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The Wireless World

THE PRACTICAL RADIO JOURNAL *with*

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Friday, May 5th, 1933.

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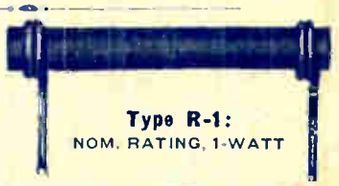

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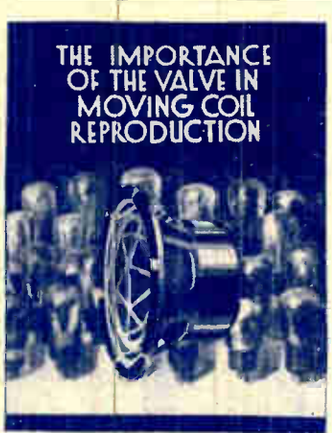

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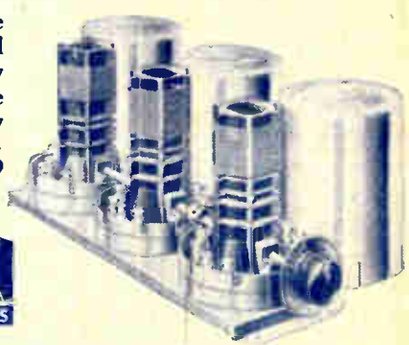

TELSEN RADIO COMPONENTS

Announcement of the TELSEN ELECTRIC CO., LTD., ASTON, BIRMINGHAM

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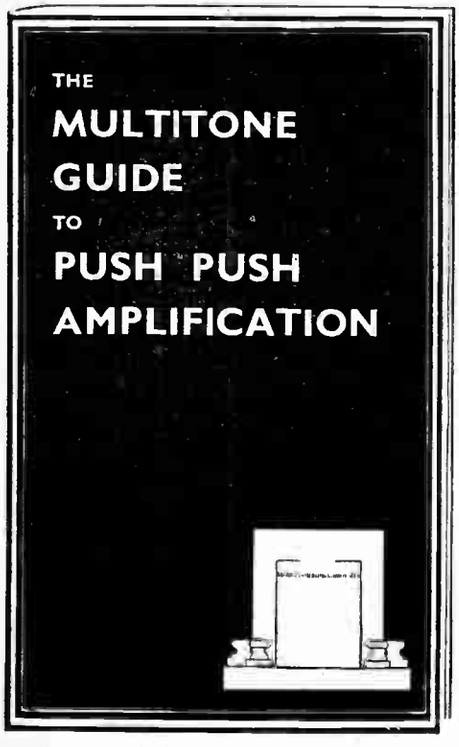

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ELECTRIC COMPANY LIMITED
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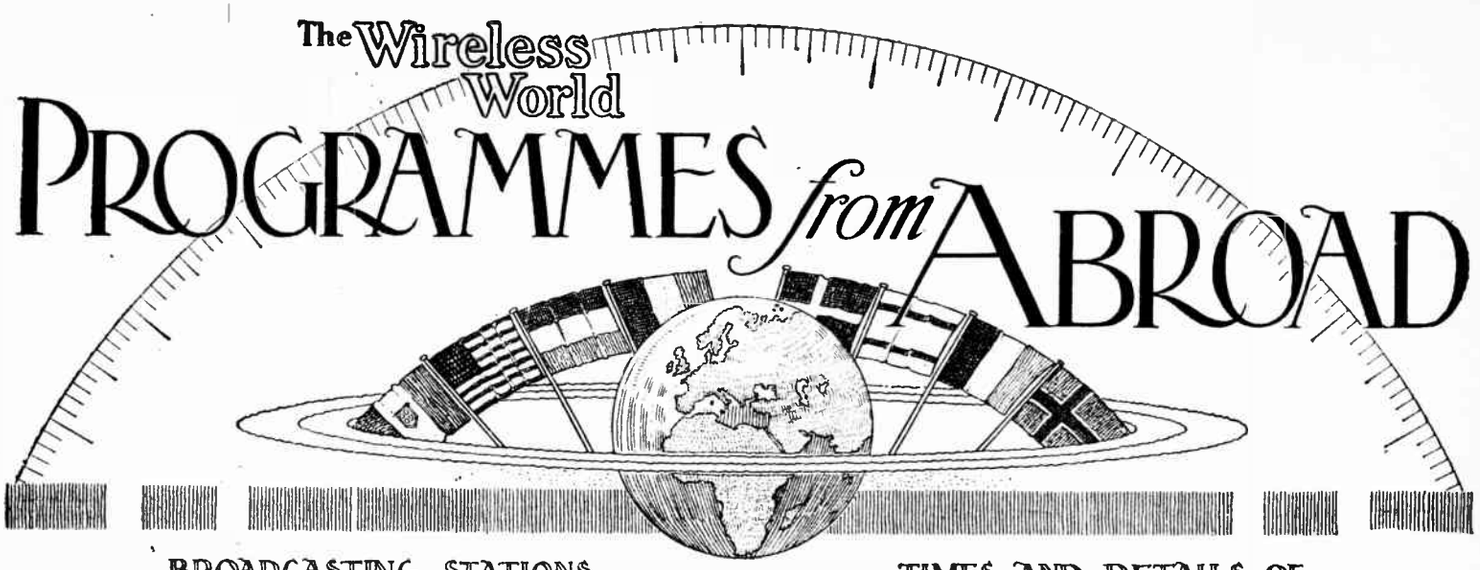
The Wireless World

PROGRAMMES from ABROAD



BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, 1FI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	

Metres.	Kc.	kW.	Station.	Tuning Positions.
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, IRO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1. Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
309.9	968	50	West Regional (*Reception Tests 11.10—11.50 a.m.*)	
312.8	959	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*)	
293.5	1022	0.7	Limoges, PTT (ance)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
287.3	1022	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on* 31.25 *m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.25	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (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.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 10.00–13.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 21.30, *Sun.* 15.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 07.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 01.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 13.20 *and* 08.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 20.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIUI	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 13.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 20.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 04.00, *Sat.* 08.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 21.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 01.00–06.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 02.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 17.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 14.00, *Thurs.* 16.00, *Sat.* 21.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 21.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 10.00, 15.00 |*Sat.* 15.30| *and* 18.00, *Sun.* 14.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 14.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 01.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 16.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 24.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HCJDR	Quito, Ecuador. (*Daily* 02.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 02.00 *Sun.* 03.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 04.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 23.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 16.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 15.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 17.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 11.00–15.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 21.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 22.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 22.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 22.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 11.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 14.00)	
31.35	9,570	SRI	Posen (Poland). (*Tues. and Thurs.* 18.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 22.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 11.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 23.00–01.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 03.00–06.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 00.30) *Sat.* 19.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 20.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 23.00 *and* 03.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 21.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 11.30–13.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.30.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 18.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 21.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 19.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 *and* 20.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.4	11,933	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 12.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 20.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 17.00 *and* 22.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 11.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 14.00–18.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 19.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 22.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 14.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 22.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MAY THE SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"Council of the Infernal Peers," a play by John Milton.
LONDON and MIDLAND REGIONAL	Service from St. Martin's Parish Church, Birmingham.
NORTH REGIONAL	Service from Trinity Presbyterian Church, Claughton, Birkenhead.
WEST REGIONAL	Choral programme.
SCOTTISH REGIONAL	Service from St. Cuthbert's Church, Edinburgh.
BELFAST	Service from Great James' Presbyterian Church, Londonderry.

ABROAD

BERLIN (Witzleben)	8.20 p.m. Brahms concert, conducted by E. Jochum, from the Philharmonie.
BUDAPEST	6.50 p.m. Brahms centenary concert, conducted by E. Dohnanyi, from the Opera House.
HEILSBERG	12.20 p.m. and 9.20 p.m. Relay of Brahms Festival from the Staathalle, Königsberg.
LEIPZIG	5.45 p.m. Brahms clarinet quintet in B minor.
MUNICH	8 p.m. Brahms symphony concert.
PRAGUE	6 p.m. Brahms concert.
ROME	5 p.m. Concert, conducted by Clemens Kraus, from the Augusteo.
STOCKHOLM	8 p.m. Brahms concert.
WARSAW	12.15 p.m. Brahms concert.
VIENNA	7.35 p.m. Memorial concert at the grave of Johannes Brahms, from the Central Cemetery (relayed by German stations).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.31,** Mai Vize's Instrumental Trio. **8.50,** Progress: A Radio Drama, by Dorothy Day and Company. **9.50,** Instrumental Trio. **10.10,** Mezzo-Soprano Solos by Elizabeth Downey. **10.25,** Uilleann Pipe Solos by Leo Rowsome. **10.40,** Light Music on Gramophone Records. **11.0,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW. **12 Noon,** Chimes from the Cathedral and Weather Forecast. **12.15 p.m.,** Concert by the Barcelona Municipal Band, relayed from the Palacio de Bellas Artes. **2.0,** Light Music on Gramophone Records. **2.30** (in an interval), Theatre Notes. **3.0,** Film Review and Concert by the Station Sextet. **4.0,** Programme for Hospitals and other Benevolent Institutions. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk, followed by Popular Music on Gramophone Records. **7.0,** Concert by the Station Orchestra. **7.40,** Guitar Recital by Rosa Rodés. **8.0,** Concert by the Station Orchestra and Mercedes Casas (Soprano). **9.0,** Dance Music, relayed from the Hollywood Bar. **10.0,** An Opera on Gramophone Records. **11.45,** Chess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**11.5,** Sacred Music, relayed from the Church of San Domenico. **11.30,** Bible Reading. **1.0 p.m.,** Giornale Radio. **1.10,** Popular Music on Gramophone Records. **1.55,** Weather. **2.0,** Time and Announcements. **3.0,** See **Turin. 5.30 to 6.30,** Light Music on Gramophone Records. In an interval, Sports Notes. **8.0,** Sports Notes. **8.20,** Giornale Radio. **8.25,** Weather. **8.30,** Time and Announcements. **8.35,** Concert of Songs and Operetta Music. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg. 12.55,** Time Signal. **1.0,** Concert from **Breslau. 2.0,** Talk for Parents. **2.30,** Spring Songs by Children. **3.0** Talk: The German Sagas and their Importance for German Youth. **4.0,** Programme from **Frankfurt. 4.30,** Report of the Final of the German Rugby Football Match. **5.0,** Talk by Dr. Fellinger; Brahms in my Parental Home. **5.20,** Concert from **Frankfurt** (contd.). **6.0,** Talk: Great German Mystics. **6.30,** Recital of Richard Strauss Songs by Maria Peschken: Nacht; Georgine; Ruhe, meine Seele, Meinem Kinde; All mein Gedanken; Heimkehr; Geduld; Schlechtes Wetter; Heimliche Aufforderung. **7.0,** See **Stuttgart. 7.35,** See **Vienna. 8.0,** See **Frankfurt. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Water Polo Report, Dance Music and Light Music from **Berlin (Witzleben). 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW. **11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg. 12.15 p.m.,** See **Breslau. 2.0 to 2.30,** Talk for Parents. **3.0,** Sports Notes. **3.20,** Talk for Young People: German Colonies. **4.0,** Concert of Light Music from the Krollgarten. **4.40,** Report of the Final of the German Rugby Football Match. **4.55,** Concert (contd.). **5.40,** Music by the Berlin Wireless Chorus. **6.0,** A Gramophone Report of the Cycling Endurance Test from the Wannsee Stadium. **6.15,** Mental Exercises. **6.40,** Concert by the Bernard Derksen Band, with Franz Baumann (Tenor). **7.30,** Announcements. **7.35,** See **Vienna. 8.0,** See **Frankfurt. 8.20,** Brahms Concert by the Berlin Wireless Orchestra, conducted by Eugen Jochum, relayed from the Philharmonie: Concerto in D for Violin and Orchestra, Op. 77; Symphony No. 4 in E Minor, Op. 98. **10.10,** Weather, News, and Sports Notes, followed by Programme of Light Music and Dance Music. In an interval at **11.0,** Radio Report from the Lunapark of the Second Half of the Match between the Hungarian and German Water-polo Teams (on Gramophone Records). **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** Radio Journal. **7.45,** Sports Notes. **8.0,** Talk for Ex-Service Men. **8.15,** Lottery Results. **8.30,** Light Music on Gramophone Records. **9.0,** Italian Song Recital.

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW. **12.5 p.m.,** Concert by the Bratislava Sokol Band, conducted by A. Votypka. **1.20,** Agricultural Talk. **2.0,** See **Prague. 2.15,** Hydrographical Report. **2.20 to 4.0,** Interval. **4.0,** See **Moravská-Ostrava. 5.30,** See **Prague. 5.45,** Concert of Light Music by the Station Orchestra. **7.0,** See **Prague. 8.0,** See **Moravská-Ostrava. 8.50 to 11.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.15 a.m.,** See **Hamburg. 12.15 p.m.,** Concert of Operetta Music by the Station Orchestra, conducted by Franz Marszalek. **2.0,** Announcements. **2.10,** Poetry Reading (Trangott Conrad). **2.25,** Talk on the Forest of Bohemia. **2.40,** Talk: Characters in German Folklore. **3.0,** Programme for Children. **3.30** (from **Gleiwitz**), The Old Fortified Town of Cosel: Radio Report from the War Heroes' Memorial Celebrations. **4.30,** Running Commentary on the Second Day of the German Motor Cycle Road Races, relayed from the Gross Wartenberger. **5.15,** Concert by the Karl Hulden Orchestra, relayed from the Drei Berge Hotel, Hirschberg. **6.40,** Songs to the Lute by Elsa Laura von Wolzolgen. **7.5,** Sports Results. **7.15,** Weather for Farmers. **7.20** (approx.), Reading. **7.35,** See **Vienna. 8.0,** Brahms Memorial Concert: Quintet in F Minor, Op. 34, for Pianoforte, Two Violins, Viola, and 'Cello; Quintet in B Minor for Clarinet, Two Violins, Viola, and 'Cello. **9.20,** Announcements. **9.30,** Reading of Brahms' Anecdotes. **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.20,** Concert from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**10.30 a.m.,** Literary Talk. **11.0,** Concert by the Station Orchestra, conducted by Bretislav Bakala; Soloist, Jana Rautsova (Soprano). **12 Noon,** See **Prague. 12.5 p.m.,** See **Bratislava. 1.30,** See **Prague. 2.0 to 2.15,** Agricultural Report. **4.0,** See **Moravská-Ostrava. 5.30,** Variety Programme. **6.0 to 6.45,** German Transmission: Brahms Centenary Concert. **7.0,** See **Prague. 8.0,** See **Moravska-Ostrava. 8.50,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**9.45 a.m.,** Agricultural Hints. **10.0,** Concert by the Small Station Orchestra, conducted by Leemans. **12 Noon,** Concert by Mickey's Club Jazz Attraction. **1.0 p.m.,** Le Journal Parlé. **1.10,** Light Music on Gramophone Records. **1.30,** The Proposal Sketch (Laville). **1.40,** Gramophone Records (contd.). **2.0,** Running Commentary on the Holland v. Belgium Football Match, relayed from Amsterdam. **5.0,** Concert of Dance Music by the Station Orchestra, conducted by Franz André. **5.30,** Football Results. **6.0,** Reading of Love Poems. **6.10,** Popular Music on Gramophone Records. **6.30,** Poetry Reading. **6.45,** Concert by the Small Station Orchestra, conducted by Leemans: Overture, Zampa (Herold); Waltzes from Eva (Lehár); Little Grey Home in the West (Lohr); Selection from La Bohème (Puccini); Slav Rhapsody No. 2 (Friedmann). **7.15,** Religious Address. **7.30,** Wireless Notes and Music Review. **8.0,** Gala Concert by the Station Orchestra; Conductor: Franz Ruhlmann; Soloist: Mlle. Elsa Ruhlmann (Songs): Symphony in E Flat (Mozart); Songs: (a) Arias from Figaro (Mozart), (b) Wiegenlied (Mozart); Overture, Figaro (Mozart). **8.45,** The Belgian Author, Henri Conscience—Talk and Readings. **9.0,** Concert (contd.): Escales (Ibert); Song from Scheherazade (Ravel); The Camp of Wallenstein (d'Indy). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records of Light Music. **10.30,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**10.0 a.m.,** Concert by the Royal Conservatoire Orchestra, relayed from Gand; Conductor: Martin Lunssens; Soloist: Simone Vanmaeldeghem (Pianoforte). **12 Noon,** Gramophone Concert of Variety Music. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **2.0,** Running Commentary on the Holland v. Belgium Football Match, relayed from Amsterdam. **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **5.30,** Sports Results. **6.0,** Gramophone Records: Overture, Faust (Wagner), Ballet Music from El amor brujo (Falla). **6.30,** Brahms Song and Pianoforte Recital by Paula and M. de Backer: Songs: (a) Die Mainacht, (b) Auf dem Kirchhofe, (c) Der Schmied; Pianoforte Solo: Rhapsody, Op. 79, in G Minor; Songs: (a) Ständchen, (b) Sapphische Ode, (c) Sonntag, (d) Von ewiger Liebe. **7.3,** Quartet in F (Haydn), on Gramophone Records. **7.15,** Religious Address. **8.0,** Concert by the Radio Orchestra and Soloists; Conductor: Franz André. In an interval at **8.45,** Recital of Mediæval Poems. **10.0,** Journal Parlé. **10.10,** Gramophone Concert of Light Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Jean Marco Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Talk on Brahms. **8.0,** Brahms Centenary Concert by the Station Orchestra, conducted by Michel Jora; Soloists: Mme. Ghibus (Songs) and Mme. A. Cionca-Pipos (Pianoforte): Songs; Concerto for Pianoforte and Orchestra; Serenade. In the interval at **9.0,** Talk. **10.0,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **6.40 p.m. to 12 Midnight.**—**8.45 a.m.,** News Bulletin. **9.10,** Relay from the Budapest International Fair. **10.0,** Divine Service. **11.0,** Relay of Sacred Music and Address. **12.15 p.m.,** News Bulletin. **12.30,** Relay from Budapest International Fair. **2.0,** Classical Music on Gramophone Records. **3.0,** Agricultural Report. **3.30,** Relay from the Budapest International Fair. **4.50,** News Bulletin. **5.0** (approx.), Concert by Bela Veneczell (Songs), Stefan Lugossy (Tárogato) and the Eugen Pertis Cigány Band. **6.10,** Reading. **6.40,** Introductory Talk to the following Transmission. **6.50** (approx.), Brahms Centenary Concert, conducted by Ernst Dohnanyi, relayed from the Opera House. Soloist: Erna Rubinstein (Violin). Tragic Overture; Violin Concerto in D Minor; Symphony, No. 1, in C Minor. **8.30,** News Bulletin. **8.45,** Bunter Abend, followed by Music by the Julius Horvath Cigány Band, with Paul Kalmar (Songs), relayed from the Café Ostende. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **10.0 a.m.,** Divine Service, relayed from Ribe Cathedral. **11.30,** Weather Forecast. **11.40,** News. **12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** Concert by the Radio Orchestra, conducted by Fritz Mahler. **1.0,** Talk in English: A Grand Tour of England. **1.20,** Talk in German: Swabian and Germanic Art. **1.40,** Talk in French: Literature and History. **2.0,** Popular Music on Gramophone Records. **2.30,** Programme for Children. **3.0,** Concert by the Radio Orchestra, conducted by Lanny Grøndahl; Soloist: Leonie Watt Boolsen (Songs). **5.0** (also relayed by **Skamleback** on **31.51 metres**), Divine Service, relayed from Christiansborg Castle Church. **6.20,** Talk on Divorce. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.17,** Sports Notes. **7.30,** Talk: The Danish Red Cross. **8.0,** Chimes from the Town Hall. **8.5,** Modern Music by Louis Preils' Instrumental Ensemble. **8.30,** The Hansen Family.—Sketch (Jens Locher). **8.45,** Modern Music (contd.). **9.15,** Danish Song Recital by Immanuel Franksen: Willemoes (Weyse); Solen sank bag gronne Lund (Weyse); Langt højere Bjerge (Zinch); Som en riselysten (Nielsen). **9.30,** Modern Music (contd.). **10.0,** Humorous Programme by Einar Juhl. **10.10,** News. **10.20,** A Humorous Radio Dialogue (Albrecht Schmidt). **10.35,** Concert by Louis Preils' Instrumental Ensemble. **11.0,** Dance Music from the Wivex Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Monday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Variety Concert. In the interval at **12.30 p.m.,** News Bulletin. **4.0** to **8.0,** Programme in English by the I.B.C., C. Danvers-Walker and B. McNabb announcing. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** Light Music: Butterflies in the Rain (Myers); Danse Bagatelle (Bourdon); The Song of the Nightingale (Allbont); Ginger Snaps (Bourdon); Hawaiian Memories (Armandola); Jolly Fellows (Voiisteed); Moonlight at Sans-Souci; Amoureuse (Berger). **5.29,** International Broadcasting Club Concert for St. Ives Listeners: Overture, Poet and Peasant (Suppé); The Floral Dance (Moss); Talk by the Mayor of St. Ives; Woodland Peace (Favilla); Drake goes West (Sanderson); Selection from The Pirates of Penzance (Sullivan); One fine Day, from Madame Butterfly (Puccini); Violin Solo: Sicilienne and Rigaudon (Francoeur); Largo (Handel); The Yeomen of England, from Merrie England (German); Waltz Song from La Boheme (Puccini); Hallelujah Chorus (Handel); A'roving (arranged Terry); The Sea Road (Haydn Wood); Regimental March of the Duke of Cornwall's Light Infantry. **6.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: A Good Old Irish Stew; The Meeting of the Waters (arranged Hughes); Trio: Dreaming (Flanagan); There was a poor Musician

