Souvenir des Vosges (Blondiau). 11.0, Dance Music. 11.45, Musical Programme: Selection (Léhar) from (a) The Merry Widow, and (b) The Land of Smiles; Classical

Souvenirs. 12 Midnight, News. 12.5 a.m. (Thursday), Opera Music. 12.15, Viennese Music. 12.30, Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.10 p.m., Organ and Violin Recital: Sonata in D for Violin and Organ (Handel). Organ Solos: (a) Toccata (Frescobaldi), (b) Toccata and Fugue in E (Bach), (c) Soeur Monique (Conperin), (d) Intermezzo lirico (Bossi), (e) Scherzo in G minor (Bossi). Pieces for Violin and Organ: (a) Largo (Clerambault), (b) Prelude and Allegro (Pugnani-Kreisler). 6.0 till Close Down, See Turin.

TRONDHEIM.—See Oslo.

TURIN

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 p.m., Concert. 6.0-6.5, Weather Forecast. 6.40, Giornale Radio, Dopplavoro 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. 8.30, The Merry Peasant—Operetta in Three Acts (Fall). In the intervals, Talk and Literary Notes. 11.0, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,989 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. 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.—3.0 p.m., Time and Announcements. 3.20, Talk: Electricity in Industry in Austria and Other Countries. 3.35, Nature Stories for City Folks. 3.55, Operetta Duets on Gramophone Records. 4.35, Programme for Young People. 5.0, Educational Talk. 5.25, Concert of Contemporary Austrian Music—Franz Ippisch: The Sedlak-Winkler Quartet and Josef Manowarda (Baritone): String Quintet in D; Songs: (a) Dunkler Falter, (b) Der Herbst, (c) Bitte, (d) Der Einsiedler. 6.5, Talk: Adventures in the Mountains. 6.30, Talk: African and American Negro Music, with Gramophone Illustrations. 7.0, The Arabian Nights—Concert by the Wiener Symphoniker, conducted by Max Schönherr: Soloist, Georg Maikl (Tenor): Overture, The Caliph of Bagdad (Boieldieu); Dance from Hassan, der Schwärmer (Kienzl); Selection from The Barber of Bagdad (Cornelius); Song from Marouf (Rabaud); Scheherazade (Rimsky-Korsakov). In an interval at 7.35, Time and Announcements. 8.30, Talk on the Employment Problem. 9.0, Little-known Raimund—Literary Programme. 10.0, News. 10.15, Concert by a Schrammel Trio and Soloists, relayed from the Krantz-Anbassador Hotel.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Fanfare from St. Mary's Church, Cracow, 959 kc/s, 312.8 metres. 12.5 p.m., Popular Concert, conducted by Szule, relayed from the Bagatela. In an interval at 12.25, Polish Press Review and Weather Report. 12.55, Radio Journal. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.10, Announcements. 3.15, Gramophone Music. 3.25, Economic Notes. 3.35, Gramophone Music. 3.45, News. 4.0, Gramophone Music. 5.0, Topical Talk. 5.15, Violin and Song Recital, by Oziminski and Wraga (Bassi). Violin Solos: (a) Melody (Statkowski), (b) Butterfly (Andrzejowski), (c) Gavotte (Glück-Burmester), (d) Die Biene (Schubert), (e) Mazurka (Hubay), (f) Tarantella (Wieniawski); Songs: (a) Song (Gotovac-Jakov), (b) Occhi di Fata (Denza), (c) Ouvre tes yeux bleus (Massenet); Violin Solos: (a) Intermezzo from Goplana (Zelenski-Barciewicz), (b) Serenade (Arenski), (c) Gipsy Dances (Sarasate); Songs (a) O, Star of Eve from Tannhäuser (Wagner), (b) Aria from Ernani (Verdi), (c) Aria from The Barber of Seville (Rossini). 6.15, Talk, relayed from Lwow, 788 kc/s, 381 metres. 6.35, Recital of Slav Songs. 7.5, Gramophone Music. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Reading. 8.0, Piano forte Recital by Szpinalski. Variations sérieuses (Mendelssohn); Sonata appassionata (Beethoven); Three Pieces (Schubert-Liszt); (a) Waltz, (b) Ständchen, (c) Der Erlkönig. 8.50, Radio Journal. 9.0, Answers to Agricultural Correspondence. 9.10, Hawaiian Guitar and Song Recital. 10.0, Talk in Esperanto. 10.25, Sports Notes. 10.35, News, Aviation, Weather Report and Police Notes. 10.40, Dance Music, relayed from the Europe Café, Ciechocinek.

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 Report. Stock Exchange Quotations and Gramophone Music. 6.0, Programme for Children. 6.40, News. 7.0, French Lesson. 7.15, Talk: A Triumph for Christianity. 7.30, Time Signal. 7.31, Illustrated Lecture Recital by H. R. White: Pianoforte Tune Production. 8.0, Soprano Solos by W. Henderson. 8.15, Orchestral Music. 8.30, Pianoforte Solos by F. C. J. Swanton. 8.45, Tenor Solos by James Cowhite. 9.0, Orchestral Music. 9.15, Violin and Harp Solos by Annie Fagan and E. K. Lange. 9.45, Sponsored Programme. 10.45, News. Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Selection from Luisa Fernanda (Moerno Torroba); Vida zingara (Valls); Bolero (Breton); Selection from Los Flamencos (Vives); Danza del maleficio (Romero); Pavane (Albeniz); Cordoba (Fuste). In the interval, Talk. 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Concert, followed by News and Exchange. 10.5, Concert by the Station Orchestra: Paso Doble, Angelito (Urrental); Waltz, Flott durchs Leben (Transkateur); A la memoria de un hebe (Turina); Nocturne (Percy); Oriental Dance (Bortkiewicz); Intermezzo (Kark); Czardas (Michiels). 11.0, El Liri d'Aigua—Comedy in Three Acts (Solé). In the interval at 12 Midnight, News. 1.0 a.m. (Friday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes, Tourist Talk and Dopolavoro Announcements. 8.20, Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.40 (approx.), Military Band Concert, conducted by Salvatore Rubino: March, Op. 76, No. 4 (Schumann); Overture, Norma (Bellini); Selection from Norma (Bellini); Symphonic Poem, Feste di Roma (Respighi); Selection from L'amico Fritz (Mascagni); Overture, Le Carnaval romain (Berlioz). In the interval, Announcements. 10.30, Gramophone Music. 10.55, News.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—6.55 p.m., Time, Announcements, and Yugoslav Songs. 7.30, Concert by the Station Orchestra. 8.30, Song Recital from Ljubljana. 10.30, Time and News. 10.45 (approx.), Dance Music on Gramophone Records.

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—12 Noon, Weather. 12.5 p.m. (approx.), Gramophone Concert; Part I: Chamber Music: Sonata in G for Violin and Piano (Bach); Minuet from the Divertissement in D (Mozart); Romance in F (Beethoven); Moment musical (Schubert); Ständchen (Brahms); Part II: Waltzes: Weaner Madeln (Zieler); Die Romantiker (Lanner); Waltz from Faust (Gomoll); Abendstern (Lanner); Waltz, Frühlingsstimmen (Joh. Strauss); Weather after the Concert. 12.55, Time Signal. 1.45, News. 2.0, Gramophone Concert: Berliner Luft (Lincke); Es rauscht der Wald (Hempel); Mondschein-Walzer (Döring); Pan und Waldschrat (Rathke); Zug der Gnommen (Blon); Ich möcht' einen Walzer (Kernbach); In the Teahouse of the Hundred Steps (Yoshitomo); Kasperles Wochenende (Plamm); Leucht-käferchens Stelldichein (Siede); Lustiges Wien (Meisel); Ninna Nanna (de Micheli); Siciliana (Schmalstiel); Im Prater blüht wieder die Bäume (Stolz); Czardas (Grossmann). 2.45, Programme for Children. 3.10, Programme for Young People. 3.30, Weather and Exchange. 3.45, Political Dialogues—The King (Paul Ernst). 4.0, See Heilsberg. 5.0, Talk for Women: Attractive Accessories for the Home. 5.20, Cello and Pianoforte Recital of Contemporary Music: Sonata in One Movement for Cello and Pianoforte (Dombrowski); Pianoforte Solos (Hermann Unger): (a) Nocturne—Four Fantasias for Pianoforte, (b) Ukrainisches Skizzenbuch; Elegy for Cello and Pianoforte to the Memory of Gerhard Schepdorp. 6.0, Poems. 6.5, Programme by Erwin Eckersberg. 6.30, Agricultural Talk. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations: Erbkräutler-Erbgesund (Hereditary Health and Ill-health), A Eugenic Radio Play (Konrad Dürre). 8.0, To-day's Motto. 8.5 (approx.), Concert of Opera Music by the Station Orchestra, conducted by Rudolf Peterka: Soloists, Nina Lützow and Torkild Noval (Songs): Overture, Rühzahl (Weber); Aria from Iphigenie auf Tauris (Glück); Aria from Paris and Helen (Glück); Prelude to the Fourth Act of Carmen (Bizet); Duet from Das Nachtlager von Granada (Kreutzer); Overture, Il Seraglio (Mozart); Aria from Don Giovanni (Mozart); Selection from Manon (Massenet); Aria from L'Arlésiana (Cilea); Duet from I Pagliacci (Leoncavallo); Prelude to Die Königskinder (Humperdinck). 9.15, A Humorous Radio Se-

THURSDAY

SEPTEMBER THE SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL
LONDON
REGIONAL
MIDLAND
REGIONAL
NORTH
REGIONAL

Promenade concert from Queen's Hall, London. Concert Party programme, relayed from the Gaiety Theatre, Ayr.

"Sultana, a currant tale of the East," by Dorothy Eaves.

Three plays: "Bottled Biography," by G. W. Baldwin; "The Black Gate—1381," by A. A. le M. Simpson, and "The Adventure of the Blue Car-buncle," by Conan Doyle.

"The Grand Old Lady," a play, by Froom Tyler.

WEST
REGIONAL
SCOTTISH
REGIONAL
BELFAST

"Ayont the Hill," a comedy, by Cormac Simpson.

"The Welcome Guest," an Ulster comedy, by I. McAlery.

ABROAD

BERLIN
(Deutschland-sender)

8.5 p.m. Concert of opera music, by the Station Orchestra.

BRESLAU

9.10 p.m. Concert version of opera: "Si j'étais roi," by Adam.

BRUSSELS

8.0 p.m. Mozart concert, by the Station Orchestra, conducted by Meulemans.

(No. 1)

10.10 p.m. Act I of opera, "Mephistopheles," by Boito, on gramophone records.

(No. 2)

8.0 p.m. Concert of English music, by the Station Orchestra and the Fleet Street Choir.

COPENHAGEN

8.10 p.m. Comic opera: "The Barber of Bagdad," by Cornelius.

HAMBURG

7.40 p.m. The Dutch Chamber Music Orchestra.

HILVERSUM

quence (Georg Mühlen-Schulte). 10.0, News. 10.25, Radio Report from the German and Italian Student Camps at the International University Sports in Turin (on Gramophone Records). 10.45, Weather. 11.0, Concert from the Nationale Gaststätten. 12.30 a.m. (Friday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—5.50 p.m., Novelletten in E Major and F Sharp Minor, Op. 21, for Pianoforte (Schumann). 6.10, Talk: Architecture in the Third Reich. 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 Berlin (Deutschlandsender). 8.5, Hunters and Marines—Fireside Stories. 8.40, A Radio Report from Siemens's Factory. 9.0 to 1.0 a.m. (Friday), Old and New Dances by the Station Orchestra, conducted by Franz Friedl, Waldemar Hass' Dance Band, Gertrud Callam (Soprano), Arthur Heil (Tenor), and the Station Choir; Commentary by Fred Krüger. In the interval at 10.0 (approx.), News. 1.0 a.m., 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.—6.30 p.m., Radio Journal. 7.40, Report of the International Labour Office. 7.55, News. 8.5, Gramophone Music. 8.30, La Française—Comedy in Three Acts (Briex).

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—6.5 p.m., Gramophone Music. 6.10, Talk: Florence. 6.25, Concert of Light Music. 6.55, Report. 7.0, See Prague. 7.10, See Brno. 7.30, Poil de Carotte—One-Act Play (Renard). 8.45, See Brno. 9.0, 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.—12 Noon, Concert by the Station Orchestra, conducted by Bruno Janz. 1.45 p.m., Time and News. 2.5, Suite for Flute and Pianoforte, Op. 7 (Zanke). 2.20, Gramophone Music. 3.0, Market Prices. 3.15, Talk: Little Known Youth Hostels in Lower Silesia. 3.25, Review of Books. 3.45, Programme for Children. 4.10, Concert by a Nazi Orchestra, relayed from the Wappenhof; Conductor,

Arthur Galaske: March, Unser Reichskanzler Sieg Heil (Wrangen); Overture, Der Tambour der Garde (Till); Waltz from Der Obersteiger (Zeller); Selection from Rigoletto (Verdi); Paraphrase on the Song, Grün ist die Heide (Blume); Potpourri of German Marches (Blankenburg); March, Regimentsgruss (Steinbeck); Selection from The Flying Dutchman (Wagner); Einzug der Rosenkönigin (Rhode). 5.25, Market Prices and Topical Talk. 5.50, Lieder Recital by Hilde Sebulke (Mezzo-Soprano). 6.20, Talks by Workers and their Leaders. 6.50, Weather, News and Meat Market Prices. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Hoffmann: Classical Symphony (Prokofiev); Masquerade, an American Rhapsody (McKinley); Harlekins Leben und Lieben (Königsberger). 8.40, Austria. 9.0, News. 9.10, Concert Version of Si j'étais Roi—Opera (Adam). 10.10, Time and News. 10.30, Programme from Berlin Funkstunde. 12 Midnight, Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.25, German Transmission—News and Reading of a Legend. 7.0, See Prague. 7.10, Radio Report from the Aerodrome. 7.30, See Prague. 8.45, Talk in Italian. 9.0, See Prague. 11.0 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Gramophone Concert. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans: Parade of the Tin Soldiers (Chaminade); The Blue Pavilion (Armandola); Waltz Intermezzo, Brusse-mad (Massenet); Waltz Intermezzo, Brusse-mad (Massenet); Chanson à Josette (Desprez); Sound Film Music (Heyman). 5.0, Concert by the Radio Orchestra, conducted by Franz André: Overture, La Châliet (Adam); Selection from The Merry Peasant (Fall); Waltz La Gitana (Bucalossi); Carnival (Siede); March (Weys and François). 5.30, Programme for Children. 6.0, Talk. 6.15, Gramophone Music: Munich and Nürnberg, from Reflets d'Allemagne (Schmitt); Selection from La Traviata (Verdi). 6.30, Concert by the Small Station Orchestra, conducted by Leemans: Hindu March (Dupuis); Flute Solo: Suite, April (Widor); Cello Solo: Canzonetta (Caludi); Selection from Hans the Flute Player (Ganne); Butterfly (Kalkman); Edithape (Leemans); One-Step, Sevilla (Huppermann). 7.15, Review for Workers. 7.30, Sports Notes. 8.0, Mozart Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloists: Léon Guller (Violin) and Francis Stoffs. Overture, Don Giovanni;

Violin Concerto in G; Overture, Figaro; Andante for Flute; Minuet from the Symphony in C; Overture, Titus. 8.45, Talk: The Results of the World Conference. 9.0, Concert by the Radio Orchestra, conducted by Franz André: Overture, Les Saltimbanques (Ganne); Frarson Potpourri (Sala bert); Moonlight on the Alster (Fetras); Campana a sera (Billi); Passionnement (Messenger); Two Foxtrots (Woods); Pot-pourri of Old French Airs, Parisiana (Bohus-law-Leopold); Spanish Dances (Sarasate); Three Mask Dances (Wood). 10.0, Le Journal Parlé. 10.10, Gramophone Music.

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, Morning, Noon and Night (Suppé); Scènes pittoresques (Massenet); Meditation from Thaïs (Massenet); Violin Solo, The Canary (Poliakini); Selection from Lilac Time (Schubert-Berté); Two Gramophone Records; Waltz from The Count of Luxembourg (Lelid). 1.0 p.m., Le Journal Parlé. 1.10, Sacred and Variety Music on Gramophone Records. 5.0, Tchaikovsky Concert by the Station Symphony Orchestra, conducted by Meulemans: 1812 Overture, Extracts from The Nutcracker Ballet; Caprice italien. 5.45, Programme for Children. 6.30, Grieg Concert on Gramophone Records. 7.12, Announcements. 7.15, Film and Book Review. 7.30, Programme for Housewives. 8.0, Concert by the Radio Orchestra, conducted by Franz André: K.V.R.O. stridled (Meulemans); Overture, La dame blanche (Boieldieu); Humorous Interlude; Intermezzo and Barcarolle from The Tales of Hoffman (Offenbach); Saxophone Solo; Viennese Waltzes (Gillon). 8.45, Talk. 9.0, Concert by the Station Symphony Orchestra, conducted by Meulemans: Fantaisie dahoméenne (Boeck); Serenade (Piercé); Canzonetta for Clarinet and Orchestra (Piercé); Fantasia on Two Popular Tournai Airs (Dancan); Interlude in Old Style (Ghizunov); Fantasia, Kamarinskaya (Glinka); Carnaval de Paris (Svendsen). 9.55, Evening Prayer. 10.0, Le Journal Parlé. 10.10, Act I of Mephistopheles—Opera (Boito), by the Cast of the Scala, Milan, on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Grigoras Dinco Orchestra. In an interval at 6.15, Radio Journal. 7.0, Reading. 7.20, Light Music on Gramophone Records. 7.40, Educational Talk. 8.0, Baritone Solos. 8.20, Concert by the Station Orchestra, conducted by Rogalski: Soloist, Sarvas (Violin); Fugue in A Minor (Bach); Concerto in D for Violin and Orchestra (Beethoven); Suite, Jeux d'enfants (Bizet); Intermezzo goldoniani (Bossi). In an 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 8.15 p.m. till Close Down.—5.30 p.m., Song Recital by Maria Kovacs. 6.15, Concert by the Opera House Orchestra, conducted by Fridl. 7.45, Variety Programme. 8.15, Concert by the Roth String Quartet: Quartet in C flat minor (Dohnanyi); Quartet in A minor (Brahms). 9.15, News. 9.35, Music by the Josef Racz Cigány Band. 10.0, Review of Foreign Politics. 10.45, Concert by the Karolyi Salon Orchestra, relayed from the Café Bodo. 11.15, Talk in English: The World Jamboree at Gödöllo, Budapest.

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, Town Hall Chimes and Weather. 12.5 to 2.0 p.m., Concert by a String Orchestra, conducted by Bendix, relayed from the Wivex Restaurant. 3.5, First Movement from the Violin Concerto No. 1 in C (Vieuxtemps). 3.25, Reading of Danish Lyrics. 3.45, Concert by the Station Orchestra, conducted by Laury Grondahl: Overture, Le Brasseur de Preston (Adam); Waltz from The Sleeping Beauty (Tchaikovsky); Overture, La Traviata (Verdi); Norwegian Rhapsody No. 3 (Svendsen); Three Pieces from Sigurd Jorsalfar (Grieg). 4.45, Programme for Boys. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, Elementary English Lesson. 6.45, Weather Report. 7.0, Press Review. 7.15, Time. 7.16, Programme for the Hundred and Fiftieth Anniversary of Nicolai Grundtvig's Birth, relayed from Grundtvig's House: Community Singing, Talk, and Choral Singing. 8.0, Concert of English Music by the Station Orchestra and the Fleet Street Choir, conducted by T. B. Lawrence: Jerusalem (Parry); The Silver Swan (Gibbons); Lancashire Song, Bobbie Shaftoe; Now is the Month of Maying (Morley); After many a Dusty Mile (Elgar); There's a Bower of Roses (Stanford); Scottish Folk Song, The Campbells are comin'; Blest pair of Sirens (Parry); Baritone Solo, The Vagabond (Vaughan Williams); Welsh Folk Song, The Dove; Come pretty Wag (Parry); Three Songs (Vaughan Williams), (a) Sign no more Ladies, (b) Drinking Song, (c) Back and Side go Bare; The Blue Bird (Stanford); Hampshire Folk Song, The Song of the Blacksmith; News from Whydah

SEPT. 7th

THURSDAY

continued

(Balfour Gardiner). After the Concert, Weather. 9.30, Topical Talk. 10.0, Saxophone Solos by Eigel Mortensen. 10.15, News. 10.30, Quartet in A. Op. 26, for Pianoforte, Violin, Viola, and Cello. 11.0, Dance Music, relayed from the National Scala. In an interval at 12 Midnight, Time and Chimes from the Town Hall. 12.30 a.m. (Friday), Close Down.

CORK.—See Athlone.

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—7.20 p.m., The Letter Box. 7.35, Miscellaneous Items and News. 7.40, Programme from Warsaw. In an interval at 9.0, Programme Announcements and News. 10.0, Sports Notes. 10.10, Pianoforte Recital. 10.35, See Warsaw. 11.0 (approx.), Close Down.

DANZIG.—See Hellsberg.

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. Part I, Military Band Music: Signature Tune; A Life on the Ocean (Binding); Amoretten Tanz (Gung'l); Xylophone Solo, National Emblem (Bagley); The Wedding of the Rose (Jessel); Ca c'est Paris (Padilla); Cornet Solo, Carnival of Venice (Briccialdi); Selection from Iolanthe (Sullivan); The Standard of St. George (Alford). Part II, Dance Music: It's the Rhythm for me; I'll see you in the Morning; Pop Gun; Old Man Harlem; That's my Home; Dance pretty Lady; Signature Tune. 12 Noon, French Programme. 4.30 to 6.0 p.m., Programme in English by the I.B.C. 4.30, The Nursery Corner: Music, Story and Birthday Greetings. 5.0, Concert for Working and Littlehampton Listeners: Octet Music and Songs; Signature Tune; The Night by the Sea; Ballet Music from Rosamund (Schubert); Waltz from Der Rosenkavalier (R. Strauss); Song, On the Banks of Allan Water (Horn); La fleuse (Raff); The Golliwog's Cake Walk (Debussy); Song, My Ain Folk (Mills); Valse bluette (Drigo); Mock Morris (Grainger). 5.30, Concert for Brighton and Hove Listeners. Organ Recital: There's an Organ playing in my Dream (Condor); In the Valley of the Moon (Tobias); Wandering in an old Cathedral Garden (Gilbert); Song, You're still in my heart (Donaghy); Friends once more united (Spoliarsky); Song, Letting in the Sunshine (Gay); The Old Spinning Wheel (Hill); Hold me (Schuster); 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; Bells of Normandy; Junk Man Blues; I'm sure of everything but you; My Woman; Just a little Home for the Old Folks; A boy and a girl were dancing; I guess I'll have to change my Plans; St. Louis Blues; Young and Healthy; Honey-suckle Rose; Three Wishes; Underneath the Harlem Moon; Let me give my Happiness to you; Merry-go-round; This is no Dream; Sophisticated Lady; One little Word led to another; Signature Tune. 11.0, Talkie Time—Gramophone Records of Film Stars; Signature Tune; Sittin' in the Dark; The Mills Bros.: The Old Man of the Mountain; Maurice Chevalier: My Love Parade; Marlene Dietrich: Blonde Woman (Hollander); Bing Crosby: A Ghost of a Chance (Washington); Jeannette MacDonald: Pardon Madame (Abraham); Jack Hulbert: I want to cling to Ivy; Richard Tauber: Conie Gipsy (Kálmán); Renate Muller: Just because I lost my heart (Gilbert); Signature Tune. 11.30, Club Concert for Macclesfield 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); Walter's Prize Song from The Mastersingers (Wagner); Waltz Song from La Bohème (Puccini); Selection from Tannhäuser (Wagner). 12.5 a.m. (Friday), News Bulletin in English. 12.10, Club Concert (cont'd.). Part II: There was a poor Musician (Schwartz); Il canto dell' attesa (Bixio); Will you dance through Life with me? (Swabach); Farewell (Bundaz); Marion (Hollander); Signature Tune. 12.30, Dance Music: I've got the World on a String; Blues I love to sing; High Society; Hot Feet; My gal Sal; Hey young fella; My pretty Girl; Pink Elephants. 1.0, Dance Music: Signature Tune; Bells of Normandy; Talking to you about me; Have you had a good Day to-day?; My Love Song; I wish I had wings; Sweetheart Darlin'; Meet me in the gloaming; The Gold Digger's Song; Lover; Eric Moon; That's what Life is made of; Any Time, any Day, anywhere; The Old Spinning Wheel; They all start whistling Mary; Look what I've got; Try a little Tenderness; In the Park in Páree. 1.57, I.B.C. Good-night Melody. 2.0, Close Down.

FLensburg.—See Hamburg.

FLORENCE.—See Turin.

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW. Relayd by Cassel, 1,220 kc/s, 245.9 metres; and

Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m., Talk: Turkish Trade Relations with Germany. 6.25, Talk: The Waiter. 6.45, Review of the Day's News. 6.50, Time, Programme Announcements, Weather and Exchange. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Opera Concert by the Station Orchestra and Soloists: Selection from Der Freischütz (Weber) and The Valkyrie (Wagner). 9.0, A Radio Report on Gliding. 9.45, Concert of Light Music. 10.20, Time and News.

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. Relayd by Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hannover, 530 kc/s, 566 metres; and Kiel, 1,292 kc/s, 232.2 metres.—5.30 p.m., Variety Programme. 6.25, Review of Antium Books. 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Political Address. 8.10, The Barber of Bagdad—Comic Opera in Two Acts (Cornelius). In the interval, News. 10.10, News. 10.20, Topical Talk. 10.30, Old and New German Dances by the Small Station Orchestra, conducted by Gerhard Maass.

HANOVER.—See Hamburg.

HELLSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayd by Danzig, 662 kc/s, 453.2 metres.—1.5 to 2.30 p.m., Orchestral Concert: March, Imnotta Fides (Krumrey); Overture, Melanese (Baymann); Rhenish Waltz (Gretschel); Army March; Ostmarken-Marsch (Schwittmann); Potpourri of Nazi Songs (Seidel); Luna-Walzer (Lincke); Potpourri of Soldiers' Songs (Hannemann); Badonviller-Marsch (Fürst). In the interval, 1.20 and 2.0, News. 3.0, Market Prices. 3.30 (from Danzig), Talk for Young People. 4.0, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner: Prelude to Tiebald (d'Albert); Ballet Music from Nala (Delibes); Finlandia (Sibelius); Invitation to the Dance (Weber); Three German Dances (Mozart); Waltz, Bei uns z'haus (Joh. Strauss); Potpourri of Wanderlieder. 5.45, Talk: Charlatans and Marxists, Deceivers of the People. 6.15, Market Prices. 6.25, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Political Notes and Weather. 8.10, Alfred Brust reads from his own works. 8.45, Chamber Music of Young West-German Composers, by the Bruhner Quartet: String Quartet, Op. 4 (Heinz Pauels); String Quartet (Hans Humper). 9.30, Elementary English Lesson. 10.0, The Lord Mayor visits the Opera House. After the Programme, News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—11.55 a.m. to 1.40 p.m., Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Orchestra, conducted by M. van 't Woud: Mein Vaterstadt Berlin (Lincke); Waltz, Viennese Princess (Brasseur); Suite, Spanish Caprices (Volkmann); Her first Dance (Heykens); Melodies (Rayners): (a) Nina, (b) Love's Memory, (c) In my Dream Garden, (d) Dance of the little Robins; Trost (Lincke); Für mein Lieben (Wappaus); Gramophone Music: Overture, Czar and Carpenter (Lortzing); Selection from Mignon (Thomas); Potpourri, From A to Z (Geiger); Piece (Petras); March Joyeuse (Piercy). 1.40 till Close Down, Programme of the Christian Radio Society (N.C.R.V.). 1.40, Book-keeping Lesson. 2.40, Gramophone Music. 3.10, Interval. 3.40, Bible Reading and Songs. 4.40, Handicrafts for Young People. 5.10, Pianoforte Recital. 6.10, Talk. 6.25, Dressmaking Lesson. 6.40, Police Notes. 6.55, Religious Report. 7.10, Review of the Week. 7.40, Concert by the Dutch Chamber Music Orchestra, conducted by Glastra van Loon; Soloists, Zepparoni (Violin) and v. d. Beek (Cello): Concerto in A for Two Violins and Strings (Vivaldi); Selection from Castor et Pollux (Rameau); Violin Concerto in D (Bocherini); Talk; Largo from the 'Cello Concerto in A (C.Ph.E. Bach); Symphony No. 5 in B Flat (Schubert); Concerto for Strings (Fitzelberg). 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; 8.5 kW.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.55 a.m., Concert by the Wireless Orches-

tra, conducted by Nico Treep: Overture, Chal Romano (Ketelbey); Oriental Suite (Poppy); Selection from Samson and Delilah (Saint-Saëns); Gramophone Music: Waltz, Badner Mad'n (Komzak); O Sole mio (Di Capua); Lolita (Buzzi Pecchia); Polka from Les Two Widows (Smetana); Selection from Les Dragons de Villars (Maillart); Gramophone Music: Lehar Potpourri (Hruby); Waltz, The Wedding of the Winds (Hall); March, Unter freiem Himmel (Morena). 1.55 p.m., Chamber Music by the Hofstad Quartet: Quartet in B flat, Op. 76, No. 4 (Haydn); Symphony in C (Bach). 2.25, Reading. 2.55, Chamber Music (cont'd.): Quartet in F, Op. 18, No. 1 (Beethoven). 3.25 to 3.40, Interval. 3.40, Programme for Hospitals. 4.10, Gramophone Music. 4.40, Programme for Children. 5.20, Organ Recital with Tenor Solos. 6.10, Sports Talk. 6.40, Organ Recital (cont'd.). 7.10, Talk by Dr. Sluiter. 7.40, Time, Weather, and News. 7.45, Concert by Kovacs Lajos and his Orchestra and the Wireless Orchestra, conducted by Nico Treep. Part I. Kovacs Lajos and his Orchestra: Merry-go-round (Jones); Serenata (Toselli); Marimba Solo. The Juggler (Groitzsch); Tango (Meisel); Du alter Stefansturm (Brandl-Kovacs); March Medley (Cierra). Part II. A Radio Sketch. Part III. The Wireless Orchestra, conducted by Nico Treep: American Patrol (Meacham); Selection from Il Trovatore (Verdi); Turkish Patrol (Michaelis). Part IV. Gramophone Music. Part V. Kovacs Lajos and his Orchestra: Why did I kiss that girl (King); Sleep (Lebieg); I ain't nobody's darling (King); Rio Nights (Thompson); Waua (Friend); Achtung, Achtung, wir senden (Dostal). Part VI. A Radio Sketch. Part VII. The Wireless Orchestra: March Medley (Morena); Potpourri of Waltzes (Robrecht); In the Shadows (Finck); Melody (Lincke); Selection from The Dollar Princess (Fall); Spanish March, Granada (Garcia). 10.40, News. 10.50, Gramophone Music. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Radio Concert. 1.0, News. 1.15, Visite de Riquette—Sketch (René Poletti). 1.30, Variety Items. 8.0, Amusement Guide, Financial Notes and News. 8.10, Fashion Review. 8.20, Press Review. 8.30, Radio Concert. In an interval at 9.0, News and Weather Report.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—1.0 p.m., Orchestral Concert, conducted by Eysoldt: March, Preussens Gloria (Piefke); Overture, Theusens (Zeh); Suite, The Land of the Sun (Yoshitomo); Mazurka, Frauenherz (Strauss); Festival Polonaise (Svendsen); Selection from Rigoletto (Verdi); Berceuse (Godard); Serenade (Heykens); Kaiserwalzer (Strauss). In the interval at 2.0, News. 2.30 to 3.0, Interval. 3.0, Programme for Children. 3.30, Exchange and Time. 3.50, Tales of Village Society by a Pastor. 4.15, Pianoforte Music by Hans Haass. 4.40, Reading from the Unpublished Works of Peter Kremer. 4.55, Talk: The German Catechism. 4.55, Reading in Dialect. 5.0, Gramophone Music. 5.30, Political Announcements. 5.40, Pianoforte Music (cont'd.). 5.45, German Lesson. 6.0, Concert by the Station Chamber Orchestra, conducted by Wilhelm Keiper: Overture, Hansel and Gretel (Humperdinck); Waltz, Ich suche dich (Esslinger); Suite, Springtime (Nevin); Souvenir an Capri (Bece); Hungarian March (Berlioz); Selection from Paganini (Lehar). 6.45, Weather and News. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, News. 8.5, Old Chamber Music. 8.30, Queen Elizabeth—A Radio Sequence from Documents and Accounts of the Time (Else Pfaff). 9.30, Symphony Concert by the Station Orchestra, conducted by Busch-Kötter: Ballet Suite No. 1 (Gluck-Mottl); Symphony in F No. 8 (Beethoven). 10.15, News. 10.35, Serenade and Dance Music, conducted by Eysoldt. 12.30 a.m. (Friday), Close Down.

LAUSANNE.—See Radio-Suisse Romande.

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. Relayd by Dresden, 941 kc/s, 319 metres.—4.0 p.m., Programme for Young People. 4.30, Concert by the Station Orchestra, conducted by Wünschmann: Overture, The Barber of Bagdad (Cornelius); Suite for Chamber Orchestra, Op. 48 (Cropp); New Slav Dances (Borak); Prelude to Act II of Die Königskinder (Humperdinck); Waltz, Die Rosen der Königin (Volgt); Overture, Le Cheval de Bronze (Auber); Hymn and Triumphal March from Aida (Verdi). 5.50, Economic Notes, News, Weather, and Time. 6.0, Talk: The Place of the Merchant in

National Economics. 6.25, Art Notes. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Concert by the Leipzig Symphony Orchestra, conducted by Steffen: Overture in the Italian Style (Schubert); Pastoral, Op. 29 (Bose); Divertimento in F (Haydn); Extract from Impressionen (Karg-Elert); Concert Overture; Hamlet, Op. 37 (Gade). 9.0, Scherzo—Radio Parody on a Rehearsal of Shakespeare's As You Like it (Florian Seidl). 9.30, Talk: The Organisation of the Peasant Class in Thuringia. 9.45, Concert by the Munich Violin Quintet. 10.30, News.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Concert by the Station Orchestra. 8.0, Programme for Women. 8.30, Song Recital. 9.15, Pianoforte Duets. 9.45, Weather and News. 10.0, Concert by the Station Orchestra. 11.0 (approx.), Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. German Programme.—7.30 p.m., Concert of German Music by the Station Orchestra. 8.10, Humorous Talk in German. 8.20, Recital of Schubert Lieder. 8.50, News in French. 9.0, Variety Concert on Gramophone Records. 9.45, News in German. 9.55, Concert by the Station Orchestra, conducted by Henri Pensis. 10.25, Dance Music.

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, Orchestral Concert, conducted by Gaston Bilet. Soloists: Mme. Lamotte (Soprano) and Levrat (Baritone). Part I: Orchestral Music. Part II: Les Noces de Jeannette—Opérata in One Act (Massé). After the Concert, News.

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, and Topical Review. 11.30, Municipal Band Concert relayed from Rosales. 1.15 a.m. (Friday), Topical Review. 1.30, Chimes and Close Down.

MADRID

EAQ, 10,000 kc/s, 30 metres; 20 kW.—11.30 p.m., See Madrid (EAJ7). After the Programme, Radio Chronicle. 1.0 a.m. (Friday), Close Down.

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 4 kW.—8.45 p.m. till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—5.25, Programme for Children. 5.45, Gramophone Music. 5.55, See Prague. 6.5, Talk: Healing Properties in Plants. 6.15, See Prague. 6.30, German Transmission: Talks, (a) Crises Past and Present, (b) The Development of Transatlantic Telegraphy. 7.0, See Prague. 7.10, See Brno. 7.30, See Prague. 8.45, See Brno. 9.0, See Prague. 11.0 (approx.), Close Down.

MOTALA.—See Stockholm.

MUEHLACKER.—See Stuttgart.

MUNICH

563 kc/s, 533 metres; 60 kW. Relayd 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 Willi Böhm: March, Er weicht der Sonne nicht (Blenkenburg); Overture, Fräulein Loreley (Lincke); Selection from The Pearl Fishers (Bizet); Two Gipsy Dances (Heidingsfeldt); Puppenspiele (Lederer); In a Persian Market (Ketelbey); Sturmgallop (Komzak). 5.45, Agricultural Talk. 6.5, Harpsichord Recital by Anna Barbara Specker. 6.25, Scenes from the Law Courts. 6.45, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0, Concert by the Georg Ehner Orchestra. 8.40, Austria. 9.0, Symphony Concert, conducted by Hans Winter. Soloist: Adelheid Holz (Soprano). Romantic Overture (Thuille); Five Songs (Donisch): (a) Abend, (b) Trost, (c) Vergeßen, (d) Gebet, (e) Segelfahrt; Symphony No. 3 in C (Schumann). 10.20, Time and News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayd by Fredriksstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m., Concert from the Hotel Britannia, Trondheim. 6.0, Talk: The Norwegian Language. 6.30, Studio Service. 7.0, Advertising Notes, Weather and News. 8.0, Time Signal. 8.2, Talk on Forestry. 8.30, Gluntarne—Recital of Songs. 9.0, The Trout Quintet

(Schubert), on Gramophone Records. 9.40, Weather and News. 10.0, Typical Talk. 10.15, Recitations. 10.45 (approx.), Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Notes, Agricultural Report and Giornale Radio. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Variety Concert. In an interval at 9.30, I carabinieri—Comedy in One Act (Lucio d'Ambrà). 10.55, News.

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 Notes. 7.0, Le Journal Parlé. 8.30, Gramophone Concert: Scheherazade (Rimsky-Korsakov); Selection from La Dame blanche (Boieldieu); Rigaudon (Kreisler); Souvenirs (Blancquette); Doktrinenwalzer (Strauss); Wenn die Zitronen blühen (Joh. Strauss); The Mill in the Black Forest (Eilenberg); Stéphanie Gavotte (Czibulka); Viennese Waltz (Buxtehude); Tango (Mauprey); Glad Rag Doll (Brown); Laugh, Clown, Laugh (Young); Melody (Ager); Selection from The Flower of Hawaii (Abraham); Salut au Quarante-cinquième (Barat); Alsace-Lorraine (Marcoux). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.30, Concert by Ter-Abramoff and his Orchestra. Selection from The Sleeping Beauty (Tchaikovsky); Fox-trot, Please: Tango, Jalousie; Liebestraum (Liszt); Warum? (Stolz); Waltz from Die Fledermaus (Joh. Strauss); Karpatini (Berény); Donkaja (Ter-Abramoff); Steinka rasin (Ter-Abramoff); L'ombre du passé (Ter-Abramoff); Tell me To-night (Sporiansky); Caucasian Song, Allavardi (Ter-Abramoff); Waltz, The Blue Danube (Joh. Strauss). In an interval at 8.0, Sponsored Talk. 9.0, Clancy and Jazz Music, relayed from the Restaurant de la Forêt, Le Touquet. 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 Records. March (Jurek); Golden Horizon (DeFrance); Waltz (Tremolo); Les Sirenes (Waldteufel). 12 Noon, Protestant Address. 12.30, Gramophone Records of Opera Music. Overture, Benvenuto Cellini (Berlioz); Two Airs from Les Troyens à Carthage (Berlioz); Extracts from Der Freischütz (Weber); Extracts from Hamlet (Thomas); Air from Salambô (Reyer); Selection from Sigurd (Reyer). In the interval at 1.0 p.m., Exchange and News and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural Notes. 7.10, Gramophone Records. Selection from The Desert Song (Rouberg); Two Argentine Melodies (Jekyll); Le méchant petit garçon (Dalcroze); Ronde des petits ans (Dalcroze); Air; Two Pieces (Ganne); Les Deux Pinsons (Kling); La Fauvette (Kling); Idylle passionnelle (Razigade). 7.50, Commercial Prices and News. 8.0, Dramatic Programme. Part I. Poems. Part II, Bourgeoisie—One-Act Comedy (Warney). 8.30, News and Weather. 8.45, Recital of Old Songs and Duets by Mmes. Champell and Legendre. 9.15, Press Review and News. 9.30, Gramophone Concert. Pianoforte Concerto in B flat (Brahms); La Forêt (Caplet); Chère Nuit (Bachelet); Synopation (Kreisler); Fantasia on an old Air (Bordes); Elegy (Faure); Selection from Coppelia (Delibes).