(Schwartz); Silent, Oh, Moyle (arranged Hughes); Trio: To-night (Kennedy); Crazy Pirouette (Frisk); Irish Medley. **7.0,** Organ Recital: The White Dove (Grey); On Wings of Song (Mendelssohn); There's nothing new in Love (Maclean); Roses of Picardy (Haydn-Wood); The Butterfly (Ralton); Drowsy Waters (Ailan); Waltz Potpourri (arranged Stoddon). **7.30,** Orchestral Music and Songs: Mon Rêve (Waldteufel); Songs: (a) I'll stay with you (Grey), (b) Try a little Tenderness (Woods); Pan and the Wood Goblins (Rathke); Good-bye (Tosti); So ashamed (Davis); Me, minus you (Webster); The Dwarf's Patrol (Rathke). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C. **9.0,** Military Band Concert: Post Horn Gallop (Koenig); Amorettentanz (Gungl); The Bullfighter's March (Kottoun); Valse des Alouettes (Drigo); Parade of the Tin Soldiers (Jessel); Old Panama (Alford); Wood Nymphs (Coates); The Standard of St. George (Alford). **9.30,** Concert of Light Music: Selection from New Moon (Romberg); Baritone Solo: The Sun God (James); Song: Deep Water (Brian); Aria from La Bohème (Puccini); Baritone Solo: I am Fate (Hamblen); Soprano Solo: Ave Maria from Cavalleria rusticana (Mascagni); Les Sirènes (Waldteufel). **10.0,** Music by a Russian Orchestra: Mazurka (Wieniawsky); Faun (Andreef); Song of the Volga Boatmen (Traditional); Troika and a Lady (Traditional); Shining Moon (Traditional); Moment musical (Schubert); Air de Ballet (Andrieff); Russian Folk Song and Dance (Traditional). **10.30,** Concert of Popular Music: Zigeuner you have stolen my Heart; Play, Fiddle, Play; Pale Volga Moon; The Moon Song; Twenty Million People; Farewell to Arms; Hyde Park Corner; Selection from The Dubarry (Millöcker-Mackeben). **11.0,** Fulford Concert of Light Music: Wedgwood Blue (Ketelbey); Songs: (a) The Driver of the 8.15 (Longstaffe), (b) I travel the Road (Thayer); Waldteufel Memories (arranged Finck); Songs: (a) Drink, drink, Brothers, drink (Bendix), (b) Good Friends (Heymann); Waltz, Beautiful Spring (Lincke). **11.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: At the end of an Irish Lane; It is only a Step to Killarney; My Irish Song of Songs; Shamrockland; Biddy Mulligan; Mother Ireland; Down by the Liffeyside; A Paradise for Two, from The Maid of the Mountains (Fraser-Simpson). **12 Midnight,** International Broadcasting Club Concert for St. Ives Listeners: Overture, Poet and Peasant (Suppé); The Floral Dance (Moss); Talk by the Mayor of St. Ives; Woodland Peace (Favilla); Drake goes West (Sanderson); Selection from The Pirates of Penzance (Sullivan); One Fine Day from Madame Butterfly (Puccini); Violin Solo: Sicilienne and Rigaudon (Francoeur); Largo (Handel); The Yeoman of England, from Merrie England (German); Waltz Song from La Bohème (Puccini); Hallelujah Chorus (Handel); A Rowing (arr. Terry); The Sea Road (Haydn-Wood); Regimental March of the Duke of Cornwall's Light Infantry. **1.0 a.m. (Monday),** Xylophone Solos: Selection from Carmen (Bizet); Carnival of Venice (Gaston); The Huntsman (Nelson); Tarantella (Byng); Handsome Gigolo (Cramer); The Skater's Waltz (Waldteufel); Parade of the Minutes; Xylophonia (Green). **1.30,** Songs and Orchestral Music: Songs: (a) Little Green Heaven, (b) Considering, (c) A Mother's Kiss; Musical Switch; Songs: (a) If I'm dreaming, (b) Happy Days and Lonely Nights, (c) I give my Heart. **2.0,** Dance Music by the Ibeolians. This is no Dream; If I even get a Job again; It's no use; I'm in love; Old Yazoo; The Village Band; Rhythm Spasm; Mad Moments; Sloppy Joe; Hot Indications; Hot Feet; Let me explain; Let me give my happiness to you; The Japanese Sandman; Lover of my Dreams. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres, 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg.** **12.20 to 2.30 p.m.,** See **Langenberg.** **2.30,** Agricultural Notes. **2.40,** Agricultural Talks. **3.30,** Programme for Young People. **4.30,** Orchestral Concert. **6.0,** Reading. **6.25,** Humorous Entr'actes. **6.50,** Gerhard Menzel speaks on his Book Flüchtlinge. **7.5,** Petry Heit—Radio Report (Oppersdofen). **7.25,** Sports Notes. **7.35,** Programme relayed from **Vienna.** **8.0,** Germany v. Egypt—Report on the Davis Cup Match. **8.20,** Concert of Light Music. **10.15,** Time, News, Weather, and Sports Notes. **10.45,** Concert relayed from **Langenburg.** **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.**

MAY 7th SUNDAY *continued*

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.**—**11.15 a.m.,** Transmission for all German Stations. Brahms Centenary Concert, relayed from Brahms' House. The Children's Choir of St. Jacob's Church, conducted by Kantor Bertram, and Gerhard Gregor and Gerhard Maarz (Pianists). Recitations by Käti Wittenberg and Ferdinand Krantz. After the Concert, Brahms Festival, relayed from the Musikhalle, with Address by Bürgermaster Carl Vincent Krogmann. **12.15 p.m.,** Orchestral Concert. In the interval at **12.55,** Time and Weather. **1.50,** Young Hitlerites' Programme, relayed from the Harbour—Music and Addresses. **2.50,** Hans Friedrich Blunck reads from his own Works. **3.10** (from **Hanover**), Concert of Wind Instrument Music. **4.15,** Lübeck—Play (Otto Anthes). **5.20** (from **Hanover**), From Corelli to Mozart—a Suite for Pianoforte, played by Gisela Sott. **5.40,** Reading (Fritz Dörries). **6.0,** Organ Recital of Music by Brahms, relayed from St. Stephen's Church, Bremen. Organist: Wilhelm Evers. **6.30,** Sports Talk: Collapsible Boats in North Germany. **6.40,** Sports Report. **6.55,** Weather Report. **7.0,** Reading. **7.35,** Transmission for all German Stations, relayed from **Vienna.** **8.0,** Brahms Concert. The Hamburg Philharmonic Orchestra, conducted by Prof. Ernst Wendel. Soloist: Prof. Georg Kulenkampff (Violin). Introductory Talk by Prof. Dr. Moser; Variations on a Theme of Haydn, Op. 56a; Concerto in D, Op. 77, for Violin and Orchestra; Second Symphony in D, Op. 73. **10.0,** Time, Weather, News, Sports Notes and Police Notes. **10.20,** The Hanseatic Towns—Political, Cultural and Art Review. **10.45,** Concert from **Berlin (Witzleben).** In the interval at **11.15** (approx.), Radio Report on the Davis Cup Match, Germany v. Egypt.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg.** **12.20 p.m.,** Part Relay of the Brahms Festival from the Stadthalle, Königsberg. Chamber Music. **1.30** (from **Danzig**), Programme for Young People: Journeymen's and Soldiers' Songs. **2.0,** Talk on Chess. **2.30** (from **Danzig**), A Report on the Works submitted by unknown Danzig Writers, with Reading from the chosen Manuscripts. **3.0,** Talk: The Bird Sanctuary at Garmisch-Partenkirchen. **3.30** (from **Danzig**), Police Band Concert conducted by Ernst Stieberitz. Sports Notes in the interval. **5.30** (from **Danzig**), Talk. **6.0,** Chamber Music. Part I: Old Chamber Music. Part II: Danish Chamber Music. **7.0,** Talk: Technics in the service of Modern Germany. **7.35,** See **Vienna.** **8.0,** Sports Notes. **8.10,** Concert of Saxophone and Pianoforte Music, with Recitations. **9.15,** News. **9.20,** Part Relay of the Brahms Festival from the Stadthalle, Königsberg. Concert by the Königsberg Opera House Orchestra, conducted by Erich Seidler, the Teachers' Choral Society and the Wireless Chorus. Variations on a Theme of Haydn, Op. 56a; Triumphlied for Light Voices and Orchestra, Op. 55. **10.0** (approx.), News and Sports Notes, followed by Dance Music and Light Music from **Berlin (Witzleben).** **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**). **12.40 to 5.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Time Signal. **12.41,** Variety Music on Gramophone Records. **1.10,** Concert by the Wireless Orchestra, conducted by Nico Gerharz; Soloist, Grethe Weijnschenk-Hogenbirk (Soprano). In the Interval, Gramophone Records. **2.40,** Running Commentary on the International Football Match, Holland v. Belgium, relayed from the Olympic Stadium, Amsterdam. **4.40,** Variety Music on Gramophone Records and Sports Notes. **5.40,** Programme of the Workers' Radio Society (V.A.R.A.); Programme for Children. **6.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). Review of New Books. **7.25,** V.A.R.A. Programme. Divine Service from a Church at Weesp. **8.40** till Close Down, A.V.R.O. Programme. **8.40,** Time Signal. **8.41,** News Bulletin. **8.55,** Concert of Light Music by Kovacs Lajos and his Orchestra; Soloist, Bob Scholte (Songs). **9.40,** Songs by Layton and Johnstone. **10.0,** Concert by the Wireless Orchestra; Soloist, Theo van der Pas (Pianoforte): Overture, Fingal's Cave (Mendelssohn); Pianoforte Concerto in C Minor, Op. 37 (Beethoven). **10.40,** Songs by Layton and Johnstone. **11.0,** Dances of Many Lands—Concert by the Wireless Orchestra, conducted by Albert van Raalte: Old Dutch Dance (Röntgen); German Dance (Schubert); Ecossaise (Beethoven); Norwegian Dance (Grieg); Polonaise (Scharwenka); Russian Dance, Trepak (Tchaikovsky); French Dance, Rigaudon (Rameau); Tarantella napolitana (Rossini); Spanish Dance (Granados); Roumanian Dance (Bartok); Hungarian Dance (Brahms); Slav Dance (Dvorák). **11.40,** Light Music on Gramophone Records. **12.40 a.m. (Monday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **12.55,** Concert by the K.R.O. Orchestra, conducted by Woud. In an interval at **1.40,** Literary Talk. **2.40,** Religious Address. **3.10,** Concert by the Amsterdam Bel Canto Choir, conducted by A. Vranken. **3.40,** Recitations. **3.50,** Orchestral Concert (contd.), followed by Gramophone Records. **4.40,** Programme for Invalids. **5.40 to 8.25,** Programme of the Christian Radio Society (N.C.R.V.). **5.40,** Concert of Sacred Music. **6.30,** Divine Service Relay. After the Service, Sacred Music. **8.25** till Close Down, K.R.O. Programme. **8.25,** Talk. **8.45,** Football Results. **8.50,** High Mass in F Minor Op. 114 (Bruckner), by the Maastricht Municipal Orchestra, a Mixed Choir, and Soloists. **10.10,** News. **10.25,** Popular Music on Gramophone Records. **10.40,** Concert by the Maastricht Municipal Orchestra, conducted by H. Hermans. Soloist, J. Lammen (Bass). Funeral March (Caro). Air from Ariana a Naxos (Haydn). Mentre le lascio (Mozart). **11.15,** News. **11.20,** Concert by the Small Station Choir, conducted by Pickkers. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide and Radio Concert. **8.45,** News Bulletin. **9.0,** Radio Concert. **10.30 to 11.30,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **10.30,** Concert of Light Music by the I.B.C. (Ireland), Ltd.: Sweet Genevieve (Tucker); As your Hair grows whiter (Shapiro); Mother Machree (Olcott); Popular Irish Medley (arr. O'Henry); For the Sake of the Days gone by (Wallace); Love's old sweet Song (Molloy); Who am I? (Newman); The End of a Perfect Day (Jacobs-Bond). **11.0,** Dance Music: Dip your Brush in the Sunshine; The Minor Drag; Songs: (a) Goodnight Vienna (Posford), (b) I'll always be true; Dick Turpin's Ride; Let a little Pleasure interfere with Business; Harlem Fuss. **11.27,** I.B.C. Goodnight Melody. **11.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg.** **12.20 p.m.,** East German Demonstration, relayed from **Dortmund.** The Bochum Police Band and the Rhenish-Westphalian Male Voice Choir. Entry of the Guests into the Wartburg, from Tannhäuser (Wagner). Address by the President of the Association. The Male Voice Choir: Ostmarkenlied. Two Addresses. Choir and Orchestra: Niederländisches Dankgebet. **1.20,** Concert conducted by Eysoldt. **2.30,** Talk on Chess. **3.0,** Talk on Music. **3.20,** Meeting of the West German Gliding Association, relayed from the Borkenberge Gliding Ground. **4.5,** Reading (Karl Meller). **4.30,** Programme to be announced. **5.35,** Round Cologne—A Radio Report of the Twenty-Fifth Anniversary of the Cyclists' Club. **6.0,** Talk: Towns of the Rhineland and Westphalia—Zülpich. **6.35,** Variety Programme. **7.20,** Sports Notes. **7.35,** See **Vienna.** **8.5,** Brahms Centenary Concert: The Station Choir and Orchestra, conducted by Buschkötter. Soloists: Eva Liebenberg (Contralto), Alice Brandt-Rau (Soprano), and Hans Wocke (Baritone). Four Songs for Contralto: (a) Immer leiser wird mein Schlummer, (b) Auf dem Kirchhof, (c) Sapphische Ode, (d) Von ewiger Liebe; Rhapsody for Contralto, Male Voice Choir and Orchestra; A German Requiem for Soloists, Choir and Orchestra. **10.5,** News and Sports Notes. **10.30,** Serenade and Dance Music. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg.** **12.15 p.m.,** Concert by the Leipzig Symphony Orchestra, conducted by Hanns Rössert. **2.0,** Weather and Time. **2.5,** Programme Announcements. **2.25,** Agricultural Notes. **2.35,** Concert of Spring Music for Children's Choir and Recorders. **3.10,** Kurt Arnold Findeisen reads from his Novel, Lied des Schicksals. **3.40,** Herman Kögler in a Pianoforte Recital of his own Music: Fantasia and Fugue, Op. 33; Variations on a Theme by Grieg, Op. 50. **4.20,** The Pastrycook—A Radio Play (Lope de Vege, arr. A. Hamik), with Incidental Music by Hans Stadler. **5.10,** Report from the Dresden Race Course. **5.45,** Clarinet Quintet in B Minor, Op. 115 (Brahms), played by the Dresden String Quartet and Karl Schulte (Clarinet). **6.25 to 7.25,** Topical Report on (a) The German Rugby Championship, (b) The German Motor-Cycle Road Trials, and (c) The Davis Cup Match, Germany v. Egypt. **7.35,** Programme relayed from **Vienna.** **8.0,** Topical Talk. **8.10,** Military Band Concert. In the interval from **9.0** to **9.10** (approx.), Report from the Nazi Air Pageant at Langenbach. **10.15,** News. **10.20** (approx.), Dance Music, relayed from **Berlin (Witzleben).** **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Municipal Band, conducted by M. Villa. **3.0,** Chimes, Time Signal, Theatre Notes, and Concert of Popular Music. **8.0,** Chimes and Radio Journal, followed by Dance Music relayed from the Ritz Hotel. **9.30 to 10.30,** Interval. **10.30,** Chimes and Time Signal. **10.35** (approx.), Brahms Centenary Concert on Gramophone Records: Symphony No. 2 in D; Concerto in B Flat, Op. 83, for Pianoforte and Orchestra. After the Concert, Dance Music. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.0 p.m.,** Concert of Light Music by the Station Orchestra, conducted by J. Plichta. **5.30 to 6.45,** See **Prague.** **7.0,** See **Prague.** **8.0,** Military Band Concert, conducted by F. Rytich. **8.50 to 11.0,** 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.**—**11.15 a.m.,** Transmission for all German Stations, relayed from **Hamburg.** **12.15 p.m.,** A Spring-time Journey in the Palatinate. Concert by the Nazi Military Band, relayed from **Pirmasens.** **1.5,** Time, Weather, and Programme Announcements. **1.15,** Variety Music on Gramophone Records. **2.30,** Chess Lesson. **3.15,** Literary and Musical Programme, relayed from the Turnhalle, Pirmasens. **4.20,** Report on the Gliding Display, relayed from Oberammergau. **4.35,** Zither Concert, conducted by Franz Pfeiringer. **5.10,** Palatinate Programme—Anecdotes and Jokes. **5.35,** Orchestral Concert, conducted by Erich Kloss. In an interval, Songs and Stories in Bavarian Dialect. **7.0,** Weather and Sports Notes. **7.10,** Reading. **7.35,** See **Vienna.** **8.0,** Brahms Symphony Concert by the Station Orchestra, conducted by H. A. Winter. Soloist: Elly Ney (Pianoforte). Concerto in B Flat for Pianoforte and Orchestra; Symphony No. 2 in D. **9.10** (from **Nürnberg**), Concert by the Nürnberg Concert Society: Overture, Hans Heiling (Marschner); Waltz, The Wedding of the Winds (Hall); Selection from La Traviata (Verdi); Egyptian Serenade, Amina (Lincke); Oriental Suite (Popy); Potpourri of Marching Songs (Blankenburg). **10.20,** Time, Weather, News, and Sports Notes. **10.45,** Serenade from **Langenberg.** **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**10.15 a.m.,** Announcements, Weather, and Road Report. **10.20,** Divine Service, relayed from **Bodö, 662 kc/s (453.2 metres).** **12.0,** Orchestral Concert, relayed from **Trondheim, 605 kc/s (495.8 metres).** **6.0,** Talk: Southern Arabia. **6.30,** Mme. Normann reads from her own Works. **7.0,** Parliamentary Notes. **7.15,** Weather and News. **7.30,** Concert. **8.0,** Time Signal. **8.1,** Talk: The Life and Works of Brahms. **8.30,** Brahms Centenary Concert by the Station Orchestra, conducted by Hugo Kramm; Soloists: Ernst Glaser (Violin) and Karl Andersen ('Cello): Academic Festival Overture; Concerto in A Minor, Op. 102, for Violin, 'Cello, and Orchestra; Andante sostenuto from the First Symphony; Two Hungarian Dances; Rhapsody No. 1 in B Minor. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Concert of Popular Music by a Wind Instrument Ensemble. **10.45** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**10.25 a.m.,** Religious Address. **10.40,** Sacred Music. **11.5,** Agricultural Talk. **12.45 p.m.,** Giornale Radio. **1.0 to 2.0,** Concert of Light Music.

MAY 7th **SUNDAY** *continued*

1.30 (in an interval), Time Signal, Announcements, and Weather Forecast. 2.0 to 3.0, Interval. 5.30 to 6.30, Light Music on Gramophone Records. 6.30 to 8.0, Interval. 8.0, Dopolavoro Announcements and Giornale Radio and Sports Notes. 8.20, Popular Music on Gramophone Records. 8.25 (approx.), Light Music on Gramophone Records. 8.30 (in an interval), Time Signal and Announcements. 8.45, Symphony Concert, conducted by A. La Rosa Parodi: Symphony in B Flat (Schubert); Dances (Nino Rota); Fêtes (Debussy); Overture, The Mastersingers (Wagner). In the interval: Talk. After the Concert, Light Music on Gramophone Records. 10.55, News Bulletin.

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 Code Signals). **1.0 p.m.**, News Bulletin. **1.15**, Weather Report. **1.30**, Concert by Jean Dos and his Orchestra; Soloist: M. Deleclusc (Clarinet). **6.45**, News. **7.15**, Weather Report. **7.25**, Le Journal Parlé. **7.45**, Programme for Children. **8.20**, Le Journal Parlé (contd.). **8.30**, Gramophone Concert: Part I, Music by Lehar; Part II, Popular Melodies. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **9.15 a.m.**, Music for Tambourines and Bugles. **9.35**, Press Review. **9.45**, Bible Reading. **10.0**, News. **10.5**, Sponsored Concerts. **11.40**, Popular Music on Gramophone Records. **12 Noon**, Interval. **12.15 p.m.**, Sponsored Concert of Music from Sound Films. **12.45**, Sponsored Programme. **12.50**, Half an Hour of Fantasy, by Paul Weill. **1.20**, Interval. **1.30**, Sponsored Programme. **2.0 to 3.0**, Interval. **3.0** (approx.), Radio Report on the Final for the French Cup. **6.45**, Journal Parlé. **7.0**, Sports Notes. **7.15**, Vocal Duets: Colinette (Wekerlin); Song of the Thrush, from Xavière (Dubois); Air from The Land of Smiles (Lehar); Vingt et vingt (Mireille); Presque oui (Mireille). **7.30**, Catholic Review. **8.0**, Popular Music on Gramophone Records. **8.15**, Interval. **8.30**, Light Music on Gramophone Records. **9.0**, Interval. **9.15**, Grimgoire Sketch (de Banville). **9.45**, Songs by the Marvel Trio. **10.0**, Popular Music on Gramophone Records. **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**7.45 a.m.**, Light Music on Gramophone Records. **8.0**, Press Review and Weather. **8.30**, Physical Culture. **10.0**, Elementary Book-keeping Lesson. **10.20**, Advanced Book-keeping Lesson. **10.40**, Spanish Lesson. **12 Noon**, Religious Address by the Reverend Father Hunde: The Wise Virgins. **12.20 p.m.**, Sacred Music: Tocenta (Gigout); Benedictus from the Coronation Mass (Mozart); Ave Verum (Mozart). **12.30**, Billoquet. **12.45**, Press Review, News and Weather. **1.0**, Light Music on Gramophone Records. **2.30**, Variety Concert. **3.0**, Running Commentary on the French Football Cup Final at the Colombes Stadium. **5.0 to 7.0**, Programme in English by the I.B.C. **5.0**, Tea-Time Variety Hour. Mr. S. H. C. Williams announcing. **6.0**, Clarke's Atlas Orchestral Concert. Mr. T. St. Ronald announcing: March, Crown of Chivalry (Fletcher); Selection from The Cat and the Fiddle (Kern); Cavalcade Potpourri (Coward); Waltz (Bucalossi); Selection from The Dubarry (Millöcker-Mackeben). **6.30**, Kissproof Variety Half-Hour: Old Father Thames (O'Hogan); What a Perfect Combination; Edward Cooper and Queenie Leonard; My wishing Song; Just so you'll remember (Newman); Edward Cooper and Queenie Leonard; Contented (Casson); A Little Café in Vienna (Leopold). **7.0**, Concert of Light Music. **8.0**, Radio Paris Music Hall. In the intervals at **8.30**, News, Sports Notes and Weather, and at **9.15**, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.0 p.m.**, Monarch Mystery Tenor, from **New York. 7.15**, The Boys of Wynnecastle. **7.30**, The Northwestern Chronicle, from **New York. 8.0**, Programme to be announced. **9.0**, Dick Daring, from **New York. 9.15**, Symphonette, from **New York. 9.30**, Vesper Services from Shadyside Presbyterian Church. **10.30**, Pages of Romance, from **New York. 11.0**, Programme to be announced. **11.15**, Time and Weather. **11.17**, Teaberry Sport Review. **11.22**, Press News-Reeler. **11.29**, Temperature Report. **11.30**, Programme to be announced. **12 Midnight**, Time and Jack Pettis and his Orchestra. **12.30 to 3.0 a.m. (Monday), New York Relay. 12.30**, Great Moments in History. **1.0**, The Land where the Good Songs go. **2.0**, Twenty Thousand Years in Sing Sing. **2.30**, Walter Winchell. **2.45**, Pickens Sisters. **3.0**, Popular Melodies by Will Ryshanek.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**10.0 a.m.**, Schrammel Music. **10.30**, See **Brno. 12 Noon**, Chimes. **12.5 p.m.**, See **Bratislava. 1.30**, Agricultural Programme. **2.15 to 2.25**, Social Report. **4.0**, See **Moravská-Ostrava. 5.30**, Talk: New Tendencies in American Life. **5.45**, Variety Music on Gramophone Records. **6.0**, German Transmission: Brahms Centenary Concert by the German Choral Society, the German Male Chorus, and the Station Orchestra, conducted by Heinrich Svoboda: Tragic Overture; The Song of Destiny; Gesang der Parzan. In the interval, News in German. **7.0**, A Radio Play. **8.0**, see **Moravska-Ostrava. 8.50**, Talk: Johannes Brahms. **9.0**, Time Signal. **9.1**, Brahms Centenary Concert; The Station Orchestra, conducted by O. Jeremias; Soloist: F. Maxian (Pianoforte): Pianoforte Concerto in D Minor, Op. 15; Liebeslied; Waltzes, Op. 39, Nos. 1 and 2; Hungarian Dances: (a) No. 7 in D Minor, (b) No. 5 in D, and (c) No. 6 in G Minor. In the interval at **10.0**, Time Signal. **10.10**, News, Sports Notes. **10.30**, Czech Dance Music on Two Pianofortes. **11.0** (approx.), 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 **Lausanne**), Pianoforte Recital by Germaine Schmidt. **7.40** (from **Geneva**), Sports Notes and News. **8.0** (from **Geneva**), Sacred Concert by the Schola grégorienne of Ste-Croix, conducted by Pierre Carraz. **8.30** (from **Geneva**), Quartet in A (Brahms) for the Centenary of his Death. The Geneva Quartet. Soloist: Lisy Fischer (Pianoforte). **9.5**, Concert by the Radio-Suisse Romande Orchestra. **10.0**, News and Weather. **10.15** (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.**—**10.10 a.m.**, News, Sports Notes and Amusement Guide. **10.30**, Agricultural Notes. **10.45**, Bible Reading. **11.0 to 12 Noon** and **12.30 to 1.30 p.m.**, See **Turin. 1.30 to 2.30**, Orchestral Concert. **3.0**, See **Turin. 5.0**, Concert conducted by Clemens Kraus, relayed from the Augusteo. Sports Notes in the interval. **7.30**, Sports Report, Dopolavoro Notes and News. **8.0**, Time and Announcements. **8.30**, Sports Report. **8.45**, Variety Concert. In the interval at **9.45**, Un nomo ed una donna—One Act Comedy (Carpenetto). After the Concert, Variety Music on Gramophone Records. **10.55**, News.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres**, and by **W2XAD** on **19.56 metres.**—**7.0 to 8.45 p.m.** (approx.), **New York** Relay. **7.0**, Wayne King's Orchestra. **7.30**, Musical Programme. **8.0**, Singing, the Well-spring of Music. **8.15**, Wildroot Institute. **8.30 to 8.45** (approx.), Temple of Song. **11.45 to 2.45 a.m. (Monday), New York** Relay. **11.45**, Twenty Fingers of Harmony. **12.0 Midnight**, Chase and Sanborn Hour. **1.0**, Manhattan Merry go Round. **1.30**, American Album of Familiar Music. **2.0**, Current Government, by David Lawrence. **2.15**, Musical Programme. **2.30**, Donald Novis (Tenor). **2.45**, Sunday at Seth Parker's, from **New York**, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER; 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12 Noon** (from **Zürich**), Concert by the Station Orchestra. **12.28 p.m.**, Time and Weather. **12.30**, News. **12.40** (from **Zürich**), Concert by the Station Orchestra (contd.). **1.30** (from **Basle**), Talk for Farmers. **2.0** (from **Basle**), Light Music on Gramophone Records. **2.30 to 3.30**, Interval. **3.30** (from **Basle**), Programme to be Announced. **4.30** (from **Basle**), Popular Music on Gramophone Records. **5.30 to 6.30**, Interval. **6.30** (from **Basle**), Reading. **7.0** (from **Basle**), Time and Sports Notes. **7.15** (from **Basle**), Talk: Old Frankfurt. **7.45** (from **Basle**), Vocal and Instrumental Concert. **8.30**, Das Rosenband. **9.40**, News. **9.50** (approx.), Concert by the Station Orchestra. **10.15** (from **Basle**), Sports Notes.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

669 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**11.0 a.m.**, Divine Service. **12.45 p.m.**, Weather and Ice Report. **3.0**, Talk in Danish, relayed from **Uppsala, 662 kc/s (453.2 metres). 3.20**, Light Music on Gramophone Records. **4.20** (from **Sunds-**

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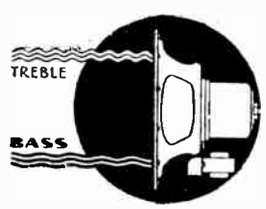

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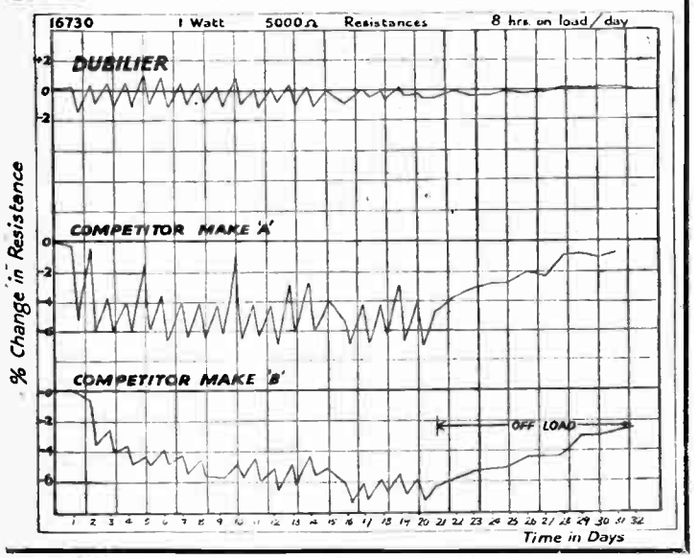

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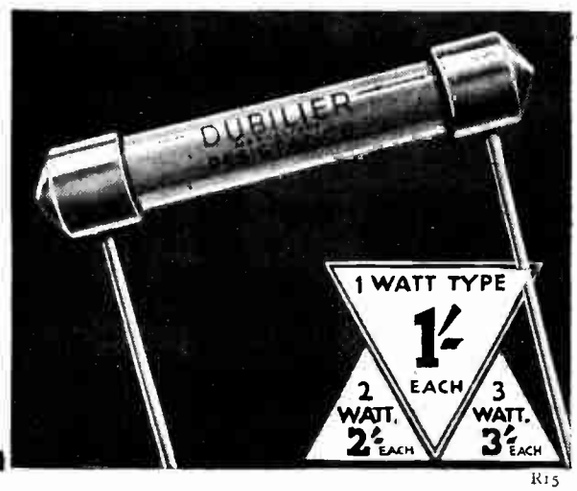

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MAY 7th SUNDAY continued

vall). Programme for Children. 5.5, Song Recital by Ego Brunner, relayed from **Malmo, 1,301 kc s (231 metres).** 5.30, Talk: Johannes Brahms. 6.0 (from **Sundsvall**), Evensong. 7.15, Weather and Ice Report. 7.30, Town and Country Radio Play (Ivar Lo Johanssen). 8.0, Brahms Centenary Concert, by the Augmented Station Orchestra and Choir; Conductor, Adolf Wiklund: Variations on a Theme of Haydn; Choir and Orchestra: Song of Destiny. Symphony No. 2 in D. 9.25 (from **Göteborg**), Reading. 9.45, Weather and News. 10.0, Concert of Light Music. 11.0 (approx.), Close Down.

STRASBOURG

869 kc s, 345 metres; 11.5 kW. 9.30 **a.m.,** Orchestral Concert of Tchaikovsky Music, conducted by Maurice de Villers. 10.45, Protestant Service in German. 11.30, Catholic Service in French. 12 **Noon,** Gramophone Concert of Classical Music. 12.45 **p.m.,** News. 1.0, Time. 1.1, Light Music on Gramophone Records. 2.0, A Meeting of the Upper Rhine National Union of Ex-Servicemen, relayed from **Colmar.** 3.0 **to** 4.0, Interval. 4.0, Variety Music on Gramophone Records. 5.0, Concert of Jazz Music, conducted by Roskam. 6.0, Medical Talk in German. 6.15, Sports Notes in French. 6.30, Orchestral Concert, conducted by M. de Villers: Marche lorraine (Ganne); Waltz, Tout Paris (Waldteufel); Orchestral Suite, Fête Nippone (Mouton); Overture, Maritana (Wallace); Selection from Le Chemineau (Leroux); Basque Rhapsody (Pierné). 7.30, Time and News. 7.45, Gramophone Concert: Selection from: (a) La Traviata (Verdi), (b) Miss Decima (Audran); Le cor (Flégier); Arioso from Benvenuto Cellini (Diaz); Petite reine (Boyer); Princesse Java (Moro-Zurfluh); Selection from La Mascotte (Audran). 8.15, Press Review in German, Lottery Results and Announcements. 8.30, Victor Nessler Programme. Paul Flesch and Jeanne Wild (Songs), and E. Payen (Trumpet). Talk on the Composer; Three Songs and Duet from The Piper of Hamelin; Anecdotes about Victor Nessler; Pianoforte Solo: Röslein rot, Röslein weiss; Song, La femme du pêcheur; Duet; Talk on The Trumpeter of Säckingen; Two Arias from The Trumpeter of Säckingen. After the Concert, Press Review in French. 10.30, Dance Music, relayed from the Savoy Dance Hall. 12 **Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER; 832 kc s, 360.5 metres; 60 **kW.; and Freiburg, 527 kc s, 570 metres.—** 11.15 **a.m.,** See **Hamburg.** 12.15 **p.m.,** Relay of the Ceremony at the Schelfel Memorial, Karlsruhe. 1.0, Topical Talk. 1.15, Popular Music on Gramophone Records. 2.0 (from **Karlsruhe**), Agricultural Talk. 2.30, Accordion Trio Concert. 3.0, Soprano Song Recital by Martha Schulz-Körner, with accompaniment by Artur Haagen (Pianoforte) and Fritz Woll (Flute): Aria from Die sieben Schwaben (Millöcker); Warnung (Mozart); La Capinera (Benedict); Wenn der Vogel naschen will (Meyer-Helmund); Postillon d'amour (Abt); Aquarellen-Walzer (Joh. Strauss). 3.30 **to** 6.0, See **Frankfurt.** 6.0, Sports Report. 6.20, Springtime in Song—Concert for Children's Voices, Violin and Flute. 7.0, Talk: The German Gymnastic Display in Stuttgart. 7.35, See **Vienna.** 8.0, Gustaf Grundgens reads Poems by Rückert, Herder, Gellert, and Gebel. 8.30, Concert from **Frankfurt.** 10.15, Time, News, Weather, Programme Announcements, and Sports Report. 10.35, Programme from **Langenberg.** 12 **Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc s, 385 metres; 8 kW. Transmissions irregular owing to fire. 6.30 **to** 7.0 **p.m.,** Programme in English by the I.B.C. W. Brown Constable announcing. Concert of Popular Music: A Waltz a Night, a Tune; In Santa Lucia; The Girl in the Little Green Hat; Try a Little Tenderness; I'll never have to Dream Again; A Letter to my Mother; Roll along Kentucky Moon; My Darling; Jolly old Ma, Jolly old Pa. 7.0, Popular Songs. 7.15, News, Racing Results and Market Prices. 7.30, Orchestral Music. 7.45, Military Music. 8.0, Arias from Operas. 8.15, Songs from Operettas. 8.30, Sound Film Music. 8.45, Accordion Solos. 9.0, Extracts from La Fille de Madame Angot—Operetta (Lecocq). 9.45, Instrumental Solos. 10.0, Recitations. 10.15, North African News. 10.30 **to 12 Midnight,** Programme in English by the I.B.C. 10.30, Variety Half Hour, Jolly Good Company; My Old Dutch; Down the Lane to Home Sweet Home; Berceuse de Jocelyn; Medley, Memories by the Fireside; Danny Boy; Around the Corner; Mezzo Soprano Solo: Goodbye. 11.0, Concert of Light Music by the I.B.C. (Ireland), Ltd. Waltz, Tales from the Vienna Woods (Joh. Strauss); Song, Mother Machree; The Soldiers' Chorus from Faust (Gounod); Hungarian Dances (Brahms); Anvil Chorus from Il Trovatore (Verdi); Song, Danny Boy (Weatherley); Selection from Waltzes from Vienna (Joh. Strauss). 11.30, Dance Music: Marching along together; Lawd, you made the Night too Long; She was only Somebody's Daughter; Good-night Vienna; You, I love a Parade; I believe in You. 1.57, I.B.C. Good-night Melody. 12 **Midnight,** Weather and Announcements. 12.5 **a.m. (Monday),** Instrumental Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW.—9.40 **a.m.,** See **Turin.** 9.55, Mass from the Cathedral of San Giusto. 11.0, Religious Address. 11.20 **to** 11.40, Agricultural Report. 2.30 **p.m.** (approx.) **to** 8.45, See **Turin.** 8.45 till Close Down, See **Rome.**