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW.—Relayed by W8XK on 48.86 metres; and 25.27 metres.—7.30 p.m., Pioneers. KDKA to New York. 7.45, KDKA Home Forum. 8.0, Betty and Bob, from New York. 8.15, Words and Music, from New York. 8.45, Federation of Pennsylvania Women. 9.0, Thursday Special, from New York. 9.30, News and Markets. 9.45, Thursday Special, from New York. 10.0, Casino Orchestra, from New York. 10.15, Tarzan of the Apes. 10.30, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News, Piano Classics. 11.15, Sports, A Song. 11.30, Pittsburgh Spotlights. 11.45 to 12.45 a.m. (Friday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Concert Footlights. 12.45, Pathé News of the Air. 1.0 to 4.0, New York Relay. 1.0, Captain Diamond. 1.30, Adventures in Health. 1.45, Floyd Gibbons. 2.0, Death Valley Days. 2.30, Wayne King's Orchestra. 3.0, Hands across the Border.

PORSGRUND.—See Oslo.

PRAGUE

514 kc/s, 488.6 metres; 120 kW.—2.50 p.m., Military Band Concert from Moravská-Ostrava. 3.50, Weather. 3.55 to 4.0, Exchange. 5.25, See Moravská-Ostrava. 5.45, Gramophone Music. 5.55, Talk: The Protection of Animals. 6.5, Agricultural

SEPT. 7th

THURSDAY

continued

Report. 6.15, Talk for Workers. 6.25, News in German. 6.30, Germans Transmission; Talk: New Publications. Agricultural Talk. 7.0, Chimes and News. 7.10, See Brno. 7.30, A Travelogue with Songs. 8.45, See Brno. 9.0, Time Signal. 9.2, Orchestral Concert, conducted by Otakar Jeremias. Soloist: Suzanne Karin. 10.0, Time and News. 10.15, Orchestral Concert: Waltz (Lanner); Polish Song Potpourri; Polonia (Leopold); Waltz (Ingus); Selection from Norma (Bellini); Tango, Don't tell me Lies To-day; Polka (Rezek). 11.0, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—3.28 p.m., Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Concert. 4.15 (from Geneva), Interlude. 4.40 (from Geneva), Gramophone Concert (contd.). 5.30, Interval. 7.0 (from Geneva), Programme for Mountain Lovers. 7.30, News. 7.50 (from Geneva), Tourist Talk in Esperanto. 8.0 (from Geneva), Talk: The History of Geneva. 9.0, Concert by the Radio Suisse Romande Orchestra, conducted by Echenard. Part I: Modern Music. Suite for Little Orchestra (Rosenberg); Le Paravent de laque aux cinq images (Rigaud); Overture on a Jewish Theme (Prokofiev); Dance from King David (Honegger). Part II: Brandenburg Concerto, No. 4 (Bach). 9.50, News. 10.0 (from Lausanne), French Love Songs—Lecture Recital. 10.30 (approx.), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 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.—12.30 p.m., Gramophone Music. 1.0, Humorous Items. 1.5, Orchestral Concert. 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, Reading. 5.10, Weather. 5.15 to 6.0, Vocal and Instrumental Concert. Maria Ceccarelli (Pianoforte), Carlo Platania (Bari-tone) and Valeria Passerini (Soprano): Polonaise in C (Beethoven). Baritone Solos: (a) Aria from A Masked Ball (Verdi); (b) Zingari (Leoncavallo). (c) Aria from Dinorah (Meyerbeer). Pianoforte Solos: (a) Etude brillante (Chopin); (b) The Flight of the Bumble Bee (Rimsky-Korsakov). Soprano Solos: (a) O cessate di piangere (Scarlatti); (b) Chi vuol la zingarella (Paisiello). (c) Aria from Maion (Massenet); (d) Luisella (di Pietro). 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolavoro Announcements and Tourist Report. 7.10, Agricultural Report. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.15, Song Recital by Sandra Belluci (Soprano). 8.45, Variety Programme. 9.45, Fantasia—Comedy in One Act (Lucio d'Ambrà) with Incidental Music. 10.30, Concert of Light Music: Selection from Johnny spielt auf (Krenek); Strapaese (Pizzini). 10.55, 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 to 3.0, New York Relay. 1.0, Variety Programme. 2.0, Captain Henry's Show Boat 3.0, Paul Whiteman's Orchestra, 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 Bern, 1,220 kc/s, 245.9 metres.—6.0 p.m. (from Bern), Gramophone Music. 6.30 till Close Down, Programme from Basle. 6.30, Talk: Bird Life in Autumn. 7.0, Time, Weather, and Traffic Report. 7.10, Verdi Music on Gramophone Records. 7.45, Italian Lesson. 8.30, Pianoforte Recital. 9.0, News. 9.10 (from Basle), Actors in the Studio. 10.30 (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., Studio Service, relayed from Uppsala, 662 kc/s, 453.2 metres. 5.50, Organ Recital by Gösta Berlin. 5.55, Dialogue. 6.5, Gramophone Music. 7.0, Talk on Broadcasts for Schools, relayed from Malmö, 1,301 kc/s, 231 metres. 7.15, Weather and News. 7.30, Talk on Swedish Universities. 8.0 (from Göteborg), Orchestral Concert, conducted by Karl Borinors: Dance (Peterson-Berger); Waltz (Peterson-Berger); Undine's Dance from Loreley (Catalani); Polonaise in A

(Chopin); Slav Dance No. 8 (Dvorák); Hungarian Dances Nos. 4 and 5 (Brahms); Waltz, Künstlerleben (Joh. Strauss); Torch Dance (Meyerbeer). 8.45, Reading (Ernst Ahlgren). 9.15, Pianoforte Sonata in B Minor, Op. 58 (Chopin). 9.45, Weather and News. 10.0 (from Göteborg), Concert of Chamber Music, conducted by Tor Mann. Soloist: Magnus Jensen (Cello). Suite for Strings (Grieg); Cello Concerto in A Minor (P. E. Bach); Idyll and Lullaby (Aulin); Finale from the Symphony in D for Strings (Mendelssohn). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.20 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. Overture, The Merry Wives of Windsor (Nicholi); Ballet Music from Isolide (Messager); Suite from Der Rosenkavalier (R. Strauss); Symphonic Poem, The Moldau (Smetana); Marche héroïque (Saint-Saëns). 2.0, Programme for Children. 3.0, Interval. 3.30, Orchestral Concert conducted by Brouillac, relayed from the Casino, Vichy. Overture, Mignon (Thomas); Pavane and Waltz from Etienne Marcel (Saint-Saëns); Orchestral Suite, Pantomime (Lacôme); Melody; Two Spanish Waltzes from La vida breve (Fallá); Selection from Griselidis (Massenet); Cortège burlesque (Chabrier). 5.0, French Elocution Lesson. 5.15, Orchestral Concert, conducted by Roskam. Polonaise and Waltz from Eugene Onegin (Tchaikovsky); Selection from Madame Butterfly (Puccini-Berghio); Suite pour mes petits amis (Messager); Serenade in A (Widor). 6.0, Talk in German: St. Simon and Proudhon, two Pioneers of Socialism. 6.15, Talk for Women. 6.30, Orchestral Concert, conducted by Maurice de Villers. Overture, King Stephen (Beethoven); The Surprise Symphony (Haydn); Serenade for String Quintet (Mozart); Pieces (Schubert): (a) Minuet, (b) Moment Musical. (c) Marche Militaire. 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Choral and Orchestral Concert by the Cercle Musical Messin, conducted by Henri Graebert, relayed from Metz. Overture, Figaro (Mozart); Male Voice Quartet: Les marins de Kernor (Saint-Saëns); Selection from Hansel and Gretel (Humperdinck); Male Voice Quartet: Les montagnards (Rolands); Horn Solo: Melody (E. Bach-Hoffmann); Orchestral Suite, Mascarade (Lacombe); Mixed Choir: Les Espousailles (Tombeille); Selection from Veronique (Messager); Waltz, Morgenblätter (Joh. Strauss); Choir and Orchestra: Marche lorraine (Ganne). In the interval, Press Review.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by Freiburg, 527 kc/s, 570 metres.—2.0 p.m., Programme arranged by the Post Office, with Gramophone Music. 2.30, Spanish Lesson. 3.0, Elementary English Lesson. 3.30, Programme from Frankfurt. 4.30, See Munich. 5.45, Talk: Birds of Passage. 6.10, Talk on Tradition—The Thirteenth König Karl Regiment. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Berlin (Deutschlandsender). 8.0 (from Freiburg), Concert of Folk Music: Accordion March, So geht's zu (Mornischer); Accordion Ländler, Semengruss (Claude); Songs to the Lute: (a) Folk Song, Beim Kronenwirt; (b) Folk Song, Er wollte doch fahren ins Heu; March, Wiener Künstler (Schrammel); Karwendler Ländler, for Schrammel Music (Mayer); Songs to the Lute: (a) I woars nit wie ner is; (b) Soldier Song, Hinter Metz bei Paris in Chalons; Accordion: March, Marschherreit (Strub); Viennese Song for Schrammel Quartet: Das Lercher von Hernal; Accordion Solo: March, Wiener Schwalben (Schlögel). 8.40, See Munich. 9.0, Radio Report of the Voluntary Labour Service Campaign against insects in the Rhine District of Karlsruhe, relayed from Rappin-worth. 9.30, Pianoforte Recital: Thirty-Two Variations in C Minor (Beethoven); Scherzo in E Flat Minor, Op. 4 (Brahms); Märchen-sonate in C Minor, Op. 25, No. 1 (Mendner). 10.15, Time and News. 10.30 (approx.), Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.15 p.m., Accordion Solos. 6.30, Chansonnettes. 6.45, Violin Solos: Tambourin chinois (Kreisler); Serenata (Toselli); Romance andalous (Saraste); Scherzo tarantelle (Wienawsky). 7.0 (approx.), Suite, Iberia (Albeniz), by a Symphony Orchestra. 7.15, News. 7.30, Comic Opera Music: Chorus from Carmen (Bizet); O Messager des Dieux, from Thais (Massenet); Air from La Basoche (Messager). 7.45, Light Music. 8.30, Opera Music: Selection from (a) William Tell (Rossini); (b) Lohengrin (Wagner); and (c) Faust (Gounod). 8.45, Sound Film Music. 9.0, Concert Version of La Dame Blanche—Opéra-

comique (Boieldieu). 9.30, Music by a Symphony Orchestra: Pas des fleurs (Delibes); Selection from Das Nachtlager in Granada (Kreutzer); Le lac de Côme (Gaios). 9.45, Concert: You are my Heart's Delight, from The Land of Smiles (Lehár); On ne s'embrasse plus, from Le cœur y est (Parsy-Parys); Selection from Veronique (Messager); Nachtschwärmer (Ziehrer); Melody (Fetras); March of the Picadors (Oschelt). 10.15, News. 10.30, Concert for Listeners in Morocco: Selection from La Bohème (Puccini); Elsa's Dream, from Lohengrin (Wagner); Ständchen (Schubert); Les rêves sont des bulles de savon (Hermite); Selection from Messidor (Bruneau). 11.0, Operetta Music: Overture, Orpheus in the Underworld (Offenbach); Selection from Yes (Yvain). 11.15, Dance Music. 12 Midnight, News. 12.5 a.m. (Friday), Orchestral Music. 12.15, Hunting-Horn Solos. 12.30, 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

273.7 metres; 7 kW. Relayed by Milan, 331.5 metres; Genoa, 312.8 metres; and Florence, 500.8 metres.—5.10 p.m., Orchestral Concert. 6.0 to 6.5, Weather Forecast. 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. 8.20, Talk on the following Transmission. 8.30, Sakuntala—Opera in Three Acts (Allano). In the intervals, Talk and Art Notes. After the Programme, Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning), and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—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, 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 Holzner. In the interval at 1.0 p.m., Time, Weather and News. 3.0, Time, Weather and Exchange. 3.20, Talk: Electricity in the Kitchen. 3.35, Programme for Children. 3.50, Gramophone Records of the Marek Weher Orchestra. 4.45, Gymnastics for Children. 5.0, Talk: Pottery and Statuary for the Small Garden. 5.25, Concert by Hedi Renda (Soprano), Lissy Siedek (Violin), and Bednarik (Pianoforte). 6.5, Talk: Wild Life in the Antium Hills. 6.30, Talk: The Landscape and People of Pinzgau. 7.0, Concert of Operetta Music by the Wiener Symphoniker and Franz Zwonik (Tenor). In the interval at 7.35, Time, Weather and News. 8.30, Typical Talk. 8.45, Concert by the Wiener Symphoniker, conducted by Kabasta; Soloist, Malcher (Violin); Concerto grosso No. 11 in B Flat (Handel); The Third Symphony in D Minor (Bruckner). 9.55, News, Weather and Exchange. 10.5, Gramophone Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Chimes from Torin Cathedral. 12.5 p.m., Gramophone Music. 12.25, Polish Press Review. 12.33, Weather. 12.35, Gramophone Music. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.15, Announcements. 3.25, Economic Notes. 3.35, Gramophone Music. 3.45, Talk for Boy Scouts. 3.50, Gramophone Music. 4.0, Programme for Children. 4.30, Song Recital by Dudicz (Soprano) and Korolkiewicz (Bari-tone). Two Duets from Rigoletto (Verdi): Duet from Don Giovanni (Mozart); Duet (Bardia); Baritone Solos: (a) Bells (Macura); (b) Leaves (Sym); Soprano Solos: (a) Aria from The Magic Flute (Mozart); (b) Aria from Louise (Charpentier). 5.0, Concert of Chamber Music: Quartet in A minor, Op. 50, No. 2 (Beethoven); Quartet No. 2, Op. 10 (Kodaly). 6.0, Solemn Vespers, relayed from Chelm. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Reading. 8.0, Concert by the Station Orchestra, conducted by St. Navrot. Soloist: Kochanski (Violin). Overture, Janek (Zelenki); Suite, Impressions exotiques (Mouton); Violin Concerto in E minor (Nardini); Violin Solos: (a) Andantino (Martini); (b) Prelude and Allegro (Pugnani-Kreisler); Gipsy Dance (Debussy); Serenade (Gyldmark); Waltz, (Elliott). 8.50, Radio Journal. 9.0, Agricultural Notes. 9.10, Concert (contd.): Norwegian Dances Nos. 2 and 3 (Grieg); Ballet Music from The Demon (Rubinstein); Violin Solos: (a) Chanson de Louis XIII and Pavane (Couperin); (b) Gavotte (Rameau); (c) Sicilienne and Rigaudon (Rameau); Tarantella (Nicolet); Mazurka in D (Chopin-Noskowski); Waltz, Künstlerleben (Strauss); March (Kozlowski). 10.25, Sports Notes. 10.35, News, Weather and Police Notes. 10.40, Dance Music.

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 Report, Stock Exchange Quotations and Gramophone Music. 6.0, Programme for Children. 6.45, News. 7.0, Gardening Talk by G. O. Sheppard. 7.15, Talk. 7.30, Time Signal. 7.31, Concert by the Station Orchestra. 8.0, Contralto Solos by Eva Tomsöhn. 8.15, Pianoforte Solos by Madge Bradbury. 8.30, The Station Orchestra (contd.). 9.0, Bass Solos by J. C. Browner. 9.15, Piccolo Solos by Mollie Flynn. 9.30, Pianoforte-Accordion Solos by J. Carey. 9.45, Sponsored Programme. 10.45, News, Weather and Close Down.

BARCELONA

EADJ, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Minuet (Ganne); Serenade (Rachmaninov); Musette (Colin); Selection from Martha (Flotow); Idyll (Bayer); Hungarian Dance No. 5 (Brahms); Selection from Parsifal (Wagner). 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Music, followed by News. 10.0, Chimes, Weather, Messages for Seamen, and Exchange. 10.10, Concert by the Station Orchestra: Paso doble, Gaditana (Lizcano de la Rosa); Selection from El domo azul (Arrieta); Waltz (Greenbank); Nocturne (d'Ambrosio); Danzas montañesas (Gorostanga); Melody (Van Dyck). 11.0, Literary and Musical Programme. 11.30, Extracts from 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.—8.0 p.m., Agricultural Notes, Tourist Talk and Dopolavoro Announcements. 8.20, Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.40 (approx.) Concert of Opera Music: Soloists, Milena Barberio (Soprano) and Andrea Mongelli (Bass); Overture, The Force of Destiny (Verdi); Soprano Aria from Lohengrin (Wagner); Bass Aria from La Gioconda (Ponchielli); Extract from La nave rossa (Seppilli); Soprano Aria from Manon (Massenet); Bass Solo from Manon (Massenet); Selection from Il piccolo Haydn (Cipollini); Intermezzo from La Cabrera (Dupont); Soprano Solo, Ponte muta e profonda, from Gloria (Cilea); Bass Aria from Salvatore Rosa (Gomez); Selection from Aida (Verdi); Song from L'amico Fritz (Mascagni); Bass Aria from Lucia di Lammermoor (Donizetti). In the interval, Theatre Notes. 10.30, Dance Music, relayed from the Gran Caffè del Levante. 10.55, News.

BAÏLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—6.55 p.m., Time, Announcements and Talk. 7.30, See Bratislava. 10.10, Time and News. 10.25 (approx.), Cigány Music from the Petrosacka Zadruga Restaurant.

BERLIN

DEUTSCHLANDSENDER (REICHSENDER), 183.5 kc/s, 1,635 metres; 60 kW.—1.45 p.m., News. 2.0, Gramophone Concert. 3.0, Talk: German Girls as Exchange Students in Spain. 3.30, Weather and Exchange. 3.45, Political Dialogue: The Robbers (Ulrich v. Hutten). 4.0, Concert from Leipzig. 5.0, Talk for Workers. 5.25, Choral Concert of German Folk Songs. 6.0, Poems. 6.5, Talk. 6.30, Recital of Street Songs. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, To-day's Motto. 8.5, Winke, bunter Wimpel. . . . Play in Verse (Alfred Karschauer), with Music by Walter Gronostay. 9.20, Orchestral Concert. 10.0, News. 10.25, Radio Report of the International University Sports in Turin (on Gramophone Records). 10.45, Weather. 11.0, Concert from Frankfurt. 12.30 a.m. (Saturday), Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.30 p.m., Military Band Concert. In the interval at 5.0, Talk from Berlin (Deutschlandsender). 6.0, Reading: A Chapter from the Life of my Great-Grandfather (Marga Salzwitz Schumacher). 6.15, Report of the meeting of Exchange Students at Schloss Köpenick (on Gramophone Records). 6.40, The Funkstunde informs its Listeners. . . . 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.5, The Beginning of the Berlin Theatre—Radio Sequence (Rosskopf). 9.0, Radio Report. 9.50, Programme by Maria Ney. 10.0, News. 10.25 (approx.), Concert by the Station Orchestra, conducted by Willy Gensler. In the interval at 11.0 (approx.), Talk: What they are saying in Berlin. 11.20 (approx.), Dance Music from

FRIDAY

SEPTEMBER THE EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON
REGIONAL MIDLAND
REGIONAL NORTH
REGIONAL WEST
REGIONAL SCOTTISH
REGIONAL BELFAST

Orchestral concert.
"Waltz Time," a Viennese operetta.
Orchestral concert from Cheltenham Spa.
Orchestral concert from the Pier Pavilion, Llandudno.
Variety programme from the New Theatre, Cardiff.
"Flodden," a chronicle play, by Christine Orr.
Ballad concert.