TRONDHEIM.—See **Oslo.**

TURIN

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. 10.40, Agricultural Talk. 11.0, Mass from the Church of the Annunciation, Florence. 12 **Noon to 12.15 p.m.,** Bible Reading. 12.30, Orchestral Concert. In the interval at 1.0, Time and Announcements. 1.30 **to** 2.30, Concert (Programme to be announced). 3.0, Running Commentary on the International Football Match, Italy v. Czecho-Slovakia, from the Berta Stadium, Florence. 4.0, Orchestral Concert. Sports Notes in the interval. 5.0, See **Rome.** 6.15 **to** 6.20, Giornale Radio, Sports Report. 7.0, Time and Dopolavoro Notes. 7.10, Gramophone Records of Light Music. 8.0, Announcements, Giornale Radio and Sports Notes. 8.20, Talk on the following Transmission. 8.30, Germania—Opera in Four Acts (Franchetti). In the intervals: Talk, Theatre Notes and Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—9.15 **a.m.,** Brahms Centenary Programme from **Hamburg.** 12.15 **p.m.,** Brahms Song Recital: Liebeslieder-Walzer, Op. 52; Coda from Neue Liebeslieder, Op. 65. 12.45 **to** 2.0, Orchestral Concert. 2.30, Time and Programme Announcements. 2.35, Popular Music on Gramophone Records. 3.5, Book Review. 3.30, Concert of Brahms Chamber Music: Quintet in B Minor, Op. 115, for Clarinet, Two Violins, Viola, and 'Cello; Quartet in A, Op. 26, for Pianoforte, Violin, Viola, and 'Cello. 4.45, Talk: Swabian Folk Customs. 5.15, Concert of Wind Instrument Music. 6.15, Reading. 6.45, Brahms Song Recital by Hans Duhan: Nicht mehr mit dir zu gehen; Feldeinsamkeit; Dein blaues Auge; Mainacht; Ich sah als Knabe Blumen blühn; Wie bist du, meine Königin; Auf dem Kirchhofe; Sapphische Ode; Von ewiger Liebe; Vergebliches Ständchen. 7.25, Time, Sports Notes, and Programme Announcements. 7.35, At the Grave of Johannes Brahms—Memorial Concert, relayed from the Central Cemetery. The Vienna Opera House Small Choir, with Dr. Werner Riemerschmid at the Microphone. 8.0, Brahms Concert. Soloist: Walter Rehberg (Pianoforte). Concerto in B Flat, Op. 83, for Pianoforte and Orchestra; Second Symphony in D, Op. 73. 9.30, Bunter Abend, by the Josef Holzer Orchestra, the Vienna Male Voice Choral Society, Lya Beyer (Soprano), and Arthur Fleischer (Baritone). In the interval at 10.15 (approx.), News Bulletin.

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.,** Programme Announcements. 12.10, Weather Report. 12.15, Johannes Brahms Centenary Concert, relayed from the Philharmonic. The Warsaw Philharmonic Orchestra, conducted by Fitelberg. Soloist: Mme. St. Korwin-Szymanowska (Soprano). 2.0, Talk: State Aid for Farmers. 2.20, Light Music. 2.40, Talk for Farmers. 3.0, Agricultural Notes. 3.5, Light Music. 4.0, Programme for Children. 4.25, Light Music on Gramophone Records. 4.45, Talk from **Cracow, 959 kc s, (312.8 metres).** 5.0, Song Recital by Olga Szumska (Soprano) and S. Mossoczy (Bass). In the interval, News. 5.55, Programme Announcements. 6.0, Light Music from the Ziemianska Café. In the interval, News. 7.0, Miscellaneous Announcements. 7.25, 'Crois-moi Nantipet'—Sketch, after Ballard. 8.0, Humorous Programme. 9.0, Sports Notes. 9.10, Orchestral Concert, conducted by J. Ozimiński. Soloist: A. Golebiowski (Tenor). Overture, Oberon (Weber); Selection from Lohengrin (Wagner); Waltz from the Ballet Dan Twardowski (Rozycki); Songs: Air from La Juive (Halévy); Air from The Girl of the Golden West (Puccini); Air from Aida (Verdi; Spanish Suite La Feria (Lacome); Songs: Air from Lohengrin (Wagner); Air from Janek (Zeleński); Air from Cavalleria rusticana (Mascagni); Spanish Dance (Sarasate); Berceuse (Järnefeld); Rhapsodie Espagnole (Chabrier). 10.25, Dance Music from the Café Italia. 10.55, News, Weather Report and Police Notes. 11.0, Dance Music from the Bodega Café.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY

MAY THE EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	London music festival: Brahms Centenary Concert from Queen's Hall.
LONDON REGIONAL	Act 3 of "Gotterdammerung" (Wagner), from the Royal Opera House, Covent Garden.
MIDLAND REGIONAL	Tzigane orchestral programme from Bingley Hall, Birmingham.
NORTH REGIONAL	"Happy the Man." Sir Edward C. Bairstow expresses his point of view.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Orchestral concert.
BELFAST	Light orchestral concert.

ABROAD

BRUSSELS (No. 1)	8 p.m. Eugène Ysaye Commemoration concert.
BUDAPEST	10 p.m. Brahms centenary concert.
COPENHAGEN	8 p.m. Brahms concert, conducted by F. Mahler.
EIFFEL TOWER	8.30 p.m. Yvain operetta music.
HUIZEN	8.40 p.m. The Utrecht Municipal Orchestra, conducted by H. van Goudoever.
MUNICH	8.5 p.m. Opéra-comique: "The Barber of Seville," by Rossini.
ROME	9 p.m. Concert of light music.
STRASBOURG	8.30 p.m. Sacred concert relayed from Nancy.
WARSAW	8 p.m. Orchestral concert, conducted by J. Ozminski.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.** **1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Talk in Gaelic. **7.15,** Talk by R. J. MacHugh: The Future of the Irish Theatre. **7.30,** The Station Orchestra. **7.50,** Soprano Solos by Kitty Fagan. **8.0,** Whistling and Bird Calls by Michael Quinn. **8.10,** The Station Orchestra. **8.20,** Soprano Solos by Kitty Fagan. **8.40,** Lecture by Padraic Gregory on the Poetry of Pearse, Plunkett, and MacDonagh. **9.5,** Baritone Solos by J. N. Barry. **9.15,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW. **7.0 p.m.,** Trio Concert. **7.30,** Quintet Concert, relayed from the Café de la Rambla. **8.20,** Sports Notes. **8.30,** Exchange Quotations, followed by Talk in Catalan. **9.0,** Light Music on Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Humorous Review of the Week in Verse. **10.15,** Programme of Sardanas. **11.0,** Amadeo Vives Programme: Canciones Epigramaticas, by Concepcion Badia de Agusti (Songs) and Alejandro Vladta (Pianoforte). **11.30,** Radio Gazette in Catalan. **12.0 Midnight,** News, followed by Concert of Operetta Music by the Station Orchestra: Selection from (a) The Count of Luxembourg, (b) Dedé (Christiné), (c) The Dollar Princess (Fall), (d) Faschingsfee (Kálmán). **1.0 a.m. (Tuesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW. **5.30 p.m.,** Pianoforte Recital by Addolorata Sardelli. **6.0,** Popular Music on Gramophone Records. **6.30 to 8.0,** Interval. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **9.0,** Concert. **10.0,** Popular Music on Gramophone Records. **10.55,** News and Art Notes.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc s, 1,635 meres; 60 kW. **2.0 p.m.,** Brahms Concert on Gramophone Records, relayed from **Berlin (Witzleben).** **3.0,** Talk for Women: New Summer Caps. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.30** (approx.), Concert from **Berlin (Witzleben).** **5.0,** Talk: The German Christian Movement and its attitude towards National Education. **5.25,** Topical Talk. **5.35,** String Quartet in E Minor (Max von Schillings). **6.0,** Poetry Reading. **6.5,** Talk: The Training of Young People under the State Employment Schemes. **6.30,** A Radio Report from an Arsenal. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Breslau.** **8.0,** See **Stuttgart.** **9.30,** See **Frankfurt.** **10.15,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Leipzig.** **12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc s, 419.5 metres; 1.5 kW. **4.30,** Orchestral Concert, conducted by Hans Klinger Pöhlan. Overture, Der Opernprobe (Lortzing); Ballet Music from Undine (Lortzing); Four Pieces from the Peasant Suite (Allsout); Waltz, Deutsche Grüsse (Jos. Strauss); Selection from The Bird Fancier (Zeller); Waltz, Die Hydropathen (Gungl). **5.30,** Talk: Student Exchange Schemes. **5.50,** Reading (Richard Fiedler). **6.5,** Topical Programme. **6.30,** Talk on Music. **6.40,** The Witzleben Station informs its Listeners. . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Breslau.** **8.5,** Announcements. **8.10,** Concert of Light Music from the Traube Weinrestaurant. **9.0,** Topical Talk. **9.20,** Concert by the Berlin Wireless Orchestra, conducted by Eugen Jochum: Symphony in E Flat for Double Orchestra (J. C. Bach), Variations on a Scottish Folk Melody (Günter Raphel). **10.0,** Weather, News, and Sports Notes, followed by Dance Music. **2 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW. **6.15 p.m.,** Radio Journal. **7.30,** News, Exchange and Market Prices. **7.40,** Talk: Bordeaux a Hundred Years Ago. **7.55,** Lottery Results. **8.0,** Medical Talk. **8.15,** Charades. **8.20,** News Bulletin. **8.30,** Instrumental Concert of Classical and Modern Music.

BRATISLAVA

1,076 kc s, 279 metres; 14 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by Fr. Dyk. Soloist: Liza Fuchsová (Pianoforte). Suite from Peasant Jack (Ose. Nedbal); Concerto Op. 14 for Pianoforte and Orchestra (Papandopulo-Petchitch). **5.10,** See **Prague.** **5.50,** Chamber Music on Gramophone Records. **6.55,** Report. **7.0,** See **Prague.** **7.10,** Talk for Women. **7.25,** See **Brno.** **8.20,** Popular Music on Gramophone Records. **8.40,** Esperanto Programme. **9.10 to 10,15,** See **Prague.** **10,15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc s, 253 metres.**—**1.10 p.m.,** Gramophone Concert. Selection from Tannhäuser (Wagner Charmité); Nocturne in E Flat Op. 9 No. 2 (Chopin); Paraphrase on Grün ist die Heide (Blume); The Russian Pedlar (Ferraris); In the Bird Shop (Lake); Potpourri of Cigány Music; Aria from Der Rosenkavalier (R. Strauss); Foxtrot, Ein anderes Wort für Liebe (Gideon-Pola); Foxtrot (Johnson-Coslow). **1.45,** Time, Weather, News, Exchange and Shipping Notes. **2.5,** Concert of Light Gramophone Music. **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Book Review. **4.0,** Talk: German East Africa. **4.20,** Concert of Opera Music by the Station Orchestra, conducted by Bruno Janz. Soloist: Berta Ebner-Oswald (Soprano). Selection from The Barber of Bagdad (Cornelius); Overture, Russlan and Ludmilla (Glinka); Maria's Aria from The Bartered Bride (Smetana); Selection from I Medici (Leoncavallo); Bird Song from I Pagliacci (Leoncavallo); Entr'acte from Notre-Dame (Schmidt); Card Song from Carmen (Bizet); Entr'acte from Intermezzo (R. Strauss); Aria from Rusalka (Dvorak); Selection from Mona Lisa (Max von Schillings). **5.30,** Agricultural Prices. **5.35** (approx.), Talk on the Reform of the Calendar and Observations on the Heavens in May. **5.55,** Talk on Popular Education. **6.15,** Programme to be announced. **6.35,** Caprice italien (Tchaikovsky), on Gramophone Records. **6.50,** Weather for Farmers, News and Market Report. **7.0,** Transmission for all German Stations: Recital of Silesian Folk Songs by the Station Choir and Orchestra, conducted by Ernst Prade and Soloists. **8.0,** Germany needs Colonies Propaganda Radio Play (Karl Peters). **9.10,** Announcements. **9.20,** Variety Programme. **10.10,** Time, Weather, News, Sports Notes, Market Report and Programme Announcements. **10.30,** Technical Talk on Wireless. **10.40,** Talk: Munich and Breslau. **11.0** (approx.), Close Down.

BRNO

878 kc s, 342 metres; 35 kW.—**5.25 p.m.,** German Transmission, News, Elementary French Lesson, and a Talk on Science. **7.0,** See **Prague.** **7.25,** Recital of Popular Songs. **8.20,** Reading. **8.40,** Radio Report from an Old Monastery. **9.10,** See **Prague.** **10.15** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R.; 590 kc s, 509 metres; 15 kW. **12 Noon,** Walloon Concert by the Small Station Orchestra, conducted by Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Popular Music on Gramophone Records. **2.0,** Educational Programme. **5.0,** Gramophone Concert. Part I: José Beckman's Programme. Part II: Nocturnes Nos. 1 and 2 (Chopin); Chevauchée à l'aube (Brenta); Violin Concerto (Brahms). **6.0,** Announcements. **6.15,** Light Music on Gramophone Records. **6.30,** Concert of Light Music by the Small Station Orchestra, conducted by Leemans. **7.15,** Walloon Report. **7.30,** Theatre and Film Review. **8.0,** Eugène Ysaye Commemoration Concert. The Symphony Orchestra, conducted by J. Kumps. Soloist, Alfred Dubois (Violin). Overture, Pièce li Honyeux (L. Ysaye); Divertimento for Violin and Pianoforte (E. Ysaye); Poem for Strings, L'Exil (E. Ysaye); Concerto No. 7 for Violin and Orchestra (Viewxtemps); Fantasia on Walloon Airs (T. Ysaye); Symphonic Poem, Rêve plastique (Droeghams); Fantasia on Two Walloon Christmas Carols (Jongen); Entr'acte No. 2 from Jean Michel (Dupuis). In the interval at **9.0,** Dialogue: Eugène Ysaye. **10.0,** Le Journal Parlé. **10.10,** Variety Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R.; 887 kc s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Report on the Procession of the Holy Blood in Bruges. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Oberon (Weber); First Peer Gynt Suite (Grieg); Russian Songs; Second Peer Gynt Suite (Grieg); Waltz, Pas des Beurs (Delibes). **2.0,** Broadcast for Schools. **5.0,** Concert by the Radio Orchestra, conducted by C. Walpot. **5.45,** Programme for Children. **6.30,** Programme by the V.J.V.K.A. **7.15,** Catholic Address. **7.20,** Programme by Pirreke Pirrewit. **8.0,** Concert by the Radio Orchestra and the Malines Mixed Choir, conducted by C. Walpot: Overture, Die Fledermaus (Joh. Strauss); Caucasian Suite (Ivanov-Ippolitov); Six Dutch Songs; Waltz, Roses from the South (Joh. Strauss); Dance of the Hours, from La Gioconda (Ponchielli); Six Flemish Songs; Entry of the Gladiators (Fucik); Potpourri, Bitte, recht freundlich (Ralph); Melody (Ibanez). In an interval at **8.45,** Religious Address for Young People. **9.55,** Evening Prayer. **10.0,** Journal Parlé. **10.10,** Selection from Lucia di Lammermoor (Donizetti), on Gramophone Records.

BUCHAREST

761 kc s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Slav March (Tchaikovsky); Waltz (Stolz); Selection from The Tales of Hoffmann (Offenbach); Suite, In a Fairy Realm (Ketelbey); Mandolinata (Saint-Saëns); Potpourri of Romanian Music (Dron); Violin Solo, Legend (Wieniawsky); Waltz (Repper). In the interval at **6.0,** Radio Journal. **7.0,** Educational Programme. **7.40,** Light Music on Gramophone Records. **8.0,** Quartet in A (John B. McEwen) for Two Violins, Viola, and 'Cello. **8.30,** Review. **8.45,** Recital on Two Pianofortes, by Mmes. Nitzesco-Philipide and Clemence Cernetzki: Les Eolides (Franck); Rhapsody in Blue (Gershwin). **9.15,** Light Music and Romanian Music, relayed from a Restaurant. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.45 p.m. to 12 Midnight**—**5.0 p.m.,** Concert by the Stefan Bertha Orchestra: Overture (Huszka); Märchen (Lányi); Hungarian Song; Legend (Garami); Marechiare (Tavan); Selection from Das Fürstenkind (Lehár). **6.0,** German Lesson. **6.30,** Gramophone Records: Overture, Egmont (Beethoven); Violin Concerto in D (Beethoven). **7.15,** Talk. **7.45,** Concert by the Arpad Toll Cigány Band. **8.45,** Programme by Ilona Tostady and Bela Raday. **9.45,** News Bulletin. **10.0,** Brahms Centenary Concert by the Melles String Quartet; Soloists: Ernst Dohnanyi and Rosetta Marschalko: Pianoforte Quartet in G Minor; Songs; String Quartet in B Flat. **11.30,** Dance Music by the Patria Dance Band, from the Café Patria; Soloist: Julius Szántho (Songs). **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.1 p.m.,** Concert by Max Skalka and his String Orchestra, from the Hotel d'Angleterre. **2.0 to 3.20,** Interval. **3.20,** Talk for Housewives. **3.30,** Concert by the Radio Orchestra, conducted by Launy Grondahl. Soloist, Charles Larsen (Songs). Overture, Othello (Rossini); Suite, Wedding Scenes (Smetana); Selection from La Jolie Parfumeuse (Offenbach); Spanish Serenade (Bizet); Molly on the Shore (Grainger); Five Songs; Concert Overture (Gade); Serenade (Halvorsen); Ballet Music from Sylvia (Delibes); Contradance Suite (Dupuy-Nielsen); Overture, Zampa (Herold). **5.40,** Exchange and Fish Market Prices. **5.50,** Talk in German: The Austrian Poet, Karl Schönherr. **6.20,** English Lesson. **6.50,** Weather Report. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Talk: Johannes Brahms. **8.0,** Time Signal. **8.1,** Brahms Centenary Concert by the Radio Orchestra, conducted by Fritz Mahler, and the Lilly Erieson Vocal Quartet. Soloists: Helga Weeke (Songs), Gerhard Ratn (Violin), Paulus Bache ('Cello), and Folmer Jensen, Walter Meyer-Radon, and Ove Peters (Pianoforte): Tragic Overture; Liederlieder for Vocal Quartet, and Pianoforte Duet; Variations on a Theme from Haydn's Choral, St. Anthony; Songs: (a) Sapphische Ode, (b) Sonntag, (c) Von ewiger Liebe, (d) Liebesbotschaft, (e) Vergebliches Ständchen; Trio in B Flat for Pianoforte, Violin, and 'Cello. **9.30,** A Microphone Visit to an Oil Cake Factory. **10.0,** News Bulletin. **10.15,** Gala Programme of Literature and Music in Aid of the Children's Welfare Committee. **2.0 a.m. (Tuesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc s, 225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Songs from Sound Films. **5.30 to 7.0,** Programme in English by the I.B.C., C. Danvers-Walker, T. St. A. Ronald and B. McNabb announcing. **5.30,** Concert of Special Request Items for Hastings and Eastbourne Listeners: Sussex by the Sea (Ward Higgs); Song, Danny Boy (Weatherley); Colonel Bogey (Aldford); The Londonderry Air (arr. Grainger); Blaze Away (Holman); Song: Sally in our Alley (Traditional); Moonlight on the River; Ca c'est Paris (Padilla); Selection from The Desert Song (Romberg); Selection from The Country Girl (Monckton). **6.15,** Concert of Light Music for Chichester and Bognor Listeners: Waltz, Frühlingsstimmen (Strauss); Morgenblatter (Strauss); Songs: (a) Beneath my Window, (b) Udian Love Song, (c) Honest, really, truly; Liebestreud (Kreisler); Feuilles d'Automne (Popper); Songs: (a) To Mary in