ABROAD

BARCELONA
BRATISLAVA
EIFFEL TOWER
HAMBURG
HUIZEN
LANGENBERG
MUNICH
PRAGUE
RADIO PARIS
ROME

7.0 p.m. The Station Trio.
7.30 p.m. Opera: "The Bartered Bride," by Smetana, from the National Theatre.
8.30 p.m. Beethoven's Sonata, Op. 31, No. 3.
8.0 p.m. Haydn, Mozart and Beethoven concert, by the Philharmonic Orchestra.
8.10 p.m. Beethoven's Symphony, No. 9 (Choral), in D Minor, by the Residence Orchestra.
6.0 p.m. The Station Orchestra.
9.20 p.m. The Franconian Chamber Orchestra, relayed from Nürnberg.
7.30 p.m. Opera: "Figaro," by Mozart, from the State Opera House.
9.30 p.m. Concert of French and Romanian music.
8.30 p.m. Opera: "Le Jongleur de Notre Dame," by Massenet.

the Zoological Gardens. 12 Midnight, 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.—2.50 p.m., Concert by the Station Orchestra, conducted by Odehazel: Overture, The Bohemian Girl (Baltz); Mediterranean Suite (Jalowicz); Waltz (Fucik); Intermezzo (Aust); Potpourri of Slovak Songs; Humoresque (Bayer); Gallop, Prestissimo (Waldeufel); Slovak March (Ecker). 3.50 to 4.0, See Prague. 5.45, See Prague. 6.5, Talk with Gramophone Illustrations: Latvia. 6.35, Sports Talk. 6.50, Gramophone Music. 6.55, Report. 7.0, See Prague. 7.25, Talk on the following Transmission. 7.30, The Bartered Bride—Opera in Three Acts (Smetana), relayed from the National Theatre. 10.0, See Prague. 10.15 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,184 kc/s, 253 metres.—1.0 p.m., Weather. 1.5 (approx.), Gramophone Concert of Scandinavian Music. 1.45, Time, Weather, News and Exchange. 2.5, Pianoforte Recital. 2.30, Gramophone Music. 3.0, Agricultural Report. 3.15, Talk: German Wrought Iron Work in the Great Days of Prussia. 3.30, Programme for Children. 4.0, Orchestral Concert, relayed from Bad Altheide. Conductor, Albin Eschrich: Burkersdorfer Marsch (Wagner); Overture, Waldmeister (Joh. Strauss); Valse triste (Sibelius); Pizzicato from Sylvia (Delibes); Selection from The Merry Wives of Windsor (Nicolaï); Waltz, Lotosblumen (Olsen). 5.0, See Berlin (Deutschlandsender). 5.30, Market Prices. 5.35, Reading. 6.0, Topical Talk. 6.25, Talk: The Germans Outside the Reich—The Polish Corridor. 6.50, Weather, News and Market Prices. 7.0, Transmission from all German Stations, relayed from Heilsberg. 8.0, Choral Concert with Gotthold Richter (Organ), relayed from the Salvatorkirche: Kyrie and Sanctus from Assumpta est Maria, for Six Part Choir (Palestrina). Organ Solos: Prelude and Fugue in E (Lübeck); Motet for Five Voices, Jesu Joy of Man's Desiring (Bach). Organ Solo, Fantasia in G (Bach); Fest und Gedenksprüche for Two Four Part Choirs (Brahms). Organ Solo: Canzone (Driscoller). Motet for Six Voices: Von der Ewiggen Liebe (Thomas). 9.0, Announcements. 9.10, The Mist rises; the Leaves Fall—Reading of Autumn Poems.

10.0, Austria. . . . 10.20, Time, Weather, News, Sports Notes and Programme Announcements. 10.40, Impressions of Silesia by a French Girl. 11.0, Light Music and Dance Music, relayed from the Kurhaus, Bad Altheide. 12.30 a.m. (Saturday), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—5.45 p.m., Gramophone Music. 5.55, Talk for Women: Careers for Girls. 6.5, Gramophone Music. 6.15, Talk on the Olympic Games. 6.25, German Transmission: News, Sports Notes, and Two Talks: (a) Martin Luther, (b) Inventions. 7.0, See Prague. 7.25, See Bratislava. 10.0, See Prague. 10.15 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, the Village Fair—Gramophone Concert. 1.0 p.m., Le Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans. Strauss March (Mezzacapo); Ballet Music from Isoline (Messenger); Serenade (Leonecavallo); Selection from Rip (Planquette); Hymne à l'amour (Guillemy); Intermezzo from Tamyris (Mambour); Selection from Trois jeunes filles nues (Moretti). 5.0, Concert by the Radio Orchestra, conducted by Franz André. March (Faull); Selection from Cocorico (Ganne); Two Pieces for Small Orchestra (Dangeau); Pour mes petits amis (Pierne); Selection from Thais (Massenet); Intermezzo (Van Oost); Ballet Suite (Popy); Valse des blondes (Ganne). 6.0, Talk. 6.15, Request Gramophone Music. 6.30, Retour de vacances—Sketch (Joseph Mommaerts). 6.45, Sonata (Leken), for Pianoforte and Violin, on Gramophone Records. 7.15, Educational Talk. 7.30, Legal Talk and Literary Review. 8.0, Concert by the Radio Orchestra, conducted by Franz André. Hungarian March (Berlioz); Overture, Sémiramis (Rossini); Waltz from Die geschiedene Frau (Faull); Selection from No. No, Nanette (Youmans); Selection from Sadko (Rimsky-Korsakov); Selection from Contes d'Auril (Widor). 8.45, Programme for Ex-Servicemen. 9.0, Concert relayed from the Kursaal, Ostend. After the Concert, Le Journal Parlé, and Dance Music by Robert de Kers and His Cabaret Kings, and an Argentine Orchestra, conducted by Antonio di Michele, relayed from the Kursaal, Ostend. 11.0, La Brabançonne.

BRUSSELS (No. 2)

I.N.R., 587 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. 12 Noon, Gramophone Record. 12.10 p.m. (approx.), Concert by

the Small Station Orchestra, conducted by Leemans. Neapolitan March (Baldi); Gavotte-Caprice (Borkiewicz); Waltz, La Sultane (Bucalossi); Viennese Operetta Potpourri (Hruby). 12.30, Richard Strauss' Songs on Gramophone Records. Ständchen; Morgen; Traum durch die Dämmerung; Freundliche Vision. 12.45, Concert (contd.). Selection from The Geisha (Jones); King Cotton March (Souza). 1.0, Le Journal Parlé. 1.10, Gramophone Music. Overture to and Concert Version of The Merry Wives of Windsor (Nicolaï); Overture, Le Roi malgré lui (Chabrier). 5.0, National Dances on Gramophone Records. Four German Dances (Mozart); Hungarian Dance (Moszkovsky); Arab Dance from The Nutcracker Suite (Tchaikovsky); Slav Dances Nos. 1 and 2 (Dvorak); German Dances (Schubert); Hungarian Dance No. 5 (Brahms). 5.45, Pallieter Programme. 6.30, Concert of Potpourris by the Small Station Orchestra, conducted by Leemans. Tempo, Tempo (Dostal); Was wir lieben (Gangberger); Polka Potpourri (Lindemann); Potpourri of Hungarian Music (Manfred); Quintessence (Morena). 7.15, Talk. 7.30, Wireless Notes. 8.0, Concert by the Station Orchestra, conducted by Kumps. Soloist: Rosquin (Pianoforte). Part I—Russian Music. Night on the Bare Mountain (Mussorgsky); Pianoforte Concerto in B flat Op. 23 (Tchaikovsky). 8.45, Announcements. 8.55, Talk on the Flemish Patriot Hendrik Conscience, followed by Address and Announcements. 9.5, Concert (cont.). Part II—Flemish for the Fiftieth Anniversary of the Death of Hendrik Conscience. Marche commémorative (Gillon); Recitation; La rêve from Houten Clara (De Vlieshouwer); Pianoforte Solos (Menemans): (a) Extracts from Réflexes, (b) Prelude to Esquisses; Panegyric ou Hendrik Conscience; Overture, Begga (Chytena); March, Klokke Roeland (Tinel). 10.0, Le Journal Parlé. 10.10, Gramophone Records. Overture, Lohengrin (Wagner); Aria from Samson and Delilah (Saint-Saëns); Aria from La Bohème (Puccini). 10.25, Song Recital on Gramophone Records. Chialpine: Song of the Viking from Sadko (Rimsky-Korsakov); Scheidl: Aria from The Flying Dutchman (Wagner); Kipnis: Der Wegweiser (Schubert); Schlussus: Adelaide (Beethoven); Mijn Vlaanderen heb ik hartlijk lief (Antheunis).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Concert by the Station Orchestra: March (Blankenburg); Waltz, The Blue Danube (Strauss); Overture, Peter Schmol (Weber); Selection from La Traviata (Verdi); Selection from Clo-Clo (Lehár); Potpourri (Dostal); Hungarian Dances Nos. 19 and 20 (Brahms); Humoresque and Mazurka (Dvorak). In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Educational Talk. 7.40, Opera (to be announced) on Gramophone Records. In the intervals, Radio Journal. After the Opera, Concert by the Motoi Orchestra, relayed from the Monte Carlo Restaurant.

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, Recital of Hungarian Folk Songs with Accompaniment by the Simi Kurina Cigány Band. 6.30, Talk on the Chicago World Fair. 7.0, Military Band Concert. 8.0, A Story of Peace Time—Radio Play (Lestyan). 9.45, News. 10.5, Recital by Kalra Dullien: Largo (Veracini); Allegro (Fico); Liebestraum (Habay); Scherzo (Rieger); Dance (Bazzini); Ruralla Hungarica (Dohnanyi); Legend (Hodula); Sonatina (Bartok-Gertler). 10.40, Music by the Veres Cigány Band and the Guttenberg Salon Orchestra, relayed from the Café Ostend, with Interludes by Paul Kalmár.

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 and Weather Forecast. 12.5 p.m., String Ensemble Concert, relayed from the Bellevue Strandhotel. 2.0, Interval. 3.0, Concert by the Radio Orchestra, conducted by Fritz Mahler; Soloist, Galina Werschenkaya (Pianoforte): Overture, Lucio Silla (Mozart); Minuet from the Fifth Symphony in B flat (Schubert); Waltz, Die Schönbrenner (Lanner); Five Viennese Dances (Beethoven); Pianoforte Solos: (a) Improvisation (Schubert); Spinnerlied (Wagner-Liszt); March, Op. 12 (Prokofiev); Overture, Waldmeister (Joh. Strauss); Ballet Music from Orpheus and Eurydice (Glück); Ochsenmett (Haydn); Kaiserwaizer (Joh. Strauss); Overture, Boccaccio (Suppé). 5.0, Gramophone Music. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, German Lesson for Beginners. 6.45, Weather and News. 7.15, Time Signal. 7.16, Talk relayed from the University. 8.0, Programme by Per Knutzon. 8.10, Programme for the 150th Anniversary of the Birth of N. P. S. Grundtvig: Talk and Song Recital. After the Programme, Weather. 9.10, Cello Sonata in E Minor (Ariosti). 9.30, A Visit with the Microphone

SEPT. 8th

FRIDAY

continued

to a Cycle Factory. 10.0, News. 10.15, Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Les Brigands (Offenbach); Ballet Music from La belle Hélène (Offenbach); Serenade, Waltz and Polka from Les Millions d'Arlequin (Drigo); Overture, Les Cloches de Corneville (Planquette); Ballad and Theme from Coppélia (Delibes); Overture, La petite Bohème (Hirschmann). 11.10, 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 12.0 Noon, Programme in English by the I.B.C. 11.0, Philco Happy Hour. Part 1. Request Programme of Sea Shanties: Signature Tune; A Life on the Ocean (Binding); The Drunken Sailor (arr. Terry); Shenandoah; A rovin' (arr. Terry); The Middy; Rio Grande (arr. Harris); One Dollar Fifty a Day; Potpourri, Nautical Moments (arr. Winter). Part II. Request Items: Lullaby of the Leaves (Petkera); Still I love her (Gaskill); Paradise (Brown); Brother can you spare a dime? (Gorney); She didn't say Yes (Kern); Try a little tenderness (Woods); Mami Girl (Libornio); O Mouah (Washburn); Signature Tune. 12 Noon, Programme in French. 5.0 to 6.0, Programme in English by the I.B.C. 5.0, Orchestral Concert for Southampton and Winchester Listeners. Signature Tune: The Night by the Sea; Wee Macgregor Patrol (Amers); Babes in Toyland (Herbert). Song: The Blackbird's Song (Scott); The Rose Beetle goes a-wooing (Armandola). Song: Comin' through the Rye (arr. Smart); Serenade (Pierne). Violin Solo: Cavatina (Raff); Lazy Pete (Kernsten). 5.30, Concert of Light Music for Bournemouth and Weymouth Listeners: The Little Company (Ganglberger). Xylophone Solo: Jovial Jasper (Green). Song: Peter, Peter (Woods); My Darling (Myers); One little Word led to another; Oh, I wish I could sing a Love Song. Song: You are too beautiful (Rodgers); That little lock of hair (Verrill); The Old Spinning Wheel (Hill); Signature Tune. 6.0, Programme in French. 10.0 till Close Down, Programme in English by the I.B.C. 10.0, Dance Music. Signature Tune. Bells of Normandy; Look what you've done; On a Dreamy Afternoon; Willow weep for me; Moonlight on the River; The Lady I Love; Easy Drum Dan; The King's Navee; My Heart's to let; To-night; Always in my heart; Do you recall?; Drifting and Dreaming; Well! Well! Well!; Everyone says I Love you; Jack in the Box; Little Lady; Signature Tune. 11.0, Sound Film Music. Signature Tune: Sittin' in the Dark; Maurice Chevalier Potpourri; You will remember Vienna (Romberg); Selection from The Kid from Spain (Kalmár). Pianoforte Solo: Why waste your Tears (Holstein); The Song of the Vagabonds (Friml). Pianoforte Solo: Where are you? (McVey); Song of the Drum (Ellis); The Hit Parade. 11.30, Club Concert for Birkenhead and New Brighton Listeners. Part I. Symphony Orchestra: Signature Tune, The Chum Song; Rakoczy March (Berlioz). Violin Solo: Le Cygne (Saint-Saëns); Entry of the Little Fauns (Pierne); Dance of the Sylphs (Berlioz); Concert Waltz (Glazunov). Violin Solo: Air on the G String (Bach); The Witch's Ride (Puccini); Minuet from the Petite Suite (Debussy). 12.5 a.m. (Saturday), News Bulletin in English. 12.10 (approx.), Club Concert. Part II: You're mine, you (Green); Peter, Peter (Connelly); Something came and got me in the Spring (Rich); One Tiny Tear (Connelly); Stay out of my dreams (Washington); Signature Tune. 12.30, Dance Music. (Electrical Transcriptions): Here is my heart; I lay me down to sleep; Old Man Harlem; I can't remember; Castles in the Sand; I've got to sing a Torch Song; In the Valley of the Moon; The Shadow Waltz. 1.0, Dance Music: Signature Tune, Bells of Normandy; Somebody stole my Girl; You've got me; That's what life is made of; Sweetness; I cover the Waterfront; Put on your old Grey Bonnet; I raised my Hat; Whispering; My favourite Band; Merry-go-round; Music hath charms; Sophisticated Lady; My Heart was made for Love; One Hour with You; In old Vienna; A big Bouquet for You; Signature Tune. 1.57, I.B.C. Goodnight Melody. 2.0 (approx.), 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.—6.0 p.m., Talk: Finland's Fight for Freedom. 6.25, Topical Talk. 6.45, To-day's News. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, The Steamers Elsa and Friede—Radio Picture (Karl Klinghardt). 9.0, Variety Items. 9.15, Concert, relayed from London. 10.30, Time and News. 10.45, Orchestral Concert, conducted by Hans Rosbaud. Soloist: Hugo Kolberg

(Violin). Part I—Beethoven Music. Part II—Marches and Light Music. 12.30 a.m. (Saturday), 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. 6.45, Exchange. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Haydn, Mozart and Beethoven Concert by the Hamburg Philharmonic Orchestra, conducted by Elbschütz and Richard Gräfe (Clarinet): Symphony No. 92, the Oxford (Haydn); Clarinet Concerto in A (Mozart); Ballet Music from Prometheus (Beethoven); Overture, The Magic Flute (Mozart). 9.30, Nordisch and Halall: Literary and Musical Programme by the Small Station Orchestra and the Station Male Voice Quartet. 10.0, News. 10.20, Topical Talk. 10.30, Recital of Old and New Music for Two Guitars: Little Divertimento (Sor); Largo and Rondino (Carulli); Pastorale (Coste) Andante from the Sonata in G (Rüter); Classical Waltz (Boho). 11.0, Concert of Light Music.

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., Concert by the Small Station Orchestra, conducted by Eugen Wilken: Overture, Der Waffenschmidt (Lortzing); Cello Solo, Krottschak-Romanze (Recktenwald); Friedmann Bach Suite (Leuchner); Selection from La Traviata (Verdi); Catalan Caprice (Albeniz); Serenata napoletana (Sgambati); Waltz, Scherw and Leier (Jos. Strauss); Selection from Der Tenor der Herzogin (Künneke). 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, Police Band Concert: Fest-Hymnus (Silecher); Overture, Le Lac des fées (Anber); Entr'acte from Rosamund (Schubert); Waltz, Vive la Danse (Waldteufel); March and Drinking Song (Schreck); Wachtparade (Ruhn); Nibelungen-Marsch (Sonnag); Ballet Scene (Berlot); Tom der Reimer (Loewe); Unter den Hakenkreuz (Beriot). In the interval at 5.10 (approx.), Book Review. 5.45, Talk: The Theatre an Outpost of German Culture on the Eastern Frontier. 6.15, Agricultural Prices. 6.25, Talk: Nazi Storm Troops in East Prussia. 6.50, Weather. 7.0, Transmission for all German Stations: Undine, Opera (E. Th. A. Hoffmann) with Introductory Talk. 8.0, News. 8.10, Hugo Wolf Songs (Words by Eduard Mörike), Hans Eggert (Bartone). 8.55, Chamber Music: Oboc Quartet (Mozart); String Trio, Op. 15 in F Minor (Trenkner). 9.35, German Literature of the Great War: Programme of Prose and Verse with Choral Music. 10.15, News.

HILVERSUM

Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Concert by John Brown's Melodians. 1.25 to 1.40 p.m., Interval. 1.40, Organ Recital by Vissera. Prelude (Annooy); March from Athalia (Mendelssohn); Allegretto (Rinck); Romance without Words (Lemmens); Flute Concerto (Rinck); Ave Maria (Schubert); Nocturne (Lemmens); Invocation (Lemmens); Melody (Fazel); Adoration (Kallmehach); Song without Words (Mendelssohn); March (Mendelssohn). 2.40, Concert by Mlle van Kuyk (Pianoforte), van den Berk (Tenor), and Louis Somer (Violin): Winterstürme wiehen dem Wonnemond (Wagner); O del mio dolce ardor (Glück); Selection from A Masked Ball (Verdi); Pianoforte Solos: (a) Prelude and Fugue (Bach); (b) Sonata, Op. 27, No. 2 (Beethoven); Sonata in F Minor (Bach); Gramophone Records: Pianoforte Solos (Chopin): (a) Waltz, Op. 69, No. 1, (b) Waltz, Op. 64, No. 1, (c) Prelude, Op. 28, No. 15. (d) Scherzo, Op. 31, No. 11; Selection from Hans Heiling (Marschner); Piece (Gonibich); Selection from The Mastersingers (Wagner); Le printemps (Milhaud); Titini (Catalnuove); Introduction and Rondo capriccioso (Saint-Saëns). 4.40, Gramophone Music. 5.10, Horticultural Talk.