MAY 8th **MONDAY** *continued*

Heaven, (b) Falling in love again, (c) Swinging in a Hammock; Molly Bawn (Lover); Souvenir de Capri (Reece). **7.0, Radio Gazette. 7.20,** Local News. **7.30,** The Listeners' Hour and News. **8.30,** Concert, relayed from Caen. **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Ibeolians: I'm all dressed up with a Broken Heart; A Little less of the Moonlight; Let a little pleasure interfere with business; I'll putcha pitcha in the Paper; At your command; Blues in my Heart; My Baby said Yes! Yes!; Dance Hall Doll; Oh, it looks like Rain; I'm getting superstitious about you; Little Girl; Guilty; You can't stop me from loving you; Time alone will tell; Look in the Looking Glass. **11.0,** Orchestral Music: Les trésors de Columbine (Drigo); Prelude and Mazurka from Coppelia (Delibes); Liebestraum (Liszt); Classica (arr. Ewing); Old Spanish Dance (Aubert); Dances from Henry VIII (German); Les Millions d'Arlequin (Drigo). **11.30,** Duets: Air de Ballet (Herbert); The Keys of Heaven (Traditional); Give me thy Hand, from Don Giovanni (Mozart); Selection from Merrie England (German); Lightly, Lightly, from Monsieur Beaucaire (Messager); In the Sudan (Sebek); The Moon and I (Sullivan). **12 Midnight,** Club Concert for Truro and Redruth Listeners: Under Heaven's Blue (Payan); Song: A Brown Bird Singing; Xylophone Solo: Snappy Sticks; Song: I love the Moon; Wiener Blut (Strauss); Song: Dance away the Night; Xylophone Solo: Liebesfreud (Kreisler); Song: Let me dream in your Arms again; Barcarolle (Waldteufel); Song: Forget me not; Xylophone Solo: Jovial Jasper (Green); Song: Lay my Head beneath a Rose; By the Sleepy Lagoon (Coates). **1.0 a.m. (Tuesday),** Programme of Waltzes by an Orchestra and Organ: Around the Volga (Borchert); The Skaters' Waltz (Waldteufel); Gold and Silver (Lehár); Potpourri of Waltzes (arr. Stodgon); Tales from the Vienna Woods (Strauss); Waltz from The Gipsy Princess (Kálmán). **1.30,** Songs: I'm in the Seventh Heaven (Henderson); Wishing and waiting for Love (Akst); Just plain Folk (Gilbert); When the Lilac blooms again (Rotter); Little Pal (Henderson); Am I blue? (Akst); The Heart of the Sunset (Nicholls); Happy Days and Lonely Nights (Fisher). **2.0,** Dance Music by the Ibeolians: Mimi; I'll follow you; Isn't it romantic?; A Million Dreams; Here's hoping; I don't want to go to bed; Always in my Heart; What would happen to me?; Dreaming; Wheezy Anna; Wanderer; Night after Night; Just an Echo in the Valley; A Little Street where Old Friends meet. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres, 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m.,** See **Stuttgart. 5.50,** Economic Notes. **6.0,** Topical Talk. **6.15,** German Almanac. **6.25,** English Lesson. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** See **Stuttgart. 9.30,** Concert by the Radio Orchestra: Waltz, Gruss an Wien (Baussnern); Danse diabolique (Hellmesberger); Pesther Walzer (Lanner); Three Bavarian Dances (Pachernegg); Overture to a Revue (Lincke); March, Frisch drauf los (Blon). **10.15,** Time, News, Weather, and Sports Notes. **10.40,** Concert of Light Music on Gramophone Records. **11.5,** See **Munich. 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

Call ha (in Morse). **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. **6.40,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** The German Rhine—A Cycle for a Male Voice Choir, Double Trio, Duets, Contralto, Baritone, and Pianoforte (Hugo Kaun), with Introductory Talk by John Julia Scheffler. **8.50,** News. **9.0,** The Steding Crusade—A Radio Play (Wilhelm Heydrich). **10.10,** Time and News. **10.20,** Topical Talk. **10.30 (from Kiel),** Orchestral Concert, conducted by Hans Döring: Overture, Czar and Carpenter (Lortzing); Selection from La Traviata (Verdi); Waltz, Amorettenklänge (Gung'l); Selection from Die Fledermaus (Joh. Strauss); Dance of the Butterflies (Koekert); Potpourri, Keler-Bela-Perlen (Rhode); Parade der Maikäfer (Siede); Ballet Suite from Esmeralda (Drigo).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. Potpourri, Sie hören jetzt (Dostal); Potpourri, Fortissimo (Kálmán); Vindobona (Leopold); Extravaganzen (Morena); Auf der Wanderschaft (Manfred); Potpourri of Strauss Waltzes. Medley Allerlei (Gross-Winter); Goldene Burschenzeit (Maufred); Rheinischer Sang (Hanmemann); Bei Lied und Wein (Armandola). In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Market Prices. **3.30,** Guessing Competition, for Young People. **4.0,** Concert of German Folk Music by the Young Hitlerites of the East Mark. **4.35** (approx.). Concert from **Breslau. 5.30,** Review of Books. **5.50,** Wireless Technical Talk. **6.15,** Agricultural Market Prices. **6.20** (from **Danzig**), Talk: Danzig and East Pommerania. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Robinson must not die—Play in Three Acts (Friedrich Forster). **9.5,** News. **9.10,** Chamber Music. Italian Serenade for String Quartet (Hugo Wolf); Assai agitato from the String Quartet in A, Op. 41, No. 3 (Schumann); Minuet from the String Quartet in D Minor, Op. 421 (Mozart); Two Minuets for String Quartet (Puccini); Scherzo from the String Quartet in D, Op. 11 (Tchaikovsky). **9.50,** Elementary English Lesson. **10.15,** Weather, News and Sports Notes.

HILVERSUM

1,013 kc s, 296.1 metres; 20 kW. (7 kW up to **5.40 p.m.**). **—11.55 a.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **11.55,** Concert by De Notenkrakers, conducted by D. Wins. **12.40 p.m.,** Variety Music on Gramophone Records. **1.10,** Organ Recital by Johan Jong. **1.40,** Popular Music on Gramophone Records. **1.55,** Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. **2.40 to 3.10,** Interval. **3.10,** Brahms Recital by Mlle. C. Lankhout (Pianoforte) and J. v. Hell (Clarinet): Sonata, Op. 120, No. 1; Pianoforte Solos: (a) Intermezzo in E Flat, Op. 117, (b) Caprice in B Minor, Op. 76, No. 3 (c) Ballad in G Minor, Op. 118, (d) Waltzes, Op. 39; Sonata in E Flat, Op. 120, No. 2. **4.10,** Extracts from La Bohème—Opera (Puccini), on Gramophone Records. **5.55,** Programme for Children. **6.25,** Concert by De Notenkrakers, conducted by D. Wins: Cadiz (Valverde); Waltz, Etincelles (Waldteufel); Frühlingsreise (Siede); Song (Riccomini); Selection from Casanova (Lincke); Gramophone Records; Piece for Children (de Micheli); Butterflies' Dance (Koekert); Italia bella (Cortopassi); Stesky Czardas (Lebert); Holdrio (Pöll). **7.20,** Music Talk. **7.40,** Brahms Concert, conducted by P. v. Anrooy: Academic Festival Overture in C, Op. 80; Third Symphony in F, Op. 90. **8.39,** S.O.S. Messages. **8.40,** Recitations. **8.55,** Brahms Concert (contd.). Soloist, Yelli d'Aranyi (Violin). Violin Concerto, Op. 77. **9.40,** News Bulletin. **9.55,** Concert by De Flierefluiters, conducted by J. v. d. Horst. Soloist, A. de Booy (Songs). **10.25,** Recitations. **10.40,** Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot: Overture, Martha (Flotow); Wiegenlied (Brahms); Du bist die Ruh' (Schubert); Two Pieces (Gillet); The Thistle (Myddleton); Orientale (Flament); Berceuse tendre (Daniderff); Kol Nidrei (Bruch); Berliner Luft (Lincke). **11.25,** Organ Recital by Johan Jong. **11.55,** Popular Music on Gramophone Records. **12.40 a.m. (Tuesday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc s, 1,875 metres; 8.5 kW.—**12.10 p.m.** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **12.10,** Light Music on Gramophone Records. **12.40,** Police Notes. **12.55,** Gramophone Records: Morgengruss (Schubert); Das Wandern (Schubert); Frühlingsglaube (Schubert); Wiegenlied (Brahms). **1.10,** Time Signal. **1.11,** Organ Recital by Felike Asma, relayed from the Lutheran Church in Amsterdam: Choral Prelude, Wachet auf, ruft uns die Stimme (Bach); Symphony No. 6 (Widor); Songs for Organ (Zwart); Symphonic Fantasia (Peeters); Variations (Bonnet); Variations on an Old Carol (Dupré); Fantasia and Fugue on Psalm 72 (Zwart). **2.40,** Time Signal. **2.41,** Broadcast for Schools. **3.15,** Songs with Harmonium, Viola, and 'Cello Accompaniment. **3.25,** Talk on Cooking. **3.55,** Time Signal. **3.56,** Dressmaking Lesson. **4.10,** Millinery Lesson. **4.25,** Programme to be announced. **4.40,** Time Signal. **4.41,** Bible Reading and Sacred Songs. **5.40,** Time Signal. **5.41,** Light Music on Gramophone Records. **6.10,** Organ Recital. **7.10,** Answers to Correspondence. **7.40,** Police Notes. **7.55,** Time Signal. **7.56,** News Bulletin. **8.10 to 8.40,** Interval. **8.40,** Time Signal. **8.41,** Concert by the Utrecht Municipal Orchestra, conducted by Henri van Gondoever, and a Male Voice Choir. Soloist: Annie Wond (Contralto): Concerto in A for Strings (Vivaldi); Ariana a Naxos—Cantata for Contralto and Orchestra (Haydn); Symphony in E Flat (Mozart). **9.40,** Talk on Java. **10.10,** Concert (contd.). Brahms Programme: Tragic Overture, Op. 81; Rhapsody for Contralto, Male Voice Choir, and Orchestra; Academic Festival Overture, Op. 80. **11.10,** News Bulletin. **11.20,** Popular Music on Gramophone Records. **12.10 a.m. (Tuesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.5 kW.—**8.0 p.m.,** Amusement Guide, News and Financial Report. **8.15,** Sports Notes. **8.30,** Radio Concert. **9.0,** Weather and News. **9.15,** Dramatic Programme. **12 Midnight to 1.0 a.m. (Tuesday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Pianoforte Recital: The King's Horses (Graham); I got a Home in dat Rock (Brown); When you wore a Gingham Gown (Gilbert); The Vicar of Bray (arr. Tait); I know de Lord's laid His Hand on me (Brown); If you were the only Girl in the World (Ayer); The Lincolnshire Poacher (Borrett); You're gonna be young (Nicholls). **12.30 a.m.,** Dance Music: Love will find a Way; I'm one of the Lads of Valencia; Butterflies in the Rain; Put a little Springtime in the Winter of their Lives; What a Perfect Combination; A Letter to my Mother; Look what you've done; Standing in the Corner. **12.57,** I.B.C. Good-night Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc s, 368.1 metres.—6.15,** Agricultural Talk. **6.25,** Talk. **6.45,** Duets from the Operetta by Tuovi Hirvisuo and Martti Seilo, relayed from **Viipuri, 1,031 kc s, 291 metres. 7.5,** Talk. **7.30,** Concert by the Station Orchestra, conducted by Toivo Haapanen. Soloist: Kai Kajanus (Violin). Overture, The Magic Flute (Mozart); Herzwunden (Grieg); An den Frühling (Grieg); Violin Concerto in E minor (Mendelssohn); Canzonetta (Sibelius); Two Finnish Dances (Haapalainen); March (Linnala). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Wolf: Königs-Marsch (Strauss); Festival Overture (Lortzing); Waltz, Seid umschlungen Millionen (Strauss); Two Pieces from the Suite, Old China (Niemann); Song (Hill); Selection from Der Freischütz (Weber); Overture, Die Landstreicher (Ziehrer); Selection from Frühlingsluft (Jos. Strauss-Reiterer); Gallop, Auf der Rennbahn (Lincke). In the interval at **2.0 p.m.,** News. **2.30,** Meat Market Prices. **3.30,** Exchange and Time Signal. **3.50,** Talk for Young People: Adolf Hitler. **4.30,** Concert, conducted by Eysoldt: Overture, Alphonse and Estrella (Schubert); Aufschwung (Schumann); Two Pieces (Brahms): (a) Liebeslieder Walzer; Selection from Little Ida's Flowers (Klenau); Lyric Intermezzo, In the Temple of Beauty (Hummel); Suite, Wedding Scenes (Smetana). **5.50,** Reading of Poems (Hans Rehberg). **6.0,** Talk: Woman and the Family. **6.25,** Talk for Parents: Gymnastics. **6.45,** Weather, Time, Exchange, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** First General News. **8.5,** Programme from **Stuttgart. 10.15,** News and Sports Notes. **10.35,** Serenade, conducted by Wolf. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—1.0 p.m.,** News. Weather and Time. **1.15,** Richard Strauss Concert on Gramophone Records. Suite from Le Bourgeois Gentilhomme; Two Songs: (a) Morgen, (b) Freundliche Vision; Prelude to Act I of Der Rosenkavalier. Exchange Quotations after the Concert. **2.0,** Art and Film Review. **2.30,** Talk: Gymnastics for the Housewife. **3.0,** Pianoforte Recital by Hildegard Timmermann. **3.35,** Economic Notes. **4.0,** Concert by the Emdé Orchestra. Overture, Prinzess Goldschuh (W. Rush); Martin-Walzer (Zeller); Suite, On the Banks of the Nile (von Platen); Waltz Intermezzo, Prima Ballerina (Weigl); Andante from the Concerto in A Minor, for 'Cello (Goltermann); Selection from Frühlingsluft (Jos. Strauss); Fest der Zwerge (Noack); Der Lenz (Hildach); Czardas; Der Eremit (Schmalstich); Traumbilder (Lumbye); Selection from Les Millions d'Arlequin (Drigo); Halloren-Marsch (Kämpfert). In the intervals, Talk: Pictures of Thuringia and Recitation. **5.50,** Weather and Time. **6.0,** Educational Talk: The Teaching of Music in High Schools. **6.25,** Discussion: Suitable Weather for Flying. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Schiller Programme—his Letters and Poems. **8.40,** Monologues by Kolbenheyer. **9.5,** News. **9.15,** See **Vienna. 10.5,** News. **10.15** (approx.). Concert by the Station Orchestra, conducted by Johannes Ettl. Overture, Die Grossfürstin (Flotow); Selection from Boccaccio (Suppé); Czardas No. 9 (Michiels); Waldmärchen (Metz); Am Neckarstrand (Millöcker); Locken-köpfchen (Eilenberg); Die Glocken von Notre Dame (Eilenberg); Potpourri, Wiener Spaziergänge (Komzak). **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

622 kc s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Esperanto Lesson. **7.30,** Serbo-Croatian Lesson. **8.0,** Programme not yet announced, relayed from **Zagreb, 977 kc s, 307 metres. 9.0,** Time and News. **10.30** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 9,860 kc s, 30.43 metres; 20 kW.—**11.30 p.m.,** Concert: Two Steps, Currito de Triana (Mora and Urmeneta); Overture, El Seraglio (Mozart); Selection from La Meiga (Guridi). **11.45,** Radio Chronicle. **12 Midnight,** Concert (contd.): Waltz, The Blue Danube (Joh. Strauss); Song, Aurora del Peregrino; Potpourri; Brisas españolas (Hernández); Selection from La verbena de la Paloma (Bretón). **12.35 a.m. (Tuesday),** Sports and Bullfighting Notes. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

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

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc s, 263.8 metres; 11 kW.—**6.30 p.m.,** German Transmission: Talk with Gramophone Records on Brahms Centenary. **7.0,** See **Prague. 7.25,** See **Brno. 8.20,** See **Prague. 8.40,** Brahms Centenary Concert. Soloists: G. Halmová ('Cello), V. Repková (Pianoforte), M. Zalabáková (Contralto), Alois Schneider (Violin). Sonata in E Minor, Op. 38, No. 1 for 'Cello and Pianoforte; Two Songs for Contralto with Violin obbligato. **9.10 to 10.15,** See **Prague. 10.45** (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.** (from **Nürnberg**), Concert by Josef Schwarz and his Orchestra: Overture, Frau Meisterin (Suppé)! Waltz, Leuchtende Sterne (Robrecht); Verdi Potpourri (Morena); Serenade (Tarenghi); Potpourri, Heimatklänge (Krome); March, Der alte Fritz (Blon). **5.45,** Talk: The New Bavarian State Touring Theatre. **6.5,** Duet Recital by Frieda Herbel (Soprano) and Hermann Neumann (Baritone). **6.20,** Time, Weather and Agricultural Notes. **6.35,** Talk: The Palatinate and the Foundation of the German Empire. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.5,** The Barber of Seville—Opera in Two Acts (Rossini), relayed from the National Theatre. **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade by the Bavarian Schrammel Quartet. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc s, 447.1 metres.—5.0 p.m.,** Chamber Music by the Radio Ensemble. **6.0,** German Lesson. **6.30,** Talk. **7.0,** Announcements, Weather and News. **8.0,** Time Signal. **8.1,** Variety Programme relayed from Trysil. Introductory Talk by M. Sven Moren. Cornet Solos by Jens Heien, Dance Music, Songs by the Trysil Choir, Talk on Forestry and Songs by Dagny Sandvik. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Humorous Talk. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time Signal and Announcements. **9.0,** Concert of Chamber Music. After the Concert, Light Music on Gramophone Records.