5.40, Concert by the K.R.O. Boys. 6.40, Police Notes. 6.55, Talk. 7.15, Gramophone Music. 7.40, Concert by the K.R.O. Orchestra, conducted by Gerritsen; Soloist, Boris Kon (Pianoforte): La procession nocturne (Rabaud); Concerto in F Minor, Op. 21 (Chopin). 8.10, News. 8.15, Gramophone Music. 8.30, Concert (contd.): Pianoforte Solos: (a) Fantasia in F Minor (Chopin), (b) Six Études. Op. 10 (Chopin); Prelude (Järnefeldt); Selection from Eugene Onegin (Tchaikovsky); Selection from Boris Godunov (Mussorgsky); Suite from Philémon et Baucis (Donnod); Variations, Op. 3 (Szymanovsky); Overture, Frau Luna (Lincke); Selection from Countess Maritza (Kálmán). 10.10, News. 10.15, Concert by Ernesto Arcari and his Italian Orchestra. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW.—11.40 a.m. to 3.40 p.m., Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Gramophone Music. 12.10 p.m., Concert by Kovacs Lajos and his Orchestra: Gramophone Music in the intervals. 1.50, Reading. 2.10, Pianoforte Recital by Franz Hillen: Fantasia in G (Mozart); Minuet in E Flat (Mozart); Minuet in G (Mozart); Etude in G (Liszt); Waldesrauschen (Liszt). 2.40, Gramophone Music. 3.45 to 7.40, Programme of the Workers Radio Society (V.A.R.A.). 3.45, Concert by the Guarani Trio: Overture (Pannette); Eastern Stars (Löhr); Slav Dance (Dvorak); Spanish Dance (Sarasate); Le petit Suisse (Guiraud-Alder); Melody (Venuti); Wine, Woman and Song (Joh. Strauss). 4.30, Programme for Children. 5.10, Organ Recital: Dinah (Aks); Intermezzo and Song (Schnurmann); Kiss me goodnight (Nicholls); La bella Tangelita (Abraham); Im Frühling (Steyn); Caprice viennois (Kreiser). 5.40, Concert by the Small Radio Orchestra, conducted by de Groot: Overture, Große-Girofla (Lecocq); Springtime Suite (Weedy); Romance (Svendsen); Waldesglocken (Czimek); Whistle for me (Fane); Les marionnettes (Philippe); Funeral March of the Marionette (Gonod); Die Waffen nieder. 6.20, Talk. 6.40, Concert by the Station Orchestra, conducted by de Groot: Volkstuwak (Gaveaux); Poeme (Fibich); When wird bei Nacht erst schön (Stolz); Tempo. tempo (Schottemeyer). 6.55, Violin Recital: Largo and Allegro (Boer); Humoresque (Ailun). 7.55, Concert (contd.). In Mendelssohn Rosenquenz (Urbach). 7.20, Violin Recital (contd.): Valse caprice (Wieniawski); Heire Kati (Huhay). 7.30, Concert (contd.): Bohemian Dance (Debussy); La danza (Rossini); Frauenherz (Strauss); Motor-March (Rosey). 7.40, Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). 8.10 to 9.40, Programme of the A.V.R.O. 8.10, Symphony No 9 in D Minor (Choral), Op. 125 (Beethoven); by the Residence Orchestra, conducted by Carl Schnuricht; relayed from the Kurhaus, Scheveningen; Soloists, Jo Vincent (Soprano), Suze Luger (Contralto), Louis van Tulder (Tenor) and Willem Ravelli (Bass). In the interval at 8.40, Talk arranged by the V.P.R.O. 9.40 to 10.40, Programme of the V.P.R.O. 9.40, Religious Notes and News. 9.55, Recitations. 10.25, Gramophone Music. 10.40 till Close Down, Programme of the V.A.R.A.—Gramophone Music. 11.43 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, Financial Notes and News. 8.10, Esperanto Lesson. 8.30, Press Review. 8.40, Radio Concert. In an interval at 9.0, News and Weather Report.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLAGENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.50 p.m., News. 1.0, Orchestral Concert, conducted by Eysoldt: Overture, The Merry Wives of Windsor (Nicolai); Ballet égyptien (Luigini); Les Fables de La Fontaine (Monton); Das Lied der Quelle (Amadei); Fantasia, Webers Blütenkranz (Schreiner); Traum-Walzer (Müllacker); Vergissmännchen (Machbeth); Intermezzo, Dalila (Masin); March, Via Eupen (Creutz). In the interval at 2.0, News. 2.30, Interval. 3.0, Talk: The New German Patent Laws. 3.20, Topical Talk. 3.30, Market Prices. 3.50, Programme for Children. 4.30, Peru—a Radio Sequence of Old Legends (Willi Pferdekamp), with Modern Gramophone Records. 5.10, Concert by the Station Orchestra, conducted by Küllm: Overture, The Magic Flute (Mozart); Hungarian Rhapsody No. 1 (Liszt); Suite from The Nutcracker Ballet (Tchaikovsky). 5.45, Reading. 6.0, Concert by the Station Orchestra:

Overture, Genova (Schumann); Waltz, Die Romantiker (Lanner); Divertimento No. 1 in E flat (Mozart); Reiter-Marsch (Schubert). 6.45, Weather, Sports Notes, and Market Prices. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, News. 8.5, Concert by the Small Station Orchestra, conducted by Eysoldt: Overture, Wiener Frauen (Lehár); Nocturne, In einer Sommernacht (Spies); Czardas from Coppelia (Delibes); Serenade (Pierne); Loin du bal (Gillet); Rose-Marie (Krome); Faun und Nymphe (Königsberger); Stormy Weather (Arten); Slow Waltz, Heimweh hab' ich (Ludwig); Spanish March (Stauch). 9.0, Bunte Stunde. 10.0, News. 10.20, From Paul Ernst to Hanns Johst—a Review of Contemporary German Drama (on Gramophone Records). 10.55, Review of Next Week's Events in West Germany. 11.5, Serenade on Gramophone Records. 11.30 (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.—4.0 p.m. (from Dresden), Concert by the Dresden Philharmonic Orchestra, conducted by Gottlieb-Heilmesberger: Overture, Der Beherrscher der Geister (Weber); Waltz from Der Rosenkavalier (Strauss); Selection from Herzog Wildfang (S. Wagner); Waltz, Gruss an Wien (Bausnern); Five Pieces for String Orchestra (Joun); Waltz, Pierrot and Pierrette (Lehár); March (Gruber). 5.0, Book Review. 5.20 (from Dresden), Concert by the Dresden Philharmonic Orchestra, conducted by W. Gottlieb-Heilmesberger. Soloist: Rappoldi (Violin). 5.50, Economic Notes, News, Weather and Time. 6.0, Review of Books for the Hitler Youth. 6.20, Agricultural Talk. 6.30, Talk: Charlatans and Marxists—Deceivers of the People. 6.50, Review of the Day. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Concert by the Borna Wind Band. 8.50, News. 9.0 (from Dresden), Concert of Serenades, relayed from the Zwinger. 10.0, Gaudemus Igitur—Stories of Our Fathers' Student Days. 10.20, News, followed by Sound Film Music on Gramophone Records. 12 Midnight, Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—8.0 p.m., See Bratislava. 10.30, Weather and News. 11.0 (approx.), Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW. Dutch Programme.—7.30 p.m., First Symphony (Beethoven). 8.10, Talk in Dutch: Luxembourg and Holland in History. 8.20, Song Recital by Alice Peffer. 8.50, News in French. 9.0, Violin Concerto in D (Beethoven). 9.45, News in German. 9.55, Gramophone Music. 10.25, Gramophone Dance Music.

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.), Symphony Concert on Gramophone Records: Overture, Così fan tutte (Mozart); A Night on the Bare Mountain (Mussorgsky); Extracts from Daphnis et Chloé (Ravel); Double Concerto in A Minor for Violin and Cello (Brahms); Scheherazade (Rimsky-Korsakov). 1.15 a.m. (Saturday), Topical Review and Programme Announcements for Listeners Abroad. 1.30, Chimes and Close Down.

MADRID

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

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 4 kW.—8.30 p.m., till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.20 p.m., Talk for Tourists. 6.25, 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 p.m., See Stuttgart. 5.45, Talk for the Younger Generation: The Young People's Part in the Reconstruction of Germany. 6.5, Das verlassene Mägdlehen

SEPT. 8th

FRIDAY

continued

(Morike), in the settings of Schumann, Goetz, Wolf, and Pfizner; by Marianne Ran-Höglauer (Soprano). 6.25 (from Nürnberg). Talk: Wilhelm Raabe as a National Prophet. 6.45, Time and Announcements. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Concert of Schrammel Music: München-Wien (Kouzak); Waltz, Tales from the Vienna Woods (Joh. Strauss); Fantasia on the Song, Ein Vöglein sang im Lindenbaum (Eherle); Upper Bavarian Ländler (Daxenberger); Kärntner Liedermarsch (Seyfert). 8.35 (from Nürnberg), Konrad Gröbel—Radio Sequence. 9.20 (from Nürnberg), Concert by the Franconian Chamber Orchestra, conducted by Markus Rümmelein: Selection from La part du diable (Auber); Allegro molto from Divertimento No. 11 (Mozart); Entr'acte and Ballet Music from Rosamunde (Schubert); Minuet from The Veil of Pierrette (Dohnányi); Waltz in A (Dvorak); Overture, Die beiden Schützen (Lortzing). 10.0, Austria. 10.20, Time and News.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—5.30 p.m., Gramophone Music. 6.30, A Visit to a Farm with the Microphone. 7.0, Advertising Notes, Weather, and News. 7.30, An Interview with Fishers at Aalesund. 8.0, Time Signal. 8.2, Concert by the Station Orchestra, conducted by Hugo Kramm: The Nutcracker Suite (Tchaikovsky); The Pathetic Symphony (Tchaikovsky). 9.15, Talk: Who is Krishna Murti? 9.30, Report on Foreign Agricultural Markets. 10.15, Concert of Light Music. 10.45 (approx.). Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolaro Notes, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Concert of Popular Music. In the intervals, Talk and Announcements. 10.55, News.

PARIS

ETIFFEL 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 Notes. 7.0, Le Journal Parlé. 8.30, Piano-forte Sonata, Op. 31, No. 3 (Beethoven), played by Marie-Antoinette Pradier. 9.0, Symphony Concert, conducted by Eduard Flament: Petite Suite (Kalkman); Selection from Eugene Onegin (Tchaikovsky); Suite for Strings (Aubert); Sarabande (Corelli); Siciliana; Gigue (Vivaldi); Juego (Turina). 10.0 (approx.). Close Down.

PARIS

POSTE 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, Gramophone Music. 8.30, Concert of Viennese Music, with Songs by Leonardo Aramesco. 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 Records: Marietta (Lucchesi); Les Lilacs (Doelle); Boston d'amour (Charpentier); Pabre Pato (Ghirlanda). 8.0, Weather and Press Review. 12.30 p.m., Gramophone Records: Ballet Music from The Cid (Massenet); Maundy Thursday in Seville (Turina); Sonata in E (Scazzatti); Waltz in A (Brahms); Erikonig (Schubert); Valse romantique (Chabrier); Serenade (Saint-Saëns); Hungarian Rhapsody (Schmitt); The Dreary Steppes (Gretchaninov); Etude, No. 3 (Chopin); Trio for Piano-forte, Oboe and Bassoon (Poulenc); Two Movements in Symphonic Form (Merrick); La Procession (Frank); Summer Pastoral (Honegger); Three Rhapsodies (Chopin); Dance of the Seven Veils, from Salomé (R. Strauss); Air from The Seasons (Haydn); On Wings of Song (Mendelssohn). In the intervals at 1.0 p.m., Exchange and News, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural News. 7.10, Social Insurance Report. 7.20, Gramophone Music. 7.50, Commercial Prices and News. 8.0, Modern Symphony Music on Gramophone Records: Concerto for Harpsichord, Flute, Oboe, Clarinet, Violin and 'Cello (Fallia); Symphonie classique (Prokoviev); Viennese Rhapsody (Schmitt). 8.30, News and Weather. 8.40, Review by Pierre Seize. 8.45, Poetry Recital. 9.15, Press Review and News. 9.30, Concert of French and Romanian Music. Pia Igy (Songs), Nicolas Caravia (Piano-forte) and Nicolas Vamasesco (Guitar). Songs with Guitar Accompaniment: (a) Water Song (Herescu), (b) Nostalgia (Paschill), (c) The Cuckoo (Srediceanu); Tocata for Piano-forte

(Enesco); Songs: (a) For You (Golestan), (b) Autumn Leaves (Otesco), (c) The Rose (Dragoi); Piano-forte Solos: (a) Minstrels (Debussy), (b) L'île joyeuse (Debussy); Songs: (a) Peach blossom (Simon), (b) Le Rossignol (Saint-Saëns), (c) Waltz Song from Romeo and Juliet (Gounod). 10.15, Tone Poem, A Night on the Bare Mountain (Mussorgsky) on Gramophone Records.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.86 metres and 25.27 metres.—4.15 to 5.0 p.m., U.S. Marine Band, from New York. 7.30, Pontiac Home Forum. 8.0 to 9.30, New York Relay. 8.0, Betty and Bob. 8.15, Words and Music. 8.45, Pay Kennedy. 9.0, Gene Quaw Orchestra. 9.30, News and Markets. 9.45, Arcadians, from New York. 10.0, Uncle Tom and Betty. 10.15, Tarzan of the Apes. 10.30, Singing Lady, from New York. 10.45, Orphan Annie, from New York. 11.0, News Reeler. 11.15, Sports. A Song. 11.30, Pittsburgh Spotlights. 11.45 to 3.45 a.m. (Saturday), New York Relay. 11.45, Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15, Rondoliers. 12.30, Orchestral Concert. 1.0, Popular Programme. 1.30, Potash and Perlmutter. 1.45, Rocking Chair Memories. 2.0, Let's Listen to Harris. 2.30, Variety Programme. 3.0, First Nighter.

PORSGRUND.—See Oslo.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Bratislava. 3.50, Weather. 3.55 to 4.0, Exchange. 5.45, Gramophone Music. 5.55, Reading. 6.5, Agricultural Report. 6.15, Gramophone Music. 6.25, News in German. 6.30, German Transmission: Programme to be announced. 7.0, Chimes and News. 7.10, Talk. 7.25, Introductory Talk to the following Transmission. 7.30, Figaro—Opera in Four Acts (Mozart), relayed from the State Opera House. 10.0, Time and News. 10.15, Close Down.

RADIO-SUISSE ROMANDE

(SOTTENS), 743 kc/s, 403 metres; 25 kW.; and Geneva, 395 kc/s, 760 metres.—12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News. 12.40 (from Geneva), Gramophone Concert. In the interval at 1.0, Financial Bulletin. 2.0, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Concert. 4.30 (from Geneva), Programme for Women. 5.30, Interval. 7.0, Talk: The Swiss Chamber of Commerce, 1933. 7.15 (from Lausanne), Talk: Where to spend the Weekend. 7.30, News. 7.35 (from Lausanne), Answers to Correspondence. 8.0 (from Lausanne), Cabaret Concert. 9.20 (from Lausanne), Quartet in E flat (Mozart). 9.50, News. 10.0 (from Lausanne), La nuit d'auvergne x—One-Act Comedy in Verse (Nigond). 10.30 (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 2R0, 11,810 kc/s, 25.4 metres, from 25.4 metres.—12.30 p.m., Gramophone Music. 1.0, Orchestral Concert. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 2.0, Time and Announcements. 4.45, Children's Radio Review. 5.10, Weather. 5.15 to 6.0, Song and Piano-forte Recital by Luisa Carlevarini Romano Rasponi (Baritone) and Gisella De Bonitathus (Soprano). Violin Solos: (a) Tantiuorin (Gosse-Moffat); (b) Contradance (Beethoven); Soprano Solos: (a) Nina nanna (Ravaseraga); (b) O rondinella (Lattuada); Spanish Songs for Baritone; Violin Solos: (a) Spanish Serenade (Glazunov-Kreisler); (b) Gopak (Mussorgsky); Soprano Solos (Donaudy): (a) Freschi luoghi; (b) Madonna Renuola. 6.40 (Naples), Shipping and Sports Notes. 6.45, Dopolaro Notes and Tourist Report. 6.57, Report of the International Institute of Agriculture (in Spanish, German and French). 7.10, Agricultural Report and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time, Announcements, and Sports Notes. 8.30, Le Jongleur de Notre Dame—Opera in Three Acts (Massenet). 10.55, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

(WGY), 750 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., Vocal 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, Cities Service Concert, from New York. 1.30, WGY Farm Forum. 2.0, Variety Programme, from New York. 2.30, Popular Programme, from New York. 3.0, WGY Players. 3.30, Lum and Abner's Friday Night Social, from New York. 4.0, Programme Resume.

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.—6.30 to 9.0 p.m., Programme from Berne. 6.30, Microphone Report: Castle Burgdorf. 7.0, News. 7.20, Marching Songs. 7.50, Talk: Motor Cars and Motor Travel. 8.20, Military Band Concert. 9.0, News. 9.10, Swiss Italian Programme from Lugano. 10.15 (from Berne), Talk: Autumn Days in Ticino. 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; Östersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.—5.5 p.m., Scout Report. 5.25 (from Göteborg), Cabaret Programme. 6.0, A Visit with the Microphone. 7.15, Weather and News. 7.30, Concert by the Radio Choir, conducted by Axel Nylander: Part I, Welsh Songs; Part II, Plantation Songs; Part III, English Hunting Songs. 8.10, Talk: Judaism and Christianity, relayed from Uppsala, 662 kc/s, 453.2 metres. 8.40, Concert by the Station Orchestra. Soloist: Roman Dukstulsky (Cello). Overture, A Life for the Czar (Glinka); Caucasian Suite (Ippolitov-Ivanov); Cello Concerto in E Minor (Lindner); Selection from Lilac Time (Schubert-Berté). 9.45, Weather and News. 10.0, Gramophone Music. 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, Popular Music on Gramophone Records. 2.0 to 3.0, Interval. 3.30, Orchestral Concert conducted by Brouillac, relayed from the Casino, Vichy: Overture, Figaro (Mozart); Three Entr'actes from Carmen (Bizet); Gipsy Suite, Alpujarra (Anduaga); Melody; Au printemps (Pévet); Selection from La Bohème (Puccini); Waltz (Fétras). 5.0, Literary Talk. 5.15, Orchestral Concert, conducted by Roskam: Two Step, Je veux (Hollaender); Fox trot, Desert Lover (Gay); Intermezzo, In the Shadows (Fink); Waltz, Wiener Praterleben (Transleuter); Tango (Don Azpiaza); Air from The Countess Maritza (Kálmán); Slow Waltz (Kreisler); Violin Solo: Schön Rosmarin (Kreisler); Fox trot, Just Friends (Klemer); Air (Verdun); Waltz, Pomona (Waldteufel); Two Step (Speyer). 6.0, Trio Concert, relayed from Lille, 1,130 kc/s, 265.4 metres. 7.0, Topical Talk in German. 7.15, Gramophone Music. 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Gala Concert, relayed from the Casino, Vichy. 10.0, 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, Gramophone Concert. 2.0, Concert arranged by the Post Office. 2.30 to 3.0, Advanced English Lesson. 3.15 (from Karlsruhe), Talk: Sunday Excursions. 3.30 (from Mannheim), Concert. Stephan Pellissier (Piano-forte), Karl Schmitt (Violin), Alfred Färbach (Tenor), and Ellen Peil (Soprano). Sonata for Violin and Piano-forte (Brahms); Tenor Solos (R. Strauss): (a) Morgen, (b) Wozu noch Mädchen, soll es frommen, (c) Die Nacht, (d) Stehe still, (e) Im Treibhaus, (d) Schmerzen, (e) Träume. 4.30 (from Badenweiler), Orchestral Concert, conducted by Albert Hitzig: Overture, Euryanthe (Weber); Waltz, Morgenblätter (Strauss); Selection from André Chenier (Giordano); Variations on the Kaiser Quartet (Haydn); Alemannische Rhapsodie (Rudel); Intermezzo, Liebeszenen (Donat); Selection from The Land of Smiles (Lehar); March, Badenweiler (Fürst). In the interval at 5.0, Talk from Berlin (Deutschlandsender). 5.45, Health Talk: Gymnastics. 6.5, See Berlin (Deutschlandsender). 6.30, Time and News. 7.0, Transmission for all German Stations, relayed from Heilsberg. 8.0, Homage to Truth. 8.20 (from Mannheim), Trio in F Minor, Op. 65 (Dvorak). 8.50, Two People in Love—Wireless Comedy in Two Acts (Wellenkamp). 10.0, See Munich. 10.20, Time and News. 10.45, See Frankfurt. 12.30 a.m. (Saturday), 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, Military Music. 6.45, Opera Music: Aria from The Magic Flute (Mozart); Elizabeth's

Aria from Tannhäuser (Wagner); The Soldiers' Chorus from Faust (Gounod); Aria from Boris Godunov (Mussorgsky). 7.0, Impressions d'Italie—Symphonic Poem (Charpentier), by the Symphony Orchestra. 7.15, News. 7.30, Accordion Music: Over the Waves (Rosas); Lopejana (Alter); Annette (Cuvelier). 7.45, Opera Music: Selection from La Traviata (Verdi); Intermezzo from Cavalleria rusticana (Mascagni); Entr'acte from Act III of Lakmé (Delibes). 8.0, Music from Sound Films. 8.15, Operetta Music: Selection from (a) Les cloches de Corneville (Planquette), (b) Le pays du soleil (Scotto), (c) The Desert Song. 8.30, Music by a Viennese Orchestra. 8.45, Opera Music: Aria from Madame Butterfly (Puccini); Prologue to I Pagliacci (Leoncavallo); Aria from Carmen (Bizet). 9.0, Symphony Concert, conducted by René Bathon, relayed from the Municipal Casino, Biarritz. In the interval, Songs. 10.15, North African News and Local News. 10.30, Programme for Listeners in Morocco. 11.0, Dance Music. 11.45, Operetta Music: Airs from (a) Le Comte Obbligato (Moretti), (b) Fortunio (Messager), (c) Les saltimbanques (Ganne), (d) Encore cinquante centimes (Barde). 12 Midnight, News. 12.5 a.m. (Saturday), Hawaiian Guitar Music. 12.15, Military Music. 12.30 (approx.). Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.15 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.—5.15 p.m., Chamber Music. 6.0 to 6.5, Weather Forecast. 6.40, Giornale Radio. Dopolaro Announcements, 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, Sponsored Music. 8.30, Variety Programme. 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, 1,658 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.—3.20 p.m., Talk: The International Congress of Trade Journalists. 3.30, Reading for Women. 3.55, Music from Sound Films on Gramophone Records. 4.45, Talk: Petschors, the Last Home of Russian Monasticism. 5.10, Song Recital by Flora de Griso-gono (Soprano) and Otto Staeren (Baritone). 5.55, Tourist Report. 6.10, Talk: Gymnastics. 6.25, Weekly Sports Review. 6.35, Faith and Science—Readings from Great Scientists. 7.0, Concert by the Volksoper Orchestra, conducted by Anderlieth. In the interval at 7.40, Time, Weather and News. 8.45, Report of the Opening of the German Catholic Conference in Vienna. 9.0, Der Stephansturm—Play (Heinrich Suso Waldeck), with Music by Weissenböck. 10.30, News, Weather and Exchange. 10.45, Dance Music on Gramophone Records.