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 Review. **7.0,** News Bulletin. **7.15,** Weather Report. **7.25,** Le Journal Parlé. **8.30,** Concert of Yvain's Operetta Music: Extracts from (a) Ta bouche, (b) La Dame en décolletée, (c) Gosse de riche, (d) Pas sur la bouche, (e) Lichaut. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Sponsored Concert. **8.0,** Scientific Talk. **8.5,** Talk on the Motor Car. **8.15,** Interval. **8.30,** Vocal Concert. **9.0,** Interval. **9.15,** Sponsored Concert. **10.15,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra; Part I, Opera Music: Overture, Oedipe à Colone (Sacchini); Overture and Entr'actes, Struensee (Meyerbeer); Gramophone Records: Two Arias from La Juive (Halevy); Selection from Le roi de Lahore (Massenet); Part II, Ballet Music: Ballet Suite from Les Indes galantes (Rameau); Gramophone Record, Pavane pour une infante défunte (Ravel); Ballet Music from L'Arlequin (l'Ollone); Ballet Music from Ramuntcho (Pierné); Ballet Music from La Fête chez Thérèse (Hahn). In the intervals, at **1.0,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.5,** Review of New Books. **7.20,** Concert by the Radio Paris Orchestra: Chant d'amour (Paderevsky); Piece (Nerini); La Vosgienne (Daletroz). **7.45,** Commercial Prices and Music. **8.0,** Two Plays: (a) Le Châtiment (Bourget-Trullier), (b) L'ami de jeunesse (Sée). In the intervals, at **8.30,** News and Weather, at **8.40,** Review by Reboux, and at **9.15,** Press Review and News. **10.0,** Light Music on Gramophone Records.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York.** **8.15,** Monday Matinee, from **New York.** **8.45,** Human Values. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** Ballroom Promenade. **9.30,** Weather and Market Report. **9.45,** Folk Songs by Lois Miller. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Programme to be announced. **11.15,** Time and Weather. **11.17,** Teaberry Sport Review. **11.22,** Press News-Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 3.0 a.m. (Tuesday), New York** Relay. **11.45,** Today's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** Townsend Murder Mystery. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Time Signal and Don Carney—Talk for Dog Lovers. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.0 p.m.,** See **Warsaw.** **6.0,** Natural History Talk. **6.5,** Talk for Boy Scouts. **6.20,** Miscellaneous Items. **6.35,** Talk: Curious Facts. **6.50,** Light Music on Gramophone Records. **7.0,** Theatre Notes and Programme Announcements. **7.28,** Time Signal. **7.30,** See **Warsaw.** **8.0,** Concert of Light Music. **9.0,** Song Recital by M. Kalinowski (Baritone). **9.25,** 'Cello Recital by M. Sprzyszewski: Sonata in D (Rubinstein); Tarantella (Popper); Song without Words (Davidov). In the interval, News from **Warsaw.** **10.0,** Time Signal, Sports Notes, and Police Announcements.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava.** **5.10,** Talk on Photography. **5.20,** Reading. **5.30,** Programme for Children. **5.50,** Light Music on Gramophone Records. **6.5,** Agricultural Talk. **6.15,** Talk for Workers: Mining. **6.25,** News in German. **6.30,** German Transmission: Talk: The Prague Festival. **7.0,** Chimes. **7.1,** News. **7.10,** Elementary English Lesson. **7.25,** See **Brno.** **8.20,** Talk. **8.40,** Pianoforte Recital of Music by Emil Axmen, by Antonin Resler. In the interval at **9.0,** Time Signal. **9.10,** Ideals Fulfilled—Radio Play from the Life of Brahms and Dvorák (Vrabsky), with Incidental Music by the Station Orchestra. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc/s, 760 metres.**—**6.30 p.m.** (from **Lausanne**), German Lesson. **7.0** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**). Talk. **8.0** (from **Lausanne**), 'Cello Recital by M. Delgay. **8.30** (from **Lausanne**). All about Women—Programme of Talks and Dialogues. **9.0** (from **Porrentruy**), Programme of Music from the Jura District, with a Prologue by Alfred Ribeaud, relayed from the Town Hall. The Choral Society, a Women's Choir, and the Philharmonic Orchestra. Conductors: James Juillerat and Marc Robert. Chorus and Orchestra: Fantasia on Old Airs (Béguelin); Songs (arr. Juillerat) for Women's Choir: (a) Le pinson fait mon bonheur, (b) C'est à Bonfol, (c) Pendant qu'en Avril, (d) Elles étaient trois donzelles; Duet, Le bonjour Sylvie; Chorus and Orchestra: Toi qui ne n'aimes pas; Men's Choir: Si par hasard nos coeurs s'enflamment; Women's Choir: Ce sont les filles de Montignez; Chorus and Orchestra: (a) Les Baichattes des Rouges-Tietes; Ma fortune est faite; Nous étions trois soeurs; L'âme jurassienne (arr. Juillerat). **10.0,** News and Weather. **10.15** (approx.), Close Down.

REYKJAVIK

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

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.**—**1.0 to 2.15** p.m., Gramophone Concert of Variety Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Concert by the Roman Mandoline Quartet; Soloist, Maria Senes (Soprano). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.20,** Giornale Radio. **8.0,** Time and Announcements. **8.5,** Gramophone Records of Popular Music, with Talks. **8.30,** Giornale Radio and Sports Notes. **9.0,** Concert of Light Music. **10.0,** Two Talks. **10.15,** Concert of Light Music (contd.). **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.0 p.m.,** Book News by Levere Fuller. **8.15 to 9.0** (approx.), **New York** Relay. **8.15,** Salon Concert Ensemble. **8.30,** Three Scamps. **8.45 to 9.0** (approx.), Lady Next Door. **11.45,** Stock Reports. **12.0 Midnight to 1.30 a.m. (Tuesday), New York** Relay. **12.0 Midnight,** Soconyland Sketch. **12.30 a.m.,** National Opera Concert. **12.45,** Band of Famous Brands. **1.0,** A & P Gipsies. **1.30,** One Man's Family—Sketch. **2.0,** Contended Programme, from **New York.** **2.30,** National Radio Forum, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.,** Time Signal from Neuchâtel Observatory, Weather and News. **12.40** (from **Basle**), Folk Music on Gramophone Records. **1.35** (from **Basle**), Weather and Exchange Quotations. **3.30** (from **Zürich**), Concert of Popular Music by the Small Orchestra. **4.0** from **Berne**), Popular Music on Gramophone Records. **5.30,** Weather. **5.35** (approx.) **to 6.30,** Interval. **6.30** (from **Zürich**), Talk on Professional Ethics. **7.0** (from **Zürich**), Time Signal and Weather Report. **7.15** (from **Zürich**), English Lesson. **7.45** (from **Zürich**), Scheherazade-Rimsky-Korsakov). **9.30,** Weather and News. **9.40** (approx.), Old Dance Music by the Station Orchestra and Jazz Music on Gramophone Records. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.** (from **Göteborg**), Accordion Music. **5.30,** Reading. **5.55,** Light Music on Gramophone Records. **6.55,** Parliamentary Report. **7.15,** Weather and News. **7.30** (from **Göteborg**), Variety Programme. **8.0,** Relay from the Church Congress in the Town Hall. Address by Archbishop Erling Eidem and Songs by Harry Sanger. **8.35,** Sonata in D Minor, Op. 108, for Violin and Pianoforte (Brahms). **9.15,** Talk. **9.45,** Weather and News. **10.0,** Military Band Concert. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Popular Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **2.0 to 5.0,** Interval. **5.0,** Orchestral Concert, conducted by Roskam: Slav Rhapsody (Friedemann); Waltz, Eternelle Ivresse (Gabne); Overture, Le postillon de Longjumeau (Adam); Potpourri, Offenbachiana (Conradi); Gretchen am Spinnrade (Schubert); Ständchen (Schubert); Echoes of Russia (Léopold); March, Attila (Fucik). **6.0,** Film Review. **6.15,** Review of the Week in German. **6.30,** Orchestral Concert, conducted by M. de Villers; Soloist: Roskam ('Cello): Overture, Coriolanus (Beethoven); Selection from Lucia di Lammermoor (Donizetti); Ballet Music from Romeo and Juliet (Gounod); 'Cello Solo: Romance (Dumas); Divertissement (Lado). **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results, and Announcements. **8.30,** Sacred Concert, relayed from **Nancy:** Fonds d'orgue (Marchand); Joseph est bien marié (Balbastre); Carol in D Minor (Duquin); O Magnum Mysterium (Vittoria); sixteenth Century Carol, Je me suis levé par un matinet; Il est né le divin enfant (Noyon); Piece in G (Purcell); Vere languores nostros (Vittoria); Final Chorus, Loué, soistu, Jésus-Christ, from the St. Matthew Passion (Schutz); Organ Solos: (a) Pièce héroique (Franck), (b) Passacaglia and Fugue in C Minor (Bach); Chorus, Répose en paix, o doux Sauveur des hommes, from the St. John Passion (Bach); Improvisation on a Gregorian Chant; Salve Regina; De Profundis (Bretagne); Intermezzo pastoral (Litaize); Prelude and Fugue in B Minor (Dupré); Hymne à la nuit (Rameau-Noyon); Cantata to Joan of Arc (de Ranse). In the interval, Press Review in French and Talk on the Churches of Nancy. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0 to 2.15,** Musical Programme arranged by the Post Office. **2.30,** Spanish Lesson. **3.0 to 3.30,** English Lesson for Beginners. **4.30,** Concert by the Station Orchestra, conducted by Gustav Görlich, Soloists: Fritzi Göhrum (Soprano), and Otto Seyfert (Pianoforte); Overture, Nebuchadnezzar (Verdi); Gilda's Aria from Rigoletto (Verdi); Tarantella for Pianoforte and Small Orchestra (Schulz-Beuthen); Song, Frühlingsstimmen (Joh. Strauss); Selection from Die Afrikareise (Suppé); Song, Czardas from Die Fledermaus (Joh. Strauss); Martin-Walzer from Der Obersteiger (Zeller). **5.45,** Time, Weather and Agricultural Notes. **6.0,** Talk: Germany's Leaders in 1870-71. **6.25,** Talk: The Peasant and his World. **6.50,** Time and News. **7.0;** Transmission for all German Stations, relayed from **Breslau.** **8.0,** The Robbers—Play (Schiller). **9.30,** See **Frankfurt.** **10.15,** Time, News, Weather, and Programme Announcements. **10.35,** Chess Lesson. **11.5,** Serenade from **Munich.** **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**7.30 p.m.,** Accordion Solos. **7.45,** Orchestral Music. **8.0,** Songs from Opéra-Comique. **8.15,** Viennese Music. **8.45,** Popular Songs. **9.0,** Music Hall Programme. **9.30,** Argentine Music. **9.45,** Instrumental Solos. **10.0,** Military Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Russian Songs. **11.15,** Orchestral Music. **11.30 to 12.0 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Orchestral and Vocal Concert: Selection from Congress Dances (Heymann); Just because I lost my Heart (Abrahams); Come to me (de Sylva); Gavotte, Stéphanie (Czibulka); Serenade (Heykens); Guilty (Kahn); Blues in my Heart (Mills); Old Vienna Moon (Lebert). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Tuesday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

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

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 p.m.,** Concert of Variety Music. **6.35,** Giornale Radio, and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report and Gramophone Records of Variety Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements and Giornale Radio. Weather and Popular Music on Gramophone Records. **8.45,** Talk. **9.0,** Chamber Music. **10.0,** A Comedy in One Act, followed by Light Music on Gramophone Records. **11.0,** Giornale Radio.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 kW. 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.**—**4.5 p.m.,** Concert of Folk Music: Wedding March; Old Franconian Minuet; Tyrolian Waltz; Two German Dances from Lower Austria; Old Viennese Serenade (Roderich Bass); Minuet from Lower Austria; Old Viennese Dances; Carnival 1823. **4.35,** Talk for Young People. **5.0,** Talk: Georg Böhm and the Great German and Italian Organ Players before Bach. **5.25,** Sonata Recital by Ernst Neumann ('Cello) and Edith Wachtel (Pianoforte): Sonata in G Minor, No. 3 (Bach); Sonata, Op. 4 (Zoltan Kodaly). **6.5,** Talk. **6.25,** Talk: Books in connection with the Week's Talks. **6.30,** Talk: A Flight from the Alps to the Sahara. **7.0,** Concert by the Vienna Symphony Orchestra, conducted by Anton Konrath. Soloist: Friedrich Wührer (Pianoforte); Overture, A Midsummer Night's Dream (Mendelssohn); Nocturne (Dvorak); Concerto in C Minor for Pianoforte and Orchestra (Mozart). **7.50,** Time, Weather, and Programme Announcements. **8.0,** Styrian Programme relayed from **Graz.** **9.15,** News and weather. **9.30,** Concert of Styrian Music, relayed from **Graz.** The String Orchestra, conducted by Fritz Voglar. Soloists: Eugen Gotriller (Songs). Arthur Miehl (Violin), and Franz Brugger (Cornet); March, Steirer voran (Hans Stilp); Overture, Der Opernball (Heuberger); Waltz from Der Obersteiger (Zeller); Waltz Songs from Traum einer Nacht (Hans May); Bilder aus der Steiermark (Viktor Zack); Two Pieces for Violin: (a) Nocturne in D (Chopin), (b) Czardas (Monti), Overture, Der Karneval (Glickh); Ballet Music (Marcell Frank); Cornet Solo, Nachklänge aus dem Zillertal (Th. Hoch); First Petite Suite (de Micheli); Selection from Ball im Savoy (Abraham); Roseggermarsch (Absenger).

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.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **1.20,** Weather Report. **1.25 to 3.10,** Interval. **3.10,** News. **3.15,** Economic Notes. **3.25,** Traffic Report. **3.35,** Answers to Correspondence. **3.50,** Popular Music on Gramophone Records. **4.25,** Elementary French Lesson. **4.40,** Talk: Salaries in Poland. **5.0,** Song and Pianoforte Recital by Polish Candidates for the Second International Competition at Vienna. **5.55,** Programme Announcements. **6.0,** Light Music from the Cristal Restaurant. In the interval, News. **7.0,** Miscellaneous Announcements. **7.20,** Answers to Agricultural Correspondence. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Orchestral Concert, conducted by J. Oziminski; Soloist: Mme. M. de Carmarie (Soprano): Overture, The Barber of Seville (Rossini); Spanish Serenade (Bizet); Invitation to the Waltz (Weber-Berlioz); Polish Dance (Scharwenka); Songs: (a) Air from the Barber of Seville (Rossini), (b) Chanson espagnole (Delibes), (c) Melody (Proch); Japanese Suite (Yoshitomo); Ballet Music from Ode à Phrynée (de Taeye); Arietta in old style (Brogi); Valse-Caprice (Rubinstein); Songs: (a) Majka (Hatzea), (b) Ne voli me (Stahuljak), (c) Aman Dewojko (Konjowic); Scandinavian Suite (Frederiksen). **9.30,** Sports Notes. **9.35,** Radio Journal. **9.40,** Pianoforte Recital by Tamara Bey. **10.10,** Answers to Technical Correspondence. **10.25,** Dance Music from the Café Adria. **10.55,** News, Weather and Police Notes. **11.0,** Dance Music (contd.).

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.25 p.m.,** Review of Books. **7.40,** Announcements. **8.0,** Concert by the St. Mark's Boys' Choir. **9.0,** Concert by the Chamber Trio. **10.0,** News and Weather. **10.10,** Dance Music relayed from a Restaurant. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

MAY 8th — MONDAY *continued*

TUESDAY

MAY THE NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"The Castle on the Hill," a romantic drama with music by C. Dennis Freeman.
LONDON REGIONAL	Act 1 of "Der Rosenkavalier" (Strauss), from the Royal Opera House, Covent Garden.
MIDLAND REGIONAL	Thanksgiving service for the jubilee of the foundation of King Edward's School, Birmingham.
NORTH REGIONAL	Memories of Childhood, orchestral concert.
WEST REGIONAL	May songs and dances, a Welsh programme.
SCOTTISH REGIONAL	Choral concert.
BELFAST	Choral and instrumental concert.

ABROAD

BUDAPEST	7.30 p.m. Opera: "A Masked Ball" (Verdi), from the Royal Hungarian Opera House.
COPENHAGEN	8 p.m. Operetta: "The Gipsy Princess" (Kalman), from the Royal Theatre.
HAMBURG	8 p.m. Opera: "I quattro Rusteghi," by Wolf-Ferrari.
HEILSBERG	8.5 p.m. Forgotten operetta music.
LEIPZIG	8 p.m. Oratorio: "The Seasons," by Haydn.
POSTE PARISIEN	9 p.m. Concert from the Gaveau Hall.
VIENNA	8.55 p.m. Wilhelm Kienzl concert with the collaboration of the composer.
WARSAW	7.30 p.m. Opera: "Quo Vadis," by Nougués, from the Grand Theatre.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Talk. **7.15,** Talk by Philip Ryan: The Manufacture of Cement. **7.30,** Time Signal. **7.31,** The Station Orchestra. **8.0,** Tenor Solos by Victor Cole. **8.15,** Revue by Eva Brennan and Company. **8.55,** The Station Orchestra. **9.10,** Mezzo-Soprano Solos by Mary Maguire. **9.30,** Violin Solos by Edith Kelly Lange. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.**—7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **10.5,** Sponsored Programme. **10.30,** Trianerias—Musical Play in Two Acts (Vives). **12 Midnight** (in an interval), News. **1.0 a.m. (Wednesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW. **5.30 to 6.30 p.m.,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert. Overture, Oberto conte di S. Bonifacio (Verdi); Nostalgia del passato (Sartori); Selection from Carmen (Bizet); Chanson sans paroles (Tchaikovsky). **9.15,** The Three Graces—One-Act Comedy (Niccodemi). **10.5** (approx). Mandoline Quartet. Overture, Il trafore del Sempione (De Giovanni); Fiore andaluso (Borgesano); Selection from Boccaccio (Suppé); Carillon d'amore (Pancaldi). **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.**—2.0 p.m.,** Gramophone Concert of Popular Music, relayed from **Berlin (Witzleben). 3.0,** Talk for Young People: Building a Boat. **3.30,** Weather and Exchange. **3.45,** Reading: Letters between Schiller and Goethe. **4.0,** See **Leipzig. 5.0,** Talk for Women. **5.25,** Topical Talk. **5.35,** Song Recital by Gerda Klemm: Four Songs (Schubert): (a) Heimweh, (b) An eine Quelle, (c) Nacht und Träume, (d) Bei dir; Four Songs (Cornelius): (a) Vöglein fliegt dem Nestchen zu, (b) Mein Lied ist klein, (c) Zu dem Duft, (d) Hirschlein ging im Wald spazieren. **6.0,** Poetry Reading. **6.5,** Pianoforte Recital by Winfried Wolf: The Twelfth Rhapsody (Liszt); Liebestraum (Liszt); Waltz (Volkmann); Moment musical (Schubert); Military March (Schubert-Tausig). **6.30,** Political Press Review. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations. Part I.—See **Leipzig.** Part II.—Choral Music from Die Braut von Messina; Poems by Goethe and Schiller; Commemoration Programme from Schiller's House in Weimar. Part III, See **Leipzig. 8.0,** Orchestral Concert: Gavotte from Idomeneo (Mozart); The Purcell Suite (arranged Unger); Turkish March (Mozart); Military March in D (Schubert); Turkish March (Beethoven); Serenade for Strings, Op. 48 (Tchaikovsky). **9.0,** Talk: The Listeners' Point of View. **9.30,** See **Stuttgart. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Hamburg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW. **6.10 p.m.,** Review of Books. **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmissions for all German Stations; **Leipzig-Berlin (Deutschlandsender),** Exchange Programme. **8.5,** Announcement. **8.10,** Reading (Müller-Partenkirchen). **8.25,** Topical Talk. **8.40,** Dance Music from the Café Moka Efti. **9.15,** Recital by the Elly Ney Trio: Trio in B Flat, Op. 99 (Schubert); Trio in C Minor, Op. 101 (Brahms). **10.10,** Weather, News and Sports Notes. **10.30** (approx.), See **Hamburg. 12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.**—6.0 p.m.,** Educational Talk. **7.30,** News and Exchange. **7.40,** Programme for Women. **7.55,** Lottery Results. **8.0,** Topical Talk. **8.15,** News. **8.30,** Programme to be announced.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.**—5.20 p.m.,** 'Cello Recital by Greta Hahnova: Adagio and Toccata in C (Bach); Sonata, Op. 38, for 'Cello and Pianoforte (Brahms); Andante religioso, Op. 2 (Becker); Allegretto grazioso (Schubert-Cassadó); Scherzo, Op. 3, No. 2 (Feltzer). **6.0,** Popular Music on Gramophone Records. **6.5,** See **Prague. 6.25,** Light Music on Gramophone Records. **6.40,** Talk on Romania. **6.55,** Reading. **7.0,** See **Prague. 7.25,** See **Brno. 8.30 to 11.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres. — 1.10 p.m.,** Gramophone Concert of Alpine Folk Music. **1.45,** Time, Weather, News, and Exchange. **2.5,** Gramophone Concert of Variety Music. **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Children. **4.10,** Hermann Buchal Song Recital by Claere Frühling (Soprano), with the Composer at the Pianoforte: Erste Furcht; Hände; Haus im Schnee; Melodie; Der schöne Strand; Schwalben; Licht; Schmales Glück; Ohnmächtige Weisheit; Füsse meines Knaben; Trennung. **4.40,** Book Review. **5.0,** Mandoline and Guitar Recital by Walter Fabig and Alfons Aulam: Polka brillante, Pupille erranti (Fiorne); Russian Gipsy Melody (Traditional); Intermezzo, Carmen Silva (Kellmaneck); Waltz, Wiegen und wogen (May); Duet for Mandolines (Ritter); Two Styrian Yodels for Two Mandolines (Krug); Mazurka Concerto (Munier); Abendläuten (Fink). **5.25,** Agricultural Prices. **5.30** (approx.), Georg Britting reads from his own Works. **5.50,** Programme to be announced. **6.25,** Talk by Dr. Carl Dyrssen: What Jean Paul means to us To-day. **6.50,** Weather for Farmers, News, and Cattle Market Report. **7.0,** Transmission for all German Stations: **Leipzig-Berlin (Deutschlandsender)** Exchange Programme. **9.5,** See **Heilsberg. 9.20,** Reading. **9.50,** Political Press Review. **10.15,** Time, Weather, News, Sports Notes, and Programme Weather, News, Sports Notes, and Programme Announcements. **10.50,** Talk: The New Breslau Theatre Regulations. **11.0,** Concert from **Hamburg. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.**—6.15 p.m.,** Talk for Workers: Gymnastics. **6.25,** German Transmission, News and Agricultural Talk. **7.0,** See **Prague. 7.10,** Talk on Psychology. **7.25,** Amusing Jests—Programme of Songs and Recitations. **8.30,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No.1)