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., Popular Concert conducted by Szuk, relayed from the Bagatela. In an interval at 12.25, Polish Press Review and Weather Report. 12.55, Radio Journal. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.10, Announcements. 3.15, Gramophone Music. 3.25, Economic Notes. 3.35, Gramophone Music. 3.45, Aviation Report and Anti-Gas Drill. 3.50, Gramophone Music. 3.55, Maritime and Colonial Report. 4.0, Concert by the Poznan Opera House Orchestra, conducted by Tylja, relayed from Cichocienek. Overture, Semiramis (Rossini); Gavotte (Lully); Selection from Tiedland (d'Albert); Selection from Viktoria and her Hussar (Abraham). 5.0, Review of Publications. 5.15, Piano-forte and Soprano Song Recital. Piano-forte Solos: (a) Lotus Land (C. Scott), (b) Serenade, Prelude and Dance (Debussy). (c) Mazurka and Etude (Serlabin); Five Songs; Piano-forte Solos: (a) Prelude (Cui), (b) Ukrainian Ballad (Liszt-Balakirev), (c) Dance (Fallia), (d) Farrucca (Fallia); Five Songs. 6.15, Talk relayed from Lwów, 788 kc/s, 381 metres. 6.35, Gramophone Music. 6.50, Miscellaneous Items. 7.5, Programme Announcements. 7.10, Topical Talk. 7.30, See Bratislava. 10.0, Dance Music. 10.25, Sports Notes. 10.35, News, Aviation, Weather Report and Police Notes. 10.40, Dance Music (contd.).

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 Report and Gramophone Music. 6.0, Gramophone Concert. 6.45, News. 7.0, Poetry Recital by C. Murphy. 7.15, Gaelic Talk. 7.30, Time Signal. 7.31, Pianoforte and Violin Duets by Mrs. Miley and L. Thompson. 8.0, Vocal Duets by The Serenaders. 8.30, Orchestral Music. 8.55, Baritone Solos by John Lynskey. 9.10, Talk by Mrs. Edmund Leamy: The Poetry of Joyce Kilmer. 9.30, Maori Songs by Eileen Driscoll (Soprano). 9.45, Sponsored Programme. 10.45, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—7.0 p.m., Concert by the Station Trio: Selection from Hamlet (Thomas); Selection from The Rhinegold (Wagner); Canto apasionado (d'Azzurro); Air de danse (d'Ambrosio); Selection from Sapho (Massenet); Springtime of Love (Kalkmann); Der Erlkönig (Schubert). 8.0, Request Gramophone Records. 8.30, Exchange. 9.0, Gramophone Music. 9.15, Anti-War Talk, followed by Gramophone Music and News. 10.0, Chimes, Weather and Exchange. 10.5, Concert by the Station Orchestra: Paso doble, Ayamonte (Balcels Planas); Selection from La mazorca roja (Serrano); Habanera, La gondola (Coto); A Night in Venice (Court-ioux); Dance, Cloe (Roses); Selection from The Damnation of Faust (Berlioz); Minuet (Solazzi); Overture, Figaro (Mozart). 11.30, Dance Music from the Casa Libre. In the interval at 12 Midnight, News. 1.0 a.m. (Sunday), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—8.0 p.m., Agricultural Notes, Tourist Talk, and Dopplavoro Announcements. 8.20, Giornale Radio and Weather. 8.30, Time and Announcements. 8.35, Weather. 8.40, I Pagliacci—Opera (Leoncavallo) on Gramophone Records. In the interval, Announcements. After the Opera, Dance Music, relayed from the Gran Café del Levante. 10.55, News Bulletin.

BASLE.—See Schweizerischer Landessender.

BELGRADE

697 kc/s, 430.4 metres; 2.0 kW.—6.55 p.m., Time and Announcements. 7.0, Yugoslav Songs. 7.30, Talk. 8.0, Pianoforte Recital by Djordje Stokic: Four Etudes and a Scherzo in B Minor (Chopin); Prelude (Debussy); Oh l'on entend une vieille boîte à musique (De Séverac). 8.30, Songs. 9.10, A Radio Play. 9.40, Time, News, and Orchestral Concert. 11.0, Dance Music on Gramophone Records.

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, Political Dialogues: The Orient and the Nordic Lands (Johann von Leers). 4.0, Concert from Hamburg. 5.0, Weekly Sports Review. 5.20, A Musical Excursion. 6.0, Poems. 6.5, Review of the Week's Politics. 6.20, Variety Programme. 6.50, Weather and Announcements. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, To-day's Motto. 8.5 (approx.), Dance Music by Robert Gaden's and Ferd. Kauffmann's Bands, with an Interlude by Werner Plücker. 10.0, News. 10.45, Weather. 11.0, Concert from Breslau. 12 Midnight, Close Down.

BERLIN

FUNKSTUNDE, 715 kc/s, 419.5 metres; 1.5 kW.—4.0 p.m., Concert, relayed from the Krollgarten. In the interval at 5.0 (approx.), Talk: Sports in Germany and England. 5.25, Report of the First German Labour Service Exhibition in Frankfurt on the Oder (on Gramophone Records). 5.55, Sonata in A, Op. 69, for Pianoforte and 'Cello (Beethoven) by Ely Ney and Ludwig Hoelscher. 6.20, Dialogue: With Theodor Fontane through the Mark of Brandenburg. 6.40, The Funkstunde Station informs its Listeners. 6.45, Topical Talk. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.5 to 1.0 a.m. (Sunday), Bunter Abend. In the interval at 10.0 (approx.), News. 1.0, 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.—6.25 p.m., Gramophone Music. 6.35, Talk: Patents and the Protection of Inventions. 6.55, Report. 7.0, See Prague. 8.25, Variety Programme.

SATURDAY

SEPTEMBER THE NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON "Waltz Time," a Viennese operetta. Promenade concert from Queen's Hall.
REGIONAL MIDLAND Orchestral programme.
REGIONAL NORTH Variety programme.
REGIONAL WEST Orchestral concert.
REGIONAL SCOTTISH Orchestral concert.

ABROAD

BARCELONA 7.0 p.m. The Station Trio.
BARI 8.40 p.m. Opera: "I Pagliacci," by Leoncavallo, on gramophone records.
BRESLAU 4.10 p.m. The Station Orchestra.
BRUSSELS 8.0 p.m. The Radio Orchestra, conducted by Franz André.
BUDAPEST 8.10 p.m. Operetta: "The Gipsy Princess," by Kálmán, relayed from the Zoological Gardens. 8.0 p.m. Old Danish music, by the Radio Orchestra.
COPENHAGEN 11.30 p.m. Concert of popular music.
MADRID 8.45 p.m. Symphony concert, conducted by Riccardo Santarelli.
ROME 7.30 p.m. Petite Suite, by Debussy, played by the Symphony Orchestra. 9.0 p.m., Offenbach concert.
TOULOUSE 8.45 p.m. Symphony concert, conducted by Ugo Tansani.
TURIN

10.0, See Prague. 10.15, See Brno. 11.30 (approx.), Close Down.

BREMEN.—See Hamburg.

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by Gleiwitz, 1,144 kc/s, 253 metres.—1.0 p.m., Gramophone Concert. In the interval at 1.45, Time, Weather, and News. 3.0, Agricultural Prices. 3.15, Review of Books on Music. 3.35, Dialogue: Schools for Germans outside the Reich. 3.55, Film Review. 4.10, Concert by the Station Orchestra, conducted by Bruno Janz: Grieg Potpourri (Urbach); Träumerei (Schumann); Minuet in G (Beethoven); Der Eremit (Schmalstieg); Anatolian Dance (Weninger); Ballet Suite (Fresco); Ballet Overture (Lincke); Serenade, Juanita (Schroder); Egyptian Caprice (Seibold); Air from Der Bettelstudent (Müllcker); March, Fürs Vaterland (Müllcker). 5.30, Programme Announcements. 5.40, Das ewige Lied (Gorelitz). 5.55, Topical Talk. 6.20, Basque Festival Days—Talk with Gramophone Illustrations. 6.50, Weather and News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Kartoffelfeuer—Variety Programme for Peasants. 9.0, News. 9.10, Request Concert by the Station Orchestra, conducted by Bruno Janz. 10.30, Time, Weather and News. 11.0, Dance Music and Light Music, relayed from the Café Vaterland. 12.30 a.m. (Sunday), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—6.5 p.m., Gramophone Music. 6.25, German Transmission. News. 6.30 (approx.), Song Recital by Maria Marie Plesch (Soprano) and Leo Meiert (Baritone); Part I, Soprano Solos: Arietta from La Molière (Paisiello); Aria, Cario mio ben (Giordano); Canzona amorosa (Falconeri); Aria (Caldara); Danza (Durante); Part II, Baritone Solos: Aria from Le Roi de Lahore (Massenet); Aria from Le Tahirro (Puccini); Aria from La Gioconda (Pouchelli); Aria from Nero (Boito); Aria from Ernani (Verdi). 7.0, See Prague. 8.25, See Bratislava. 10.0, See Prague. 10.15, Concert by the Station Orchestra, conducted by Gotthard. 11.30 (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—12 Noon, Concert by the Small Station Orchestra, conducted by Leemans. Coronation March from The Prophet (Meyerbeer); Suite from Les Erynnies (Massenet); Simple Aveu (Thomé); Selection from Cavalleria rusticana (Mascagni); Guitar for Violin (Moszkowski-Sarasate); Ballet Music from The Cid (Masset). 1.0 p.m., Le Journal Parlé. 1.10, Gramophone Concert of Variety Music. 4.45,

Tourist Talk. 5.0, Dance Music by Robert de Kers and his Cabaret Kings and an Argentine Orchestra, conducted by Antonio di Michele, relayed from the Kursaal, Ostend. 6.0, Talk: The Cave-Dwellers in Belgium. 6.15, Gramophone Music. Toccatina (Scazzati); Pastorale Variée (Mozart); Sonata in F (Händel-Tertis). 6.30, Concert by the Small Station Orchestra, conducted by Leemans. Marche solennelle (Wesly); Romanic Suite (Armandola); Grandmaman (Langer); Selection from The Czarevitch (Lehar); Strang Waltz Potpourri (H. Weber); One-Step, La bouquetière de Séville (Wyn and Langlois). 7.15, Talk on Eugène Ysaÿe. 7.30, Le Journal Parlé. 8.0, Gramophone Concert. Prelude to Act III of Lohengrin (Wagner); Overture, The Flying Dutchman (Wagner). 8.15, Les Fleurs—Radio Play (Francis André). 8.45, Gramophone Concert (cont'd.). Scherzo from the Quartet (Rimsky-Korsakov); Herian Dance (Nin); Selection from Moineau (Beydts). 9.0, Concert, relayed from the Kursaal, Ostend. After the Concert, Le Journal Parlé, and Dance Music by Robert de Kers and his Cabaret Kings and an Argentine Orchestra, conducted by Antonio di Michele, relayed from the Kursaal, Ostend.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—12 Noon, Gramophone Concert. 1.0 p.m., Journal Parlé. 1.10, Concert by the Small Station Orchestra, conducted by Leemans: Overture, Russian and Ludmilla (Glinka); Liebestraum (Liszt); Aria from Dinorah (Meyerbeer); Pianoforte Solo, Marigold (Mayerl); Russian Rhapsody, Moscow (Leemans); Waltz, Heart to Heart (O. Straus); Potpourri, Music from Many Lands (Salabert). 4.45, Book Review. 5.0, Concert by the Radio Orchestra, conducted by Franz André: Overture, Don Pasquale (Donizetti); Bacchanale from Samson and Delilah (Saint-Saëns); An Imaginary Ballet (Coleridge-Taylor); Waltz, Dolorès (Waldteufel); Parfum d'avril (Berry); Three Violin Solos (Crickboom); Selection from Orpheus in the Underworld (Offenbach); Flemish Dances (Blocks); Foxtrot, All my Life (Gilbons); Foxtrot, Try it once again (Sascha Chwat). 6.0, Petite Suite (Jougen) on Gramophone Records. 6.15, Talk: The Stars and their Poetry. 6.30, Gramophone Music: Quintet Op. 34 for Pianoforte and Strings (Brahms); The Imprisoned Cossacks (Nitschensky). 7.15, Talk on Short-hand. 7.30, Agricultural Notes. 8.0, Concert by the Radio Orchestra, conducted by Franz André: Soloist, Boyarin (Balalaika); Overture, La chase du jeune Henri (Méhul); Military March (Schubert); Waltz, Tendre passion (Lauweryns); Lady Dragon Fly (Pink); Balalaika Music: Foxtrot from Carmen (Bizet-Dostal); Foxtrot, Espagnolais (Gossiaux); Overture, William Tell (Rossini); Danzas fantasticas (Turina);

Dance Potpourri (Robrecht); Valse fantasique (Glazinov); African Suite (Coleridge-Taylor); Humorous Pieces for Violin (Leonard); Creole Rumba, Antilla (Beauregard); Foxtrot, Akrobatik (Caphat). 10.0, Le Journal Parlé. 10.10, Dance Music by the Mickey's Club Band, conducted by Ludo Langlois, relayed from the Casino, Knocke.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—5.0 p.m., Light Music and Romanian Music by the Sibiceano Orchestra. In an interval at 6.0, Radio Journal. 7.0, Reading. 7.20, Gramophone Music. 7.40, Educational Talk. 8.0, Songs from Operetta. 8.30, Talk. 8.45, Light Music. 9.15, Popular Romanian Music by the Fanica Luca Orchestra. 9.45, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on 840 metres from 8.10 p.m. till Close Down.—5.30 p.m., Recital of Hungarian Folk Songs. 6.10, Song Recital. 6.55, Radio Report from the Trotting Races. 7.15, Answers to Correspondence. 7.40, Talk. 8.10, The Gipsy Princess—Operetta (Kálmán), relayed from the Zoological Gardens. After the Programme, 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, Town Hall Chimes and Weather. 12.5 p.m., Concert by the Max Skaika Ensemble, relayed from the Hotel d'Angleterre. 2.0, Programme relayed from Aarhus. 3.0, Programme for Children. 3.30, Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Il Guarany (Gomez); Waltz (Ivanovici); Selection from Otello (Verdi); Extracts from the Suite, Pictures from the Ukraine (Akimenko); Hungarian March from The Damnation of Faust (Berlioz); Overture, Robinson Crusoe (Offenbach); Serenade for Strings in E minor (Elgar); Selection from The Three Musketeers (Friml); Polonaise from Eugene Onegin (Tchaikovsky). In the interval, Reading. 5.30, Exchange and Fish Market Prices. 5.45, Talk. 6.15, French Lesson. 6.45, Weather and News. 7.0, News. 7.15, Time. 7.20, Two Talks. 8.0, Time Signal. 8.2, Old Dance Music by the Radio Orchestra, conducted by Lanny Gröndahl: March (Souza); Waltz, Immortellen (Gungl); Jonathan Quadrille (Müllcker); Helga Mazurka (Lumbye); Polka, Jeux d'esprit (Waldteufel); Waltz, Pläne d'or (Waldteufel); Polka-Mazurka (Müllcker); Waltz (Ivanovici); Gallop (Lumbye). After the Programme, Weather. 9.0, Murder Trial—Radio Play in Six Scenes (Brammer). 10.30, News. 10.45, Recital of Modern Pianoforte Music by Viktor Fischer: Jazz Etude (Meyerhoff); Piece (Meyerhoff); Lights (Evans). 11.0, Dance Music by the Teddy Petersen's Band, relayed from the Wivex Restaurant. 12 Midnight, Town Hall Chimes and 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: Listeners' Request Half Hour; Signature Tune: Washington Post March (Souza); Selection from The Mikado (Sullivan); Songs: Paradise (Brown); The Sanctuary of the Heart (Ketelbey); The Old Folks at Home (Foster-Moore); Selection from The Desert Song (Romberg); There's something about a Soldier (Gay); Selection from The Merry Widow (Lehar). Part II: Request Dance Music: Live, Laugh and Love; Hiawatha's Lullaby; The Clouds will soon roll by; While we danced at the Mardi Gras; Good-night Vienna; Masquerade; Alice Blue Gown; Just once for all time; Signature Tune. 12 Noon, Programme in French. 4.30 to 6.0, Programme in English by the I.B.C. 4.30, The Nursery Corner; Music, Story and Greetings. 5.0, Concert for Tunbridge Wells and Isle of Thanet Listeners: Signature Tune; The Night by the Sea; My Lady Dainty (Hesse); Snuevénir (Drdlá); Xylophone Solo, The Clatter of the Clogs (Flynn); Blumengeluster (Blon); Violin Solo, Chanson bohémienne (Baldi); The Fortune Teller (Herbert); Ay, ay, ay (Freire); March from Sylvia (Delibes). 5.30, Request Concert for Dover and Folkestone Listeners: Selection from The Belle of New York (Kerker); The Sanctuary of the Heart (Ketelbey); Love's old Sweet Song (Molloy); Song, A Bachelor Gay (Tate); Accordion Nights: Salut d'amour (Elgar); Eileen Alannah; Friend o' Mine (Sanderson); Signature Tune. 6.0, Programme in French. 11.0 to 2.0 a.m. (Sunday), Programme in English by the I.B.C. 11.0, Talkie Time: Signature Tune; Sittin' in the Dark; The Match Parade; Sweetheart Darlin'; When Day is Done; Clapham and Dwyer: Making a Talkie; Heaven will protect an honest Girl; Sweetheart, I'm dreaming

SEPT. 9th

SATURDAY

continued

of you; When you've fallen in Love; Selection from Song of the West. 11.30, Concert given by the I.B.C. (Ireland), Limited: Signature Tune: Come back to Erin; What's next?; Song, I've got the World on a String; When the Lilac blooms again; Selection of Irish Airs; Goodbye (Tosti); Selection from The Desert Song (Rombeg); Song of my Heart (McCarthy); Memories of Paris (Christine); Signature Tune. 12.5 a.m., News Bulletin in English. 12.10 (approx.), Club Concert for Middlewich Listeners. Part I: Programme compiled by Mr. C. F. Lawrence. Clerk to the Middlewich Urban and District Council: Signature Tune: The Chum Song; Selection from Chu Chin Chow (Norton); Song, Her Name is Mary (Sievier); Waltzes from A Waltz Dream (O. Strauss); She's the lass for me; My Hero, from The Chocolate Soldier (O. Strauss); La Serenata (Braga); Indian Love Call (Friml); Tipperary. Part II: Dance Music; You don't understand; Hiawatha's Lullaby; Sweep; This Lovely Rose; I Cover the Waterfront. 1.0, Dance Music: Signature Tune; Bells of Normandy; In a Second-Hand Store; I can't remember; Adorable; Hold me; My first love to last; I lay me down to sleep; In the Valley of the Moon; My, oh my; The Old Spinning Wheel; Out in the open; Hiawatha's Lullaby; Little Miss Muffet; That's what life is made of; Falling Star; Spanish Eyes; Where are you to-night?; 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, 253.3 metres.—4.30 p.m., Orchestral Concert, conducted by Willi Wilde: March, Kaiser-Parade (Teike); Waltz, Der Himmel voller Geigen (Ziehrer); Overture, Frühlingsluft (Joh. Strauss-Reiterer); Vision orientale (Bece); Hungarian Rhapsody, Pester Karneval (Iszt); Aria (Tenaglia); Melody (Pedrollo); Florentine March (Fucik). 5.45, Market Prices. 6.0, Talk on Economics. 6.25, Time and Announcements. 6.30, Weekly Review. 6.50, To-day's News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Bunter Abend, by the Station Orchestra, the Kardosch Singers and Soloists. 10.30, Time and News. 10.45, Concert from Leipzig.

FREDRIKSTAD.—See Oslo.

FREIBURG.—See Stuttgart.

GENEVA.—See Radio-Suisse Romande.

GENOA.—See Turin.

GLEIWITZ.—See Breslau.

GÖTEBORO.—See Stockholm.

GRAZ.—See Vienna.

HAMAR.—See Oslo.

HAMBURG

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 Secker: Overture on a Thüringian Folk Song (Lassen); Ballet Music from Lakmé (Delibes); Selection from Gasparone (Müllacker); Waltz, Donausagen (Fucik); Overture, Die schöne Galathee (Suppe); March, Victoria (Blon). 5.0, Tales of Mystery 5.20, Concert by a Mandoline Club: Comedy Overture (Kela Beler); Paraphrase on the Folk Song, Die KönigsKinder (Heize); Waltz-Intermezzo, Dolce far niente (Bleichenstein); Paraphrase on the Song Geheimnis (Lilting); March, Feuert los (Holzmann). 5.55 (from Bremen), Variety Programme. 6.30 (from Kiel), Religious Address. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Political Address. 8.10, Workday Humour—Variety Programme. 10.0, News. 10.20, Topical Talk. 10.30, Light Music and Dance Music from Berlin (Funkstunde).

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 Small Station Orchestra, conducted by Eugen Wilcken: Overture, Das Nachtlager von Granada (Kreutzer); Waltz, Die guten alten Zeiten (Jos. Strauss); The Awakening of the Spring Flowers (Lohr); Oochi zingari (Filippini); Russian Suite (Bullerain); Rhapsody on the Song, La Paloma (Yradier Köhler); Potpourri, From the Rhine to the Danube (Rhode). 1.5 p.m., Concert of Light Music on Gramophone Records. In the intervals at 1.20 and 2.0, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Market Prices. 3.30 (approx.), Programme for Children. 4.0, Concert by the Königsberg Opera House Orchestra, conducted by Wolfgang Brückner: Carnival Overture (Dvorak); The First Rhapsody (Liszt); Suite No. 1 from L'Arlesienne (Bizet); Waltz (Waldteufel); Selection from The Carnival Fairy (Käl-

mán); Overture, Morning, Noon and Night (Suppe); Triumphal March from Aida (Verdi). In an interval at 4.50, Radio Report of the ADAC Motor Races. 5.35, Review of Political Books. 5.55, Humorous Items in East Prussian Dialect. 6.15, Agricultural Prices. 6.25 (from Danzig), Zither Recital: Largo (Händel); Intermezzo from Cavalleria rusticana (Mascagni); Hungarian Gypsy Music (arr. Voigt); Solveig's Song (Grieg); Waltz from La Bohème (Puccini); Waltz (Tchaikovsky). 6.50, Weather. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Weather and News. 8.10, O alte Burschenherlichkeit (Bachelors Gay) A Cycle of Songs (Franz Hasenöhrl). 9.0, Variety Programme, with the Collaboration of the Small Station Orchestra, conducted by Eugen Wilcken. 10.0, News. 10.15 (approx.), Dance Music from Berlin (Funkstunde). 12.30 a.m. (Sunday), Close Down.

HILVERSUM

(Announced HUIZEN, 1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 4.40 p.m.).—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m., Sextet Concert: Salut à la musique (Grit); Der Wanderer (Schubert); Unter Italiens blauem Himmel (Eilenberg); Hungarian Dances Nos. 5 and 6 (Brahms); Selection from The Gipsy Princess (Kálmán); Announcements. 12.40 p.m., Programme for Children. 2.10, Festival Programme for the Thirty-Fifth Anniversary of the Coronation of Her Majesty Queen Wilhelmina, relayed from the Stadium, Amsterdam: A Choir of a Thousand Voices, conducted by Theo van der Bill, a Police Band, and the Amsterdam Gymnastic Societies. 5.10, Gramophone Music. 6.0, Press Review. 6.20, Orchestral Concert: Selection from I Pagliacci (Leoncavallo); Overture, Pique Dame (Suppe); Selection from Der Geist des Wajewoden (Grossmann); Salut d'amour (Elgar); Virginia (H. Wood); The Dwarfs' Festival (Nonck); Selection from Sigurd Jorsalfar (Grieg). In the interval at 6.40, Police Announcements and Talk. 7.55, Recitations. 8.10, News. 8.15, Concert by the K.R.O. Boys' Orchestra: Alle Männer sind wie Kinder (Meissner); In the Turkish Bazaar (Dreyer); Im Schwarzwald geht ein Mühlenrad (Rust); Potpourri, Selige Wiener Zeiten (Morena); Welcher Weg führt zum Glück (Buder); Mondnacht in Abbazia (Lesso-Balero); Dornröschens Brautfahrt (Rhode); One-step (Pensio); Five o'clock Tea with Robert Stolz (Dostal); Selection from Husarenliebe (Doelle); Die Fenster auf, der Lenz ist da (Strauss-May); Schön war's Liebling (Grothe); Slav Rhapsody (Friedemann); Old Father Thames (Wallace); Cuban Love Song (Stothart); Für Dich, mein Baby (Rötter); Finale. In the intervals, Recitations and News. 10.40, Gramophone Music. 11.40 (approx.), Close Down.

HORBY.—See Stockholm.

HUIZEN

Announced HILVERSUM, 160 kc/s, 1,875 metres; 8.5 kW. Programme of the Workers' Radio Society (V.A.R.A.).—11.40 a.m., Concert by De Notenkrakers: Stars and Stripes (Souza); Flattergeister (Strauss); Somewhere a voice is calling (Tate); Tango (Canita); Moonlight on the Beams (Lockhart); Lehár's (Geiger); Gramophone Music; Spanish Waltz (Popy); Chanson de la mer (Riccomini); Melody (Rhode). 1.40 p.m., Gramophone Music. 2.20, Talk on the Cinema. 2.40, Concert by De Flierefluiters, conducted by Ray Forest. Soloist: de Booy (Songs). 3.25, Interval. 3.40, Literary Talk. 4.0, Song Recital by de Booy: (a) Im wunderschönen Monat Mai (Schumann); (b) Ich grolle nicht (Schumann); (c) Heidenröslein (Schubert); (d) Die beiden Grenadiere (Schumann). 4.10, Selection from Mignon (Thomas) by Jong (Organ). 4.25, Concert by the Pirotigobas Orchestra, conducted by Carlquist. 4.55, Concert by the Adamsche Orkestverein Orchestra, conducted by Diepenbeek: March from Athalia (Mendelssohn); Overture, Maritana (Wallace); Czardas from Der Geist des Wajewoden (Grossmann); Ein Fest in Aranjuez (Demersman). 5.25, Concert by the Pirotigobas Orchestra (cont'd.). 5.40, Concert by the Adamsche Orkestverein Orchestra (cont'd.) with items by Billy Derby: Zeeland, hoog (Morks); Overture, The Thieving Magpie (Rossini); Danse macabre (Saint-Saëns); Aria (Bach); Willy Derby and his Repertoire; Heil Europa (von Blon); A Toi (Waldteufel); Largo (Händel); The Caravan (Asch); Overture, William Tell (Rossini). 7.40, S.O.S. Messages. 7.43, News. 7.55, Concert of Dance Music by De Flierefluiters, conducted by Ray Forest. 8.40, Concert by a Double Quartet. 9.0, Concert by the V.A.R.A. Orchestra, conducted by de Groot. Soloist: de la Rondelle (Taragota and Piccolino). Overture, Martha (Flotow); Taragota Solos: (a) Air from Martha (Flotow); (b) Si vous l'aviez compris (Denza); (c) La Paloma (Yradier); In the Mystic

Land of Egypt (Ketelbey); Piccolino Solos: (a) Fantasy (Pyr); (b) Concert Polka (Rondel); (c) Selection from Les Cloches de Corneville (Planquette); The Gladiators (Souza). 9.40, Quartet Concert (cont'd.). 9.55, Orchestral Concert (cont'd.): Gasteiner Walzer, Op. 25 (Kern); Telegramme (Strauss); Waltz (Ducheraal); Waltz (Strauss). 10.40, Recitation. 10.55, Concert by De Notenkrakers, conducted by Wins. 11.40 (approx.), Close Down.

INNSBRUCK.—See Vienna.

JUAN LES PINS

1,205 kc/s, 249 metres; 0.8 kW.—12.30 p.m., Amusement Guide and Variety Items. 1.0, News. 1.15, Radio Concert. 8.0, Amusement Guide, Financial Notes and News. 8.10, Press Review. 8.20, Radio Concert. In an interval at 9.0, News and Weather.

KALUNDBORG.—See Copenhagen.

KIEL.—See Hamburg.

KLACENFURT.—See Vienna.

KOSICE.—See Prague.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—12.30 p.m., Concert by the Fröhliche Funt. 12.50, News. 1.0, Orchestral Concert, conducted by Eysoldt: Montage March from Sigurd Jorsalfar (Grieg); Overture, The Naiads (Bennett); Selection from La Bohème (Puccini); Canzonetta (d'Ambrosio); In den Spinnstuben (Dvorak); Träume (Wagner); Ständchen (Schubert); Waltz, Herbststimmung (Lincke); Strauss Operetta Potpourri (Schögel). In the interval at 2.0, News. 2.30, Gramophone Concert. 3.30, Market Prices and Time. 3.50, A Singing Lesson. 4.10, Talk: Excursions in the Rhineland and Westphalia. 4.35, Political Address. 4.40, Friedrich Wilhelm Weber—a Radio Picture by Hildegard Schmidt. 5.0, Pianoforte Recital. 5.30, German for Germans. 5.40, Talk: The Highroads of Germany. 6.0, Concert: Gerda Schüller-Rehm (Soprano), Leonie Hähner (Pianoforte), and Mathias Durben ('Cello): Three Humoresques for Pianoforte. Op. 20 (Reger); Soprano Solos: Guckguck-Lieder, Op. 45 (Jochum); Two Grotesques, Op. 28, for 'Cello (Haas); (a) Gespenstige Stunde, (b) Koboldblume; Four Songs, Op. 76 (Reger): (a) Furchthäuschen, (b) Der Izel, (c) Die Biene, (d) Zum Schlafen; Pianoforte Solo from Wichtelmännchen, Op. 27 (Haas). 6.50, Announcements. 7.0, Transmission for all German Stations: The Good Old Days—Radio Picture (Christian Jensen), relayed from Cologne. 8.0, News. 8.5, The Symphony in B minor (Schubert) by the Station Orchestra, conducted by Buschköter. 8.30, Ruhr Gold-Choral Cantata on Westphalian Poems (Georg Nelli), relayed from Neheim. In the interval at 9.18, Westphalian Programme. 10.15, News. 10.40, All Hands on Deck—Variety Programme. 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. (from Dresden), Concert by the Pletzsch-Marko Trio. 1.0, News and Programme Announcements. 1.15, Concert from Langenberg. 2.30, News. 2.45, Programme for Children. 3.25, Wireless Hints. 3.35, Talk on Chess. 3.45, Economic Notes and Weather. 4.0, Teuchern Millenary Festival Concert, relayed from Teuchern. The Municipal Orchestra, conducted by Hüttenrauch. Overture, William Tell (Rossini); Slav Rhapsody (Friedemann); Selection from Martha (Flotow); Spanish Fantasy, A Festival in Aranjuez (Demersman); Overture, Si j'étais Roi (Adam); March (Forster). 5.30, Book Review. 6.0, German for Germans. 6.20, A Modern Dictionary. 6.30, Das Hexenlied (Max von Schillings-Wildenbruch), on Gramophone Records. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Die schöne Galathee—Comic Opera in One Act (Suppe). 9.0, Review of Agricultural Policy. 9.10, Wireless Cabaret. 10.15, News, followed by Dance Music and Light Music by the Emdé Orchestra. 12 Midnight, Close Down.

LINZ.—See Vienna.

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—7.0 p.m., Concert by the Station Orchestra. 8.0, Review of Foreign Affairs. 8.30, Programme relayed from the Fair. 9.30, Weather and News. 9.45, Concert by the Station Orchestra. 11.0 (approx.), Close Down.

LUXEMBOURG

252 kc/s, 1,191 metres; 200 kW.—French Programme. 7.30 p.m., Concert of French Music by the Station Orchestra, conducted by Henri Pénis. 8.20, Talk in French: Joseph

Hansen. 8.30, Variety Items. 9.0, News in French. 9.10, Alfred Cortot: Pianoforte Concerto in A Minor (Schumann) on Gramophone Records. 9.45, News in German. 9.55, Concert by the Station Orchestra, conducted by Henri Pénis. 10.30, Gramophone Dance Music.

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 and Topical Review. 11.20 (approx.), Song Recital and Sextet Concert, followed by Literary Programme. 1.15 a.m. (Sunday), Topical Review. 1.30, Chimes and Close Down.

MADRID

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 to 9.0, Light Music. 11.30, Concert of Popular Music. In an interval at 11.45, Radio Chronicle. 12.45 a.m. (Sunday), Light Music. 1.0 (approx.), Close Down.

MALMO.—See Stockholm.

MILAN

VIGENTINO, 662 kc/s, 453.2 metres; 4 kW.—8.45 p.m. till Close Down, See Rome.

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—2.50 p.m., Orchestral Concert. 3.55 to 4.0, See Prague. 5.0, See Prague. 5.45, Gramophone Music. 5.55, Talk: Gold. 6.5, See Prague. 6.25, Concert by a Schrammel Ensemble. 7.0, See Prague. 8.25, See Bratislava. 10.0, See Prague. 10.15, See Brno. 11.30 (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 p.m., Concert. 5.45, Programme for Young People. 6.30, Richard Mors Song Recital by Eckard Fricke (Tenor); Herbstfrieden; Ein silbernes Märchen; Das Licht; Der seltene Vogel; Wäsehe im Wind. 6.45, Wireless Notes. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, Lincke Concert by the Station Orchestra, conducted by the Composer: March, Unsere braunen Jungens; Festival Overture; Waltz, Nord und Süd; Barcarolle; Waltz, Träume der Liebe; Pinguin-Parade. 9.10, Songs and Recitations. 9.30, Dance Music. 10.20, Time and News. 11.0, Concert from Leipzig.

NAPLES.—See Rome.

NOTODDEN.—See Oslo.

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by Fredrikstad, 815 kc/s, 368.1 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.—4.30 p.m., Gramophone Records of Light Music. 5.15, Programme for Children. 6.15, Norwegian Music. 6.45, Talk on Economics. 7.0, Advertising Notes, Weather and News. 7.30, Talk on Architecture. 8.0, Time Signal. 8.2, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Tantalusquale (Suppe); Selection from Der Obersteiger (Zeller); Ballet Suite, Esmeralda (Drigo); Potpourri. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Humorous Recitations. 10.45, Dance Music on Gramophone Records. 12 Midnight, Close Down.

OSTERSUND.—See Stockholm.

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolaro Notes, Tourist Report, Agricultural Notes, Giornale Radio, and Sports Notes. 8.20, Gramophone Music. In an interval at 8.30, Time and Announcements. 8.45, Quartetto vagabondo—Operetta in Three Acts (G. Pietro). In the intervals, Book Review and News. 10.55, News.

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)—5.45 p.m., Talk on Music. 7.0, Le Journal Parlé. 8.20, L'Avare—Play (Molière). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—7.0 p.m., Gramophone Music. 7.15, Le Journal Parlé. 7.30, Sponsored Gramophone Concert. 8.0, Talk: The Event of the Week. 8.20, Gramophone Music. 8.30, Sponsored Concert. 9.10, Dance Music by the

Sonora Radio Band, conducted by Fred Hoffmann. 11.0, News.

PARIS

RADIO-PARIS, Call GFR, 174 kc/s, 1,725 metres; 75 kW.—7.30 a.m., Weather and Physical Culture. 7.45, Gramophone Records: España (Blanco); One Hour with you (Whiting); Monte Cristo (Kotlar); This comes from Paris (Selling). 8.0, Weather and Press Review. 12 Noon, Gramophone Records: Reminiscences (Kock); Fascination (Marchetti); The Forge in the Forest (Eilenberg); La Légende des Flots (Christine); Le Moulin de la Vierge (Blondiau); Rose d'Amour (Sabatier); Piccolo-Piccolo (O. Strauss); Romance (Svendsen); Xylophonia (Green); Selection from Hans the Flute Player (Ganne); Emma Livry (Pirouelle); Je t'aime (Waldteufel); Selection from The Mikado (Sullivan); Liebesfreud (Kreisler); Moorish Serenade (Chapin); The Nightingale (Alabiev); Sauter Bocé (Paradis); Blonde amie (Carcel); Suite canavalesque (Thomé); Italian Caprice (Tchaikovsky); Slav Dances (Dvorak). In the interval at 1.0 p.m., Exchange and News, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 7.0, Agricultural News. 7.10, Gramophone Records: Voici Paris (Van Hoorebeke); The Marionette (Lucchesi); Maou (Oberfeld); Réver (Bastia); A Torante (de Loos Hoyos); Chiquita (Wayne); Waltz, Künstlerleben (Strauss); Les enfants terribles (Corbijn); En relisant vos lettres (Masson); at Twilight (Francey). 7.50, Commercial Prices and News. 8.0, Gramophone Concert with Songs: Viennese Rhapsody (Schmitt); Songs; Rhapsody (Brahms); Marino in his Repertoire: Moment musical (Schubert-Kreisler); Ronde villageoise (Chabrier); Rhythmes délaissés (Dulcroze); Vivat Flamand (Robillard); La Re traite (de Rille); Two Waltzes (Chopin); Noctette (d'Ambrósio); Dance of the Hours from La Gioconda (Ponchielli); Clair Matin (Jeanjean); Escaldas (Ibert); España (Chabrier). In the intervals at 8.30, News and Weather, and at 9.15, Press Review and News.

PITTSBURGH

KDKA, 980 kc/s, 306 metres; 50 kW. Relayed by W8XK on 48.85 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 Favorites. 10.0, Casino Orchestra. 10.30, Neil Sisters. 10.45, Orphan Annie. 11.0, News, Piano Classique. 11.15, Sports, A Song. 11.30, A Recreo—Bill and Alex. 11.45 to 12.30 a.m. (Sunday), New York Relay. 11.45, Orchestral Music. 12.0, Baritone Solos by Ross Pearson. 12.15, Annie, Judy and Zeke. 12.30, Jack Pettis' Orchestra. 1.0, Jack Denny's Orchestra, from New York. 1.30, Brown and Llewellyn, from New York. 1.45, Programme to be announced. 2.0, Tales of the Titans, from New York. 2.30, Programme to be announced. 3.15, Behind the Law.

PORSGRUND.—See Oslo.

POZNAN

896 kc/s, 335 metres; 1.0 kW.—7.20 p.m., Miscellaneous Items and News. 7.35, Theatre Notes and Programme Announcements. 7.40, See Warsaw. 10.0, Time Signal, Sports and Police Notes. 10.15, Dance Music from the Esplanade Café. 11.0 (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—2.50 p.m., See Moravská-Ostrava. 3.55 to 4.0, Weather. 5.0, Jaroslav Vichlicky Memorial Programme, relayed from Vysehrad Cemetery. 5.45, Gramophone Music. 5.55, Talk: The Teeth. 6.5, Agricultural Report. 6.10, Gramophone Music. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Talk: Max Reinhardt. 7.0, Chimes and News. 7.10, Relay of a Military Band (concert: March (Zita); Overture, Raymond (Thomas); Selection from In the Well (Blotek); Slav Dance No. 7 (Dvorak); Johann Strauss Potpourri (Schlögel); Gavotte (Oberthor); Melody (Pesta); March (Potuznik). 8.10, Talk: Studying Law at a University. 8.25, See Bratislava. 10.0, Time and News. 10.15, See Brno. 11.30, Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW; and Geneva, 395 kc/s, 760 metres.—6.15 a.m. (from Lausanne), Gymnastics. 6.30, Interval. 12.28 p.m., Time Signal from Neuchâtel Observatory. 12.30, News. 12.40 (from Geneva), Gramophone Concert. In the interval at 1.10, Financial Report. 2.0, Interval. 3.28, Time Signal from Neuchâtel Observatory. 3.30 (from Geneva), Gramophone Concert. 4.30 (from Lausanne), Programme for the Opening of the Swiss Chamber of Commerce. Address and Concert.

SEPT. 9th

SATURDAY

continued

5.30, Interval. 7.0 (from Lausanne), Talk: How Popular Novels are Manufactured. 7.20, News. 7.31 (from Lausanne), Talk. 8.0, Concert by the Radio Suisse Romande, conducted by Echenard. 9.0 (from Lausanne), Viennese Programme—Music and Talk. 9.50, News. 10.0 (from Neuchâtel), Dance Music from the Rotonda. 10.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Musical Programme. 9.30, Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes and News. 10.30, Reading. 11.0, Concert by the Radio Trio, Choral Music on Gramophone Records, and Dance Music. 2.0 a.m. (Sunday), Close Down.