I.N.R., 590 kc/s, 509 metres; 15 kW.**—12 Noon,** English Music on Gramophone Records: Brigg Fair (Delius); Suite, Summer Days (Coates); Valsette, Wood Nymphs (Coates). **12.30 p.m.,** Songs by M. Jooris. **12.45,** Organ Solos on Gramophone Records: Toccata and Fugue (Bach); Toccata from Symphony No. 5 (Widor). **1.0,** Le Journal Parlé. **1.10,** Tchaikovsky Concert by the Small Station Orchestra, conducted by Leemans: Jubilee March; Extracts from The Nutcracker; Character Dance; Romance in F Minor; Waltz from The Sleeping Beauty. **1.45,** Suite pour mes amis and Bouton d'or (Pierné). **5.0,** Glazounov Concert by the Symphony Orchestra, conducted by Meulemans: Carnival Overture; Spanish Serenade; Extracts from a Ballet Suite. **5.20,** Programme for Children. **6.5,** Literary Review. **6.15,** Belgian Music on Gramophone Records. **6.30,** Fifteenth Century Sacred Music by the Pro Musica Antiqua Society, an Instrumental Ensemble and Soloists: Alma Redemptoris (Dufay); Ave Maria (Feragnti); Veni Sancte Spiritus (Dufay); Hosanna from the Mass, Se la Face ay Pale (Dufay); In tua memoria (de Lantino); Vergine Bella (Dufay); Tota pulchra (de Lantino). **7.15,** Weekly Report of the Catholic Radio Society, and Film Review. **7.30,** Review for Women. **8.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Soloist: M. Piette (Clarinet). Pictures from an Exhibition (Mussorgsky); Rhapsody for Clarinet and Orchestra (Debussy); Suite, Mother Goose (Ravel). **8.45,** Talk: The Youth of Germany. **9.0,** Strauss Concert by the Radio Orchestra, conducted by Franz André: Waltz, Wine, Woman and Song; Overture, Die Fledermaus; Waltz, Wiener Blut. **9.20,** Cigány Music: Potpourri of Hungarian Airs (Manfred); Two Czardas (Michiels); Czardas (Monti); Hungarian Potpourri (Padonck). **9.45,** Pianoforte Improvisations. **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records. **10.40,** Gramophone Records: Overture, Fidelio (Beethoven); Prix anglais, Last Movement to Schubert's Unfinished Symphony (Franck-Merrick). **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 by the Small Station Orchestra, conducted by P. Leemans: Overture, Morning, Noon and Night (Suppé); Waltz, Märchen aus Alt-Wien (Ziehrer); Selection from Il Trovatore (Verdi); Minuet for Pianoforte (de Boeck); Bohemian Dance from The Fair Maid of Perth (Bizet); Selection from The Vagabond King (Friml); Elan (Douliez); Waltz, Why Dance? (Turk-Ahlert); Ribera del Turia (Lucchesi). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: March, Salut Thalia (Engelmann); Selection from Le fille de Madame Angot (Lecocq); Song, A. bi. ci (Cosentino); Scarf Dance (Chaminade); Pierrette (Chaminade); Two Step, Naranjos (Grant); Intermezzo from The Acrobat (Robrecht); Variations (Wittmann); Selection from The Rose of Stamboul (Fall); Aria from Figaro (Mozart); Liebestraum (Liszt-Somers); Chanson villageoise (Popper); Capric viennois (Kriesler-Tiersch); Selection from Victoria and her Hussar (Abraham). **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Bei der Zigeuner-kapelle (Meyer-Helmund); Four Viennese Pieces (Kriesler); Nuit orientale (Frémolle); Italian March (Rousseau); Waltz Potpourri (Robrecht); Les airs de Dranem (Salabert); Selection from Nell Gwyn (German). **6.0,** Light Music on Gramophone Records. **6.15,** Talk: The Attempts to assassinate William the Silent. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. **7.15,** Talk on British Broadcasting. **7.30,** Tourist Report. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: Overture, Banditenstreiche (Suppé); Selection from Les cent vierges (Lecocq); Potpourri (Morena). **8.30,** Reading. **9.0,** Concert by a Symphony Orchestra, conducted by M. Meulemans: Napoli, from Impressions d'Italie (Charpentier); Norwegian Dances (Grieg); Rondo capriccioso (Saint-Saëns); The Duke of Alva (de Greef); Ballet Music from Faust (Gounod). **10.0,** Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.**—5.0 p.m.,** Light Music and Romanian Music by the Motoi Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** An Opera on Gramophone Records. **10.0,** Radio Journal. **10.15,** Talk: Romania.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **8.40 metres** from **7.25 p.m.** to **12 Midnight.—5.0 p.m.,** Viennese Song Recital, by Radios Hilda Bock with Schrammel Accompaniment. Drunt in der Loban (Strecker-Eckhardt); Song (Eysler-Bodansky); Es war einmal (Lincke); Das ist der Frühling in Wien (Stolz); Das Lied vom süssen Mädel (Reinhardt-Landesberg-Stein); Das Lercherl von Hernals (Ascher-Brammer-Grünwald); Mit dem Sch-Sch-Sch-Überraschungszug (Leopoldi-Peter and Herz-Saltpeter); Wiener Weisen and Reisen (Recktenwald). **5.45,** Talk. **6.20,** Pianoforte Recital by Andreas Petri. Pathetic Sonata (Beethoven); Nocturne in A Flat, Op. 32 (Chopin); Rhapsody in G Minor (Dohnanyi). **6.55,** French Talk. **7.30,** A Masked Ball—Opera (Verdi) from the Royal Hungarian Opera House. News in the interval. **12 Midnight** (approx), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **—12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Harald Andersen String Ensemble. **2.0 to 3.0,** Interval. **3.0,** Concert by the Mogens Hansen Instrumental Ensemble: Overture, Der Schauspieldirektor (Mozart); Suite No. 2 from L'Arlésienne (Bizet); Selection from Belshazzar's Feast (Sibelius); Piedmontese Dance (Sinigaglia); Selection from La Belle Hélène (Offenbach); Air from The Countess Maritza (Kálmán); Sketches from Russia (Fetras); Intermezzo from Suor Angelica (Puccini); Dance of the Hours from La Gioconda (Ponchielli). In an interval at **3.45** (approx.), Reading. **5.0,** Programme for Children. **5.40,** Exchange Quotations and Fish Market Prices. **5.50,** Talk. **6.20,** German Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on Soviet Russia's Prison Laws. **8.0,** Time Signal from the Town Hall. **8.1,** The Gipsy Princess—Operetta in Three Acts (Kálmán), relayed from the Royal Theatre. **11.0** (approx.), News. **11.15** (approx.), Concert by the Jens Warny Dance Band, relayed from the Nimb Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Wednesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW. **12 Noon,** Military Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Chansonnettes. **5.30 to 7.0,** Programme in English by the I.B.C. C. Danvers-Walker, T. St. A. Ronald and B. McNabb announcing. **6.30,** Concert for Torquay and Exeter Listeners. Overture, Die Fledermaus (Strauss); Slav Dance, No. 10 (Dvorák); Violin Solos: (a) Spanish Dance (Fall), (b) Tambourin Chinois (Kreisler); Hungarian Dance, No. 2 (Brahms); Serenade (Moskowsky); Waltz from the Sleeping Beauty (Tchaikovsky); Selection from I Pagliacci (Leoncavallo); Violin Solos: (a) Hungarian Dance, No. 5 in G Minor (Brahms), (b) La Capricieuse (Elgar); Scarf Dance (Chaminade); March from Tannhäuser (Wagner). **6.15,** Military Band Concert for Plymouth and Devonport Listeners: Brabazon; By the Blue Hawaiian Waters; Bravest of the Brave; Coronation March; Entry of the Gladiators (Fucik); Concert Solos: (a) Carnival of Venice, (b) I Bacio; Bonnie Briar Bush; Father of Victory; Gavotte in B Flat

(Handel); Sambre et Meuse. 7.0, Radio Gazette. 7.20, Local News. 7.30, The Listeners' Half Hour and News. 8.15, Talk. 8.30, Concert relayed from **Le Havre.** 10. till Close Down Programme in English by the I.B.C. 10.0 Dance Music by the Ibcolians. It's great to be in love; I idolise my Baby's Eyes; Flame of desire; You call it madness, but I call it love; Mona Lisa; You try somebody else; By the Fireside; Ecstasy; I'm sorry, dear; Falling in love again; One little quarrel; Life is just a Bowl of Cherries; The Song of the Islands; Bend down, Sister; Save the last Dance for me. 11.0, Music by a Tango Band: Mariette; La Cumparsita; Little Lady; Corazon; Plegaria; Todavia; Madrid; Adios Juventud. 11.30, Songs; Asleep in the deep (Lamb); In Cellar Cool (Traditional); Orchestra: The Phantom Brigade (Myddleton); D'ye ken John Peel (Traditional); The Meynell Hunt (Cotton); Xylophone Solo, Gold Fishes (Kroeger); The Stormfiend (Weatherley); The Mighty Deep (Jude). 12 Midnight, Club Concert for Padstow and Newquay Listeners. Ma Curly-Headed Baby; (Clutsam); Two Indian Love Lyrics (Woodforde-Finden); (a) Temple Bells, (b) Less than the Dust; On Wings of Song (Mendelssohn); Melody in F (Rubinstein); Two Indian Love Lyrics (Woodforde-Finden); (a) Kashmiri Love Song (b) Till I Wake; Gavotte from Mignon (Thomas); Orientale (Cui); I pitch my Lonely Caravan at Night; Somebody, Somewhere, Someday; Molly on the Shore (Grainger); Cherry Ripe (Traditional); My Dreams; At Dawning (Cadman); Evensong (Easthope Martin). 1.0 **a.m. (Wednesday),** Hawaiian Duets: Alma Mia (Whidden); Bone Festa (Traditional); Good-night Sweetheart (Noble); O Sole Mio (Traditional); Hawaiian Twilight (Traditional); Sing Something Simple (Hupfeld); Kamschamola (Traditional); Hawaiian Medley (Traditional). 1.30, Songs and Orchestral Music. Songs: (a) Just an Old Refrain, (b) Just you, Just Me, (c) In the Still of the Night; Great Day; Songs: (a) Waiting by the Sily'ry Rio Grande, (b) Love Me; (c) The Kiss Waltz. 2.0, Dance Music by the Ibcolians; Somebody Stole my Gal; So Ashamed; Here's Hoping; Southern Serenade; The Wise old Owl said Hoo; What more can I Ask?; Love Tales; Brighter than the Sun; Strange Interlude; Me Minus You; I guess I'll have to Change my Plan; Same Old Moon; Brother can you spare a Dime?; I'll never have to Dream Again. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres, 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** See **Munich.** 5.50, Economic Notes. 6.0, Talk: Men and Women Land Workers. 6.15; Talk: May Auctions in the Rhenish Wine District. 6.30, Talk: The Spirit of the Past and Present. 6.55, Time, Programme Announcements, Weather, and Economic Notes. 7.0, Transmission for all German Stations: **Leipzig and Berlin (Deutschlandsender)** Exchange Programme. 8.0, Brahms Concert by the Frankfurt Teachers' Choral Society, conducted by Fritz Gamlke: Folk Songs for Women's Choir and Pianoforte, Op. 44: (a) Minnelied, (b) Die Müllerin, (c) Der Bräutigam, (d) Fragen; Folk Songs for Male Voice a-cappella Choir: (a) In stiller Nacht, (b) Barcarolle, (c) Wach auf, Mein' Herzensschöne, (d) Schöner Augen schöne Strahlen, (e) Dort in den Weiden, (f) Marschieren; Songs for Women's Choir, Op. 17, with Harp and Horn Accompaniment: (a) Es tönt ein vollier Harfenklang, (b) Der Gärtner, (c) Gesang auf Fingal. 8.45, E.T.A. Hoffmann in Bamberg—Radio Play (Walter Best). 9.30, See **Stuttgart.** 10.15, Time, News, Weather, and Sports Notes. 10.45, See **Stuttgart.** 12 **Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.**—**5.55 p.m.,** Song Recital by Bruno Ucko. 6.25, A Midnight Scherzo—a Musical Radio Scene (Ernst Johannsen and Walter Giruatis). 6.45, Frankfurt Exchange and Hamburg Egg Prices. 6.50, Weather Report. 7.0, Transmission for all German Stations: **Berlin (Deutschlandsender)** and **Leipzig** Exchange Programme. 8.0, I quattro Rusteghi—Opera in Three Acts (Wolf-Ferrari), relayed from the Municipal Theatre, Lübeck. In the interval at 8.50, News; and at 9.30, Time and News. 10.15, Topical Talk. 10.30, Concert by the Hamburg Philharmonic Orchestra, conducted by José Eibenschütz; Soloist: Valentin Grimm (Clarinet); Spring Overture (Götz); Romance and Polacca from the Clarinet Concerto (Weber); Spring Song (Sibelius); Selection from A Ballet Suite (Reger); Festival Day from the Suite, Spring (Strässer); A Spring Dream from the Suite, The Seasons (Palmgren); Waltz, Künstlerblut (Engelke); Selection from Light Cavalry (Suppé); Eidgenössischer Bundesfestmarsch (Kempter).

HANOVER.—See **Hamburg.**

HEILSBERG

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 Little Station Orchestra, conducted by Eugen Wilcken. Wedding-Marsch (Buettner); Overture, Der Waldmeister (Joh. Strauss); Waltz, Faschingskrapfen (Schrammel); Trumpet Solo, Polka (Waldteufel); Burlesque for Clarinet and Harmonium, Die Gardinenpredigt (Fucik); Selection from Boccaccio (Suppé); Overture, Der Bettelstudent (Millöcker); Waltz, Die ersten Gedanken (Lanner); The Lost Chord (Sullivan); Ich hab' a mal a Räuschert g'habt (Kapeller); Selection from The Bird Fancier (Zeller). 1.5 **p.m.,** Gramophone Concert of Opera and Operetta Music. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Exchange quotations. 3.30, Programme for Children. 4.0 (from **Danzig**), Springtime and Love—Concert by the Libertas Male Voice Choir and the Stoberitz Wind Instrument Orchestra. 4.30, Concert by the Little Station Orchestra, conducted by Eugen Wilcken. Jubel-Ouvertüre (Flotow); A Festival in Aranjuez (Demerssemann); Waltz, Wiener Extrablätter (Translateur); Selection from André Chénier (Giordano); Zigeunerfest (Heykens); Der tanzende Mond (Aubry); Suite, Reminiscences of Cairo (Armandola); Waltz, Hoch lebe der Tanz (Waldteufel); Selection from Paganini (Lehár). 5.45, Review of Books. 6.15, Market Prices. 6.25, Talk on Handicrafts. 6.50, Weather Forecast. 7.0, Transmission for all German Stations—**Leipzig-Berlin (Deutschlandsender)** Exchange Programme. 8.0, News. 8.5, Concert of Forgotten Operetta Music by the Little Station Orchestra, conducted by Eugen Wilcken, with Soloists. 9.40, News. 9.45, Siegfried von der Trenck reads from his own novel, Der Steir und die krone. 10.15, Weather, News and Sports Notes.