RJUKAN.—See Oslo.

ROME

Call 1RO, 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.—12.30 p.m., Gramophone Music. 1.0 p.m.—2.0, Orchestral Concert. In the interval from 1.15 to 1.20, Talk on Photography, and from 1.20 to 1.45, Giornale Radio. 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. 6.40 (Naples), Shipping and Sports Notes. 6.45, Wireless Signals and Dopplavoto Report. 7.0, Tourist Report. 7.10, Agricultural Report and Market Prices. 7.20, News in Foreign Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.15, Gramophone Music. 8.25, Giornale Radio and Sports Notes. 8.30 (approx.), Sponsored Concert. 8.45, Symphony Concert, conducted by Riccardo Santarelli. Symphony in G. No. 13 (Haydn). Scherzo and March from A Midsummer Night's Dream (Mendelssohn); Talk on Literature and Art. Bourrée fantasque (Chabrier); Selection from Conchita (Zandonai); Selection from Casanova a Venezia (Plick-Mangiagalli); Overture, Rienzi (Wagner); Reading of Poems. 10.30, Dance Music from the Casina Valadier. 10.55, Giornale Radio.

SALZBURG.—See Vienna.

SCHENECTADY

WGY, 730 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. (Sunday), Stock Reports and Baseball Scores. 1.0 to 4.0, New York Relay. 1.0, Rainbow Reflections. 1.30, Antibal's Cubans. 2.0, Soloist Programme. 2.15, Four Horsemen. 2.30, K-7, Secret Service Spy Story. 3.0, B. A. Rolfe and his Orchestra. 4.0, 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, Interval. 11.59, Time Signal from Neuchâtel Observatory and Weather. 12 Noon to 6.30 p.m., Programme from Berne. 12 Noon, Chamber Music on Gramophone Records. 12.30, Time, Weather, and News. 12.40, Gramophone Music. 1.25, Time, Weather, and Exchange. 1.30, Answers to Correspondence. 1.45, Book Review. 2.5, Ballads on Gramophone Records. 2.30, Report from the Solenne Industrial Exhibition. 3.0, Concert. 3.30, Interval. 5.0, Songs and Recorder Solos by a Village School. 5.30, Light Music on Gramophone Records. 6.0, Talk: Motor Cars and Motor Travel. 6.30 (from Basle), Programme for Children. 7.0, Chimes from Zürich Churches. 7.15 till Close Down, Programme from Basle. 7.15, Time, Weather, and Market Prices. 7.30, Opera and Overture and Music on Gramophone Records. 8.0, Topical Talk. 8.30, Programme to be announced. In the interval at 9.0, News. 10.40, Gramophone Dance Music. 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., Concert by Herman Martensson's Ensemble: Overture, Nebuchadnezzar (Verdi); Barcarolle (Waldteufel); Tango (Albeniz); Bizet Potpourri (Urbach); Minnet (Hocherlin); Waltz, Swedish Melodies (Sandell); Nach-

spiel (Peterson-Berger). 5.5, Talk: A Day in an English School, relayed from Uppsala, 662 kc/s, 453.2 metres. 5.30, Gramophone Music. 6.30, Talk, relayed from Uppsala. 7.0, Song Recital by Asta Lindelöw, relayed from Malmö, 1,301 kc/s, 231 metres. 7.15, Weather and News. 7.30, Pettersson and Bendel—Radio Comedy (Waldemar Hammenhög). 9.15 (from Sundsvall), Old Dance Music. 10.0, Dance Music by Enders Augmented Orchestra and a Tango Orchestra. 12 Midnight (approx.), Close Down.

STRASBOURG

899 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, Variety Music on Gramophone Records. 2.0, Legal Talk in German. 2.15, Classical Music on Gramophone Records. 2.45, Talk on Emmanuel Chabrier. 3.0, Interval. 3.30, Orchestral Concert, conducted by Broutillac, relayed from the Casino, Vichy: Overture, Sémiramis (Rossini); Aubade aux mariés (Lacombe); Aubade printanière (Lacombe); Orchestral Suite (Chaminade); Melody, En hiver (Févet); Selection from The Huguenots (Meyerbeer); Waltz, Amour et printemps (Waldteufel). 5.0, Gramophone Music. 5.15, Orchestral Concert, conducted by Roskam: March, Eyes Right (McKnight); Waltz, Carlotta (Millocker); Selection from Flup (Szulc); Melody (Kálmán); Roses at Dawning; Wherever you are; English Waltz, Petite princesse (Silesius); Intermezzo, The Phantom Brigade (Myddleton); Foxtrot from Die Dreigroschenoper (Weill); Tango from Countess Maritza (Kálmán); Saxophone Solo; Waltz, Ah! Annabella (Nelson); Foxtrot, My Darling (Meyers); Two Step, Ananida (Grundland). 6.15, French Elocution Lesson. 6.30, Gramophone Concert of Light Music. 7.0, Tourist Talk. 7.15, Agricultural Talk. 7.30, Time and News. 7.45, Gramophone Music. 8.0, Press Review in German, Lottery Results and Announcements. 8.30, Three One-Act Plays: (a) Tanta Octavie (Paul Bonhomme and Funk-Brentano); (b) La comédie de l'homme qui épousa une femme muette (Anatole France); (c) Embrassons-nous Folleville (Labiche). 10.30, Press Review. 10.35, 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, 570 metres.—12.20 p.m., A Non-Stop Flight round the World—Gramophone Concert. 1.30, Concert from Langenberg. 2.30, Time and News. 2.50, Young People before the Microphone. 3.0 (from Mannheim), German Folk Songs for Two Violins, Viola and Cello (arr. Kázmayer). 3.30, Programme for Young People. 4.30, Concert from Munich. 5.45 (from Karlsruhe), Talk: The Life of the Blind. 6.10, Talk: German Culture among Germans outside the Reich. 6.35, Time and News. 7.0, Transmission for all German Stations, relayed from Langenberg. 8.0, See Leipzig. 9.0, Variety Programme from Frankfurt. 10.30, Time and News. 10.50, Concert from Leipzig. 12 Midnight, Close Down.

SUNDSVALL.—See Stockholm.

TOULOUSE

779 kc/s, 385 metres; 8 kW.—6.0 p.m., News. 6.15, Light Music. Minnet from the Quartet in D Minor (Mozart); Chanson triste (Tchaikovsky); Viennese Song (Stolz); Air (Martin). 6.30, Opera Music. Arias from: (a) Samson and Delilah (Saint-Saëns); (b) The Magic Flute (Mozart); (c) Philémon et Baucis (Gounod); (d) Don Giovanni (Mozart). 6.45, Orchestral Music. 7.0, Songs. 7.15, News. 7.30, Petite Suite (Debussy), by the Symphony Orchestra. 7.45, Music from Sound Films. 8.0, Orchestral Music. Glow-Worm Idyll (Lübeck); March of the Bedouins (Oschelt); Pavane pour une Infante défunte (Ravel); Old Spanish Song (Aubert); Waltz, Sphärenklänge (Strauss). 8.30, Light Concert. 9.0, Offenbach Concert. Overture, Orpheus in the Underworld. Airs from (a) La périoche; (b) The Grand Duchess of Gerolstein; (c) The Drum Major's Daughter; Barcarolle from The Tales of Hoffmann (Offenbach); Air from La belle Hélène. 9.30, Music by a Viennese Orchestra. 10.0, Operetta Music. 10.15, North African and Local News. 10.30, Concert for Listeners in Morocco. Slav Dances, Nos. 6 and 8 (Dvorak); Aria from L'Africaine (Meyerbeer); Air from: (a) White Horse Inn (Benatzky); (b) Melody (Erwin); The Bees' Wedding (Mendelssohn). 11.0, Request Concert. Hawaiian Guitar: O Sole mio (di Capua); Melody (Ténaro); Air from La Juive (Halévy); Melody (Erwin). 11.15,

Dance Music. 12 Midnight, News. 12.5 a.m. (Sunday), Organ Recital. A Perfect Day (Jacobs-Bond); Simple Aven (Thomé); Popular Scottish Songs. 12.15, Orchestral Music. 12.30 (approx.), 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

1,093 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.—5.20 p.m., Gramophone Music. 6.0 to 6.5, Weather Forecast. 6.35, Giornale Radio, Talk, Gramophone Music and Dopplavoro Announcements. 7.0, Time, Tourist Report and Gramophone Music. 7.10, Agricultural Notes and Market Prices. 7.26, News in Foreign Languages. 7.40, Gramophone Music. 8.0, Announcements, Giornale Radio, Sports Notes, Weather and Problems. 8.30, Talk: Events and Problems. 8.45, Symphony Concert, conducted by Ugo Tansani. In the interval, Book Review. 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 Announcements in Various Languages. 8.0 to 8.15, 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 Holzer. In the interval at 1.0 p.m., Time, Weather and News. 2.0, Interval. 3.0, Time, Weather and Exchange. 3.15, French Lesson. 3.35, Reading of Religious Poems. 4.0, First Full Session of the German Catholic Conference, relayed from the Stadium: Psalm No. 75 for Mixed Choir and Wind Instruments (Springer); Opening Address by Dr. Imtizer, Cardinal-Archbishop of Vienna; Address by the Papal Legate and Address of Welcome by Dr. Dollfus; Speeches by Dr. Alfred Verdross and Dr. Kurt Schuschnigg, Cabinet Minister; Congregational Singing. 6.0, Talk on Max Reinhardt for his Sixtieth Birthday. 6.25, Concert by a Zither Society. 7.0, Today's Motto. 7.5, Topical Talk. 7.15, Time, Weather and News. 7.25, Song Recital by Adele Kern. 8.5, Report on the German Catholic Conference. 8.15, Aus Befehl der Herzogin—Operetta in Three Acts (Grünhagen). In the interval at 10.0 (approx.), News, Weather and Exchange. 10.40, Gramophone Music.

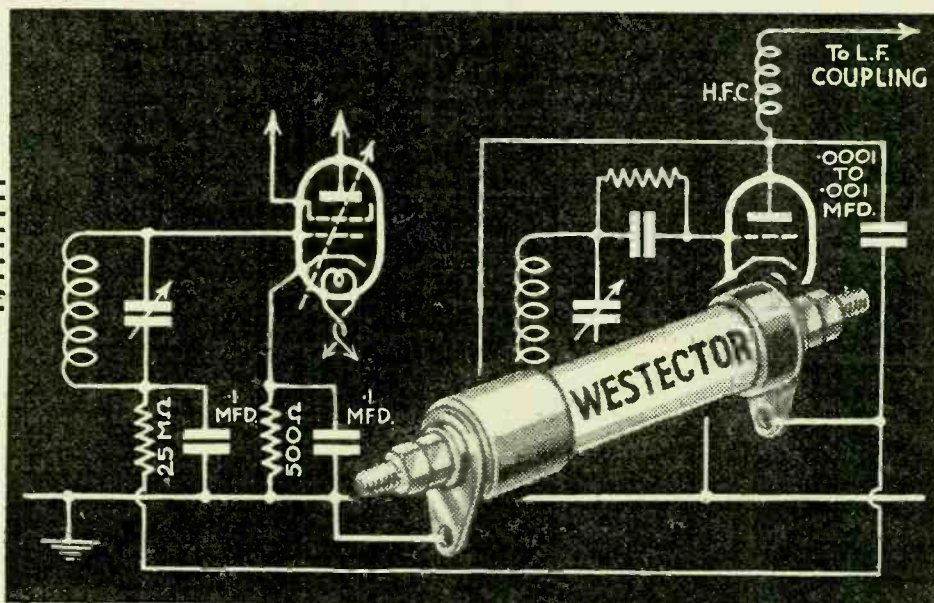
WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57 a.m., Time Signal and Chimes from the Cathedral of Torun. 12.5, Gramophone Music. 12.25, Polish Press Review. 12.35, Weather. 12.55, Radio Journal. 1.0 to 2.55, Interval. 2.55, Gramophone Music. 3.5, News. 3.10, Announcements. 3.15, Gramophone Music. 3.25, Economic Notes. 3.35, Gramophone Music. 4.0, Programme for Invalids, relayed from Lwow, 785 kc/s, 381 metres. 4.30, Song Recital by Mme. Ostrowska Two Songs (Brahms); Traum durch die Dämmerung (R. Strauss); Zueignung (R. Strauss); The Swan (Szymanowski); Song (Pankiewicz). 5.0, Topical Talk. 5.15, Concert of Light Music. 6.15, Talk on the Prairies of Canada, relayed from Cracow, 959 kc/s, 312.8 metres. 6.35, Song Recital by Mme. Lipowska: Songs (Brahms); (a) Sonntag; (b) Song; (c) Edeleinsamkeit; (d) Wie bist du, meine Königin; Song (Moniuszko); The Swallow (Zelenski); Jasna Lędica (Rozyci); Song (Noskowski); Aria from The Huguenots (Meyerbeer). 7.5, Gramophone Music. 7.20, Miscellaneous Items. 7.35, Programme Announcements. 7.40, Reading: The Nightingale and the Rose (Oscar Wilde). 8.0, Concert by the Station Orchestra, conducted by Navrot: Comedy Overture (Kela Beier); Stephanie Gavotte (Zibulka); Oberkis (Namsyloski); Interlude of Songs; Overture to an Opera (Janota); Boston from Schön ist die Welt (Lehar); Interlude of Songs; Waltz, Frühlingstimmen (Strauss); Czardas from The Countess Maritza (Kálmán); Pavane (Mariotti); Mazurka (Namsyloski). 9.5, Radio Journal. 9.15, Agricultural Notes. 9.30, Concert of Polish Music: Love Song (Stojowski); Melody (Rozyci); Cracovienne No. 4 (Zarambski); Theme with Variations (Brzezinski). 10.0, Dance Music. 10.25, Sports Notes. 10.35, News, Weather and Police Notes. 10.40, Dance Music.

ZURICH.—See Schweizerischer Landessender.

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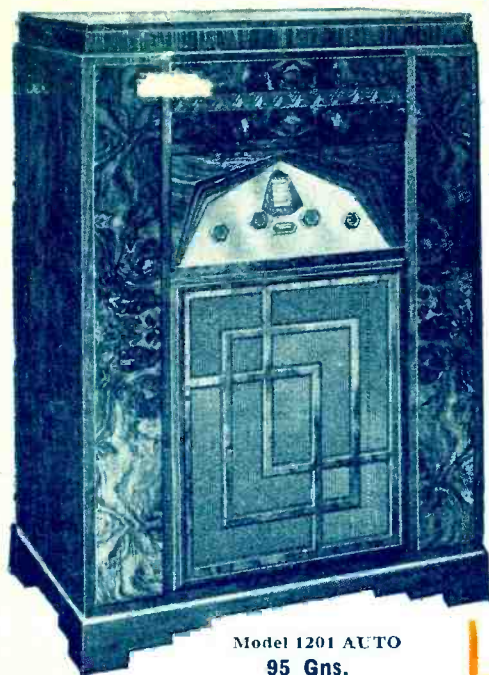
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Model 1201 AUTO
95 Gns.

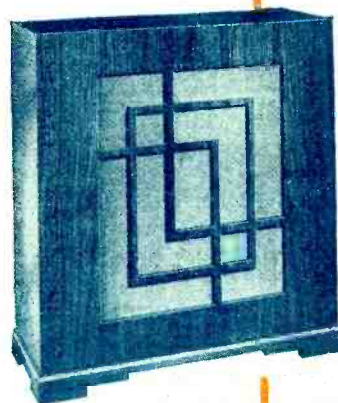
Model 1201 Auto (A.C.)

Circuit. A 12 valve superheterodyne Radio Gramophone comprising the following:—Variable mu H.F. stage, band-pass coupled to variable mu first detector, triode oscillator, variable mu intermediate stage having six tuned band-pass circuits, followed by a double diode triode valve serving the purpose of the second detector, and **delayed action amplified automatic volume control** operating on three H.F. stages. A further triode valve is used to suppress unwanted noise when tuning between stations. The L.F. amplifier is housed in a separate chassis, and is unique in that resistance-coupled push-pull coupling is used throughout, employing a special circuit. The output stage has an **output of six watts**. *Controls.* Tuning by single control operating illuminated wavelength scale. **Tuning of stations assisted by special visual tuning device which indicates exactly when the station is in tune.** Combined volume control for Radio and Gramophone; tone control; mains switch and gramophone wave-change switch combined. *Speakers.* Twin matched energised moving coil units, mounted on special sub-baffle. Provision for use of external speakers. *Gramophone.* Automatic record changer, enabling eight 10in. or 12in. records to be played in sequence, rejected or repeated as desired, fitted with induction motor and pick-up of improved design. *Cabinet.* Of modern design, made in finely grained figured walnut. Also obtainable in special finishes, and **also in ultra modern design.**

Model 1201 is identical with Model 1201 Auto except that Gramophone is not automatic.

1201 Auto	...	95 gns.
1201	...	86 gns.

(Model 1201 Auto supplied with doors at £16:10:0 extra.)



S.P.M. 12
Dual Matched
Loud Speakers.

The R.G.D. Type S.P. M12 consists of a pair of matched Permanent Magnet Moving Coil Speakers, and is designed for use with Type W12 Auto Amplifier, or with any R.G.D. Radio Gramophone Input capacity 12 watts undistorted A.C. The cabinet is of heavy and entirely non-resonant walnut of modern design. Dimensions 26in. x 24in. x 9in. deep.

12 Gns.

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Makers of "Olympia's Prizewinner for Two Consecutive Years."

"The Aristocrats of the Radio World"

These new models are a triumph of design, construction and performance, and have justly earned the title of "The Aristocrats of the Radio World." They embody all the qualities associated with the famous 901 model, and possess, in addition, refinements of the highest importance to perfect reception and reproduction. Guesswork in tuning stations is entirely eliminated; the visual tuning device shows when a station is tuned with critical accuracy. Automatic amplified volume control and silent tuning are other refinements. To hear these new models is to enjoy radio and gramophone reproduction as never before; realism and tonal beauty that defy description and evoke the highest praise.

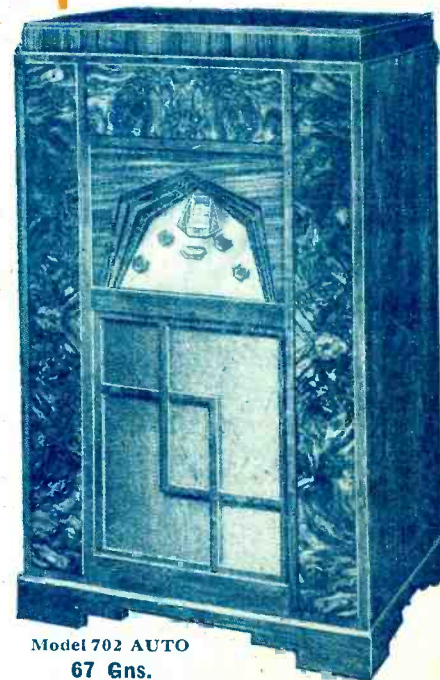
Model 702 Auto (A.C. or D.C.)

Circuit. A 7 valve superheterodyne Radio Gramophone, comprising the following features:—Variable mu H.F. stage, variable mu first detector, triode oscillator, variable mu intermediate stage, incorporating 7 tuned circuits (4 band-pass), followed by new double diode triode valve, giving diode rectification, **delayed action automatic volume control**, operating on three H.F. stages, also combined with which is the first L.F. stage. This is resistance-coupled to triode output stage, giving an **undistorted output of 2½ watts**. *Controls.* Tuning by single control operating illuminated scale calibrated in wavelengths. Tuning of stations assisted by **special visual tuning device, which indicates exactly when a station is in tune.** Combined volume control for Radio and Gramophone, tone control and main switch; Radio-Gramophone and wave change control combined. *Gramophone.* Automatic record changer enabling eight 10in. or 12in. records to be played in sequence, rejected or repeated as desired, fitted with induction motor and pick-up of improved design. *Cabinet.* Of improved design in figured and burr walnut, also obtainable in special woods and finishes, and **also in ultra modern design.** *Speakers.* Field energised twin matched moving coil speakers and provision for external speakers.

Model 702

Circuit. A 7 valve superheterodyne Radio Gramophone having the same specification as the 702 Auto, except that the Gramophone is not automatic in action.

702 Auto	...	67 gns.
702	...	58 gns.



Model 702 AUTO
67 Gns.

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