HILVERSUM

296.1 metres; 20 kW. (7 kW up to **5.40 p.m.**)—Programme of the Algemeene Vareeniging Radio Omroep (A.V.R.O.). 11.10 **a.m.,** Organ and Soprano Song Recital. In the interval at 11.40, Talk on Cookery. 12.40 **p.m.,** Time Signal. 12.41, Concert of Light Music by the Rentmeester Orchestra, with Gramophone Interludes. 2.55 to 3.10, Interval. 3.10, Light Music on Gramophone Records. 3.40, Talk for Women. 4.40, 'Cello and Pianoforte Recital by Harry Son and Egbert Veen. Sonata in G (Breval). Après un Rêve (Fauré). Sicilienne (Fauré). Mazurka in G (Popper). Village Song (Popper). 5.10, Concert by a Children's Choir. 5.40, Programme for Children. 6.10, Talk arranged by the Liberal Protestant Radio Society (V.P.R.O.). 6.40, Light Concert by Kovacs Lajos and his Orchestra with Bob Scholte (Songs). 8.10, Talk: The Harz Mountains. 8.40, Time Signal. 8.41, News Bulletin. 8.45, Recital by Pierre Palla (Organ) and Henk Viskil (Songs). 9.40, Recitation. 10.0, Concert by the Station Orchestra, conducted by Nico Treep. Overture, Ruy Blas (Mendelssohn). Rondo for Violin and Orchestra (Schubert). Selection from Samson and Delilah (Saint-Saens). 10.40, Concert by a Male Voice Choir, conducted by P. Kallenbach. 11.0, Orchestral Concert (contd.). Radetzky March (Joh. Strauss). Selection from The Geisha (Jones). Waltz (Morena). Algerian Scene (Ketelbey). March, Jahrmarktsrummel (Lincke). Overture, Raymond (Thomas). March (Holzmann). In an interval at 11.40, News. 12,10 a.m., (Wednesday), Light Music on Gramophone Records. 12.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). 12.55, Concert by the K.R.O. Sextet: En garde (Grit); Pax in terra (Kennes); Waltz, Flattergeister (Jos. Strauss); Dance of the Dervishes (Bendix); Selection from La Gioconda (Ponchielli); Waltz (Dvorak); Gramophone Records: Russian Fantasia (Lustenhouwer); Song (Mendelssohn); Waltz, Dorfkinder (Kalman); Air (Beece); March, Freiheitsjubel (Blaukenburg). 2.25, Interval. 2.40, Programme for Women. 3.40, Popular Music on Gramophone Records. 4.10, Concert. R. Dijs-Ochel (Songs), H. Cremers (Cello), and F. Boshart (Pianoforte). Sonata in G (Sammartini); Twelve Variations on a Theme of Handel (Beethoven); Songs (R. Strauss): (a) All' mein Gedanken, (b) Traum durch die Dämmerung, (c) Die Nacht; Songs (Grieg): (a) Im Kahne, (b) Beim Sonnenuntergang, (c) Der Jäger; Elegy (Fauré); Allegro appassionato (Saint-Saëns); Spanish Serenade (Glazunov); Andalusia (Granados); Tarantella (Popper); Ave Maria (Kahn); Melody (Sigtenhorst-Meyer); Le garçon (Sigtenhorst-Meyer); Ninna-Nanna (Castlemore-Tedesco); Pavane; Clair de lune. 5.30, Popular Music on Gramophone Records. 5.50, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. 7.40, Police Report. 7.55, Popular Music on Gramophone Records. 8.5, Talk. 8.25, Talk. 8.40, Concert by the K.R.O. Orchestra, conducted by Wood. Overture, Russlan and Ludmilla (Glinka); Caprice Italien (Tchaikovsky); Danse macabre (Saint-Saëns). 9.10, News. 9.15, One Act Radio Play. 9.55, Concert by the Zang en Vriendschap Choir, conducted by K. Böhme. 10.25, Song Recital by A. F. Smoorenburg. Aria from I Pagliacci (Leoncavallo); Aria from A Masked Ball (Verdi); Petrus Klage (Buys). 10.40, Choral Concert (contd.). 11.15, Concert by the K.R.O. Orchestra, conducted by Wood. Overture, Carnaval romain (Berlioz); Gondola Song (Strauss); Waltz, Tales from the Vienna Woods (Joh. Strauss); Perpetuum mobile (Joh. Strauss). 11.40, Popular Music on Gramophone Records. 12.40 **a.m. (Wednesday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Notes. 8.10, Agricultural Talk. 8.20, Programme arranged by the Association des Amis de Radio Côte d'Azur. 8.35 **to 12 Midnight,** Radio Concert. In the interval at 9.0, Weather and News. 12 **Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. 12 **Midnight,** Concert of Light Music: Trees (Rasbach); Shall my soul pass through Ireland? (Molloy); Farewell my native Irish home (Biggs); Just once for all time, from Congress Dances (Heymann); Live, laugh, and love, from Congress Dances (Heymann); Sleep on (Offenbach); My Man (Adams); Stardust (Carmichael). 12.30 **a.m. (Wednesday),** Dance Music: Leave a little for me; How are you?; How do you do, Mr. Brown?; Let's all dance the Polka; I called to say Good-night; Till to-morrow; Street of Dreams; I may never pass your Way again. 12.57, I.B.C. Good-night Melody. 1.0 **a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Song Recital by Einar Keinänen. 6.40, Talk. 7.5, 'Cello Recital by Erkki Kilpi. 7.30, Talk. 7.55, Military Band Concert, conducted by Lauri Näre. March, Mit Standarten (Blon); Waltz, Frühlingsstimmen (Joh. Strauss); Selection from The Gipsy Baron (Joh. Strauss); Kaiser-Walzer (Joh. Strauss); Kaiser Friedrich Marsch (Friedmann). 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Military Band Concert. Soloist: Sepp Summer (Songs to the Lute). Unsere Reichswehr (Blankenburg); Army March; Army March No. 126; March, Old Comrades (Teike); Unsere Garde (Förster); Potpourri of Soldiers' Songs (Heinemann); Badonviller Marsch (Fürst); Songs to the Lute: (a) Wach auf, du deutsches Land, (b) Das Lied vom Helden, (c) Deutscher, bleib deutsch, (d) Feierliches Gelübde, (e) Wir gehn im Schritte (Sepp Summer); Bavarian Advance March (Scherzer); Army March No. 7; Potpourri of German Marches (Blankenburg); Vereinte Fahnen (Gabriel); Zum Städtle hinaus (Meissner); Stahlhelm-Lied. In the interval at 2.0, Announcements. 2.30, Sponsored Programme with Gramophone Records. 3.0, Programme for Children. 3.30, Economic Notes and Time. 3.50, Educational Talk. 4.20, Notes on the Broadcasts for Schools. 4.30, Violin and Pianoforte Recital: Sonata in G, Op. 96 (Beethoven); Sonata in F (Mozart); Sonatina in G Minor (Schubert). 5.50, Reading from the Works of Johann Peter Hebel. 6.0, Talk: German Savings-Banks. 6.20, Italian Lesson. 6.45, Weather, Time, Exchange, and Sports Notes. 7.0, Transmission for all German Stations—**Berlin-Leipzig** Exchange Programme. 8.0, News Bulletin. 8.5, Concert by the Small Station Orchestra conducted by Eysoldt. 8.50, Die Jugend ruft-Musical Radio Sequence (Heinz Vollmer). 10.5, News and Sports Notes.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.0 p.m.,** News, Weather and Time. 1.15, Concert of Chamber Music on Gramophone Records. After the Concert, Exchange Quotations. 3.0, Programme for Children. 3.35, Economic Notes. 4.0, Concert by the Station Orchestra, conducted by Theodor Blumer: Overture, Die Zwillingsbrüder (Schubert); Andante religioso, Op. 9 (Klose); Symphonic Suite, Op. 1 (Nicodé); Waltz from the Serenade, Op. 48 for Strings (Tchaikovsky); Bilder aus dem Osten, Op. 66 (Schumann); Three Rustic Dances (Schorlich); Wedding March, Als der Grossvater die Grossmutter nahm (Spohr). In the interval, 5.0 to 5.15, Saxon Legends. 5.50, Weather, Time and Economic Notes. 6.0, A Thousand Years of German Literature: Seventeenth Century Drama. 6.20, Talk: The New German University Laws. 6.45, Programme to be announced. 7.0, Transmission for all German Stations. Schiller Memorial Programme.—Part I—Overture, Coriolanus (Beethoven). Part II—See **Berlin (Deutschlandsender).** Part III—Last Movement from the Ninth Symphony (Beethoven) with Chorus. 8.0, The Seasons—Oratorio (Haydn) by the Leipzig Symphony Orchestra and the Singakademie Choir, conducted by Prof. Gustav Wohlgemuth. Soloists: Lotte Mäder-Wohlgemuth (Soprano), Anton Maria Ropitz (Tenor) and Rudolf Bockelmann (Bass). 10.5, News. 10.15 (approx.), Concert by the Dresden Ensemble. Soloist: Leo Wurmer (Pianoforte). Overture, Tancredi (Rossini); Italian Suite, Op. 49 (Kostal); Wanderer-Suite, Op. 16 (Knuemann); Die wunderlichen Geschichten des kapellmeisters Kreisler (Reznicek); Waltz from Ritter Pasman (J. Strauss); Fourth Movement from the Divertimento, Op. 67 (Graener); Wiegenlied (Fidd); Waltz in Old Style (Burmester); Liebes-serenade (Zoernik); Amoretto (Bullerian). 12 **Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. 8.30, Programme to be announced. After the Programme, News Bulletin.

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Programme (not yet announced) arranged by the Spanish-American Radio Club.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, and Radio Journal, followed by Request Gramophone Records. In an interval at 8.30, Talk by Joaquin Espana Cantos. 9.15, News and Political Review. 9.30 **to 10.0,** Interval. 10.0, Lingnaphone English Lesson. 10.30, Chimes, Time Signal, and Political Review. 10.40 (approx.), Opera Music on Gramophone Records. Extracts from (a) Mignon (Thomas), (b) L'Heure espagnole (Ravel). 12.45 **a.m. (Wednesday),** News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. Part I—Selection from Eugene Onegin (Tchaikovsky); Dance Suite (Mraczek). Part II—Dance Music. 5.10, See **Prague.** 5.50, Light Music on Gramophone Records. 6.0, Talk: Water Transport. 6.15, See **Brno.** 7.0, See **Prague.** 7.10, Talk: Steel Construction of Buildings. 7.25, See **Brno.** 8.30 **to 11.0,** 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.**—**4.30 p.m.,** Concert, conducted by Erich Kloss. 5.35, Dialogue: The Bavarian Oriental Carpet Industry. 5.55, Talk: Aerial Defence in England. 6.15, Time, Weather, and Agricultural Notes. 6.30, Recital on Two Pianofortes by Ludwig Kusche and Ludwig Schmidmeier: Bilder aus dem Osten, Op. 66 (Schumann); Impromptu on a Theme from Schumann's Manfred, Op. 66 (Reinecke); Variations on a Theme of Schumann, Op. 23 (Brahms). 7.0, Transmission for all German Stations: Leipzig—Berlin (Deutschlandsender) Exchange Programme. 8.5, Military Band Concert, conducted by Georg Fürst; Festival Overture (Fürst); Themes from The Dusk of the Gods (Wagner); Fantasia, Aus Schuberts Skizzenbuch (Urbach); Overture, Der Regimentstambour (Rupprecht); Fanfare March, Der Gott, der Eisen wachsen liess (Bresse); March Potpourri, Alte Deutsche Treue (Frantzen); March, Eherne Wehr (Fürst). 9.0, Talk by Richard Kolb, Director of the Munich Station. 9.20, Symphony Concert by the Radio Orchestra, conducted by Ludwig Carl Mayer; Soloist, Lud-

wig Schmidmeier (Pianoforte); Variations on a Theme of Haydn (Brahms); Burlesque for Pianoforte and Orchestra (R. Strauss): Symphony in D (Mozart). **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.** —**5.0 p.m.,** Popular Music on Gramophone Records. **6.0,** Two Talks for Housewives: (a) Playgrounds for Children, (b) Spring Cleaning. **6.45,** Popular Melodies by Jörgen Strömstad (Accordion). **7.0,** Announcements, Weather, and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Talk: The Second Internationale, 1889-1914. **8.30,** Concert by the Station Orchestra, conducted by Hugo Kramm; March (Borg); Overture, Les Dragons de Villars (Maillart); Potpourri (Vingar); A Tear (Mussorgsky); Spinning Song (Mendelssohn); Two Melodies (Kjerulf); Selection from La Vie Parisienne (Offenbach); Waltz, Donausagen (Fucik); Festtoget kommer (Reidarson). **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Song Recital.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW. **8.0,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Concert of Opera Music. Conductor, F. Russo. In the intervals, Sports Talk and 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 **21.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Theatre Review. **7.0,** News. **7.15,** Weather Report. **7.25,** Le Journal Parlé. **8.30,** Programme to be announced.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Concert with Gramophone Records. **8.0,** Film Review. **8.5,** Talk on the Circus. **8.15,** Interval. **8.30,** Popular Music on Gramophone Records. **8.45,** Interval. **9.0,** Concert of Romanian, Czech, and Yugoslav Music by the Yadran String Quartet and the Station Orchestra, relayed from the Gaveau Hall. Conductor: Théodore Mathieu. Soloist: Pia Ygy (Songs). **10.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Records: Chanson Louis XIII (Couperin-Kreisler); Tambourin (Rameau); Gavotte (Popper); Passepied (Destouches-Dandelot). **8.0,** Press Review and Weather. **12 Noon,** Concert by the Krettly Orchestra: Overture, Tutti in maschera (Pedrotti); Ballet Music from The Seasons (Massé); Mugnette (Missa); Selection from Le Roi d'Ys (Lalo); Ballet Music from La Source (Delibes); Selection from Le roi malgré lui (Chabrier); Ballet Music from Cinderella (Massenet). **1.0,** Exchange, News, and Weather. **1.5,** Pianoforte Recital by Simone Lamé: Prelude from the Suite for Pianoforte (Debussy); Scherzo in B Minor (Chopin); Jardins sous la pluie (Debussy); La Campanella (Paganini-Liszt). **1.30,** Exchange. **1.35,** Concert by the Krettly Orchestra (contd.): Finale from The Queen Symphony (Haydn); Overture, Euryanthe (Weber); First Movement from a Trio (Franck); Entr'acte from Manfred (Schumann); Hungarian Dances (Brahms). **2.0,** Exchange. **3.45,** Exchange and Market Prices. **4.30,** Elementary English Lesson. **6.10,** Agricultural Talk. **6.30,** Advanced English Lesson. **6.50,** Theatre Review. **7.5,** Talk on Art. **7.20,** Concert by the Krettly Orchestra: Four Old Dances (Vidal); Venetian Serenade (Pierné); Eglogue (Rabaud); French March (Saint-Saëns). **7.45,** Commercial Prices and News. **8.0,** Variety Programme arranged by Paul Weill. **8.30,** News and Weather. **8.40,** Review by Pierre Seize. **8.45,** Gramophone Records: Tu n'es qu'un souvenir (Lenoir-Sarvil); Folie (Cazes); La Chanson des Blés d'or (Doria-Soubise); Piece. **9.0,** Oh! Papa—Operetta in Three Acts (Yvain), relayed from the Théâtre des Nouveautés.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—7.30 p.m.,** Health Talk. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from New York. **8.15,** Programme to be Announced. **8.45,** Congress of Clubs Period. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** Selma Brandt (Pianist). **9.30,** Weather and Market Reports. **9.45,** Programme to be Announced.

MAY 9th **TUESDAY** *continued*

10.0, Teaberry Baseball Scores. **10.5,** Programme to be Announced. **10.15,** Dick Dating, from New York. **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Programme to be Announced. **11.15,** Time and Weather. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Vick's Songs Weavers. **11.35,** Riggs and Moke. **11.45 to 12.45 a.m. (Wednesday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** National Advisory Council on Radio in Education. **12.45,** Programme to be Announced. **1.0 to 3.15, New York** Relay. **1.0,** Eno Crime Clues. **1.30,** Time, and Adventures in Health. **1.45,** Southern Singers. **2.0,** Household Musical Memories. **2.30,** Willard Robison's Deep River Orchestra. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW. **6.0 p.m.,** Talk: Customs, Rites and Proverbs. **6.15,** Light Music on Gramophone Records. **6.40,** Agricultural Talk. **6.45,** Theatre Notes and Programme Announcements. **6.50,** Miscellaneous Announcements and News. **7.10,** Book Review. **7.28,** Time Signal. **7.30** till Close Down, See **Warsaw.** In an interval, Time Signal, Sports Notes, and Police Announcements.

PRAGUE

614 kc/s, 488.6 metres; 120 kW. **4.10 p.m.,** See **Moravská-Ostrava.** **5.10,** Talk on Economics. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Market Prices. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: An Opera (Krasa). **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Talk: Economic Problems. **7.25,** See Brno. **8.30,** The King of Slaves—Play in Three Acts (Kubka). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Concert of Contemporary Music by the Station Orchestra, conducted by O. Jeremias; Soloist, Karel Reiner (Pianoforte): Symphony (Vutchkovitch); Concerto, Op. 13, for Pianoforte and Orchestra (Reiner). **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc/s, 760 metres.** **6.30 p.m.** (from **Geneva**). English Lesson. **7.0,** Weather and News. **7.20** (from **Geneva**). Answers to Correspondence. **7.30** (from **Geneva**). Concert of newly released Gramophone Records. **9.0,** Concert by the Radio-Suisse Romande String Orchestra. **10.0,** News and Weather. **10.10** (from **Geneva**). Talk: The Work of the League of Nations. **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, 11,180 kc/s, 25.4 metres.** **1.2 to 2.15 p.m.,** Concert of Variety Music. In the interval from **1.30 to 1.45,** Exchange and Giornale Radio. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Orchestral Concert: Happy Jazz (Borgato); Bionda svedese (Cortopassi); Mattina fiorentina (Culotta); Chiaro di luna (Barzizza); Selection from Manon Lescaut (Puccini); Annamese Dance (Hamud); Pattuglia in ronda (De Feo); Piano piano (Simi). **6.40** (**Naples**). Shipping and Sports Notes. **6.50,** Agricultural Report and Dopolavoro Notes. **7.10,** Lesson in Morse. **7.20,** Giornale Radio. **8.0,** Time and Announcements. **8.2,** Talk on Astronomy. **8.15,** Song Recital by Nadia Poggioli (Soprano) and Maria Meloni (Mezzo-soprano). **8.30,** Giornale Radio and Sports Notes. **8.45,** Extract from L'Amico Fritz (Mascagni). **10.0,** Il cavallino rosso—Musical Comedy in One Act (Boravolontà). **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.—11.45 p.m.,** Stock Reports. **12 Midnight to 2.0 a.m. (Wednesday), New York** Relay. **12 Midnight,** Blackstone Plantation. **12.20 a.m.,** Wayne King's Orchestra. **1.0,** Ben Bernie's Orchestra. **1.30,** Ed Wynn and the Fire Chief Band. **2.0,** Symphony Orchestra, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory, Weather and News. **12.40** (from **Zürich**). Concert of Light Music by the Station Orchestra. **1.35** (from **Zürich**). Weather and Exchange. **1.40** (approx.) **to 3.30,** Interval. **3.30** (from **Berne**). Popular Music on Gramophone Records. **4.30** (from **Zürich**). Concert by the Small Orchestra. **5.0** (from **Zürich**). Popular Music on Gramophone Records. **5.30,** Weather. **5.35** (approx.). **to 6.30,** Interval. **6.30** (from **Berne**). Programme to be announced. **7.0** (from **Berne**). Time, Weather and Notes on the Broadcasts for Schools. **7.15** (from **Berne**). Concert of Old Music. **7.45** (from **Berne**). Talk on Stratospheric Research. **8.15** (from **Berne**). Musical Programme. **8.45,** Concert of Light Music by the Station Orchestra. **9.20,** A Visit with the Microphone. **9.30,** Weather and News. **9.40** (from **Berne**). Folk Songs of Western Switzerland. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Programme for Children, relayed from **Malmö, 1,301 kc/s, 231 metres.** **5.30,** Concert of Light Music. **6.30,** Talk on Riding. **6.45,** Elementary French Lesson, from **Malmö.** **7.15,** Weather and News. **7.30,** Talk. **8.0** (from **Göteborg**). Concert of Chamber Music, conducted by Tor Mann; Soloist, Carl Tillius (Pianoforte): Concerto for Strings, Oboes, Bassoon, and Horn (Händel); Pianoforte Concerto, No. 2 in C (Haydn); Five Legends (Sjogren); Serenade for Strings, Op. 55 (Trunk). **9.0,** Literary Review, from **Malmö.** **9.30,** Andante with Variations, Op. 46, for Two Pianofortes (Schumann). **9.45,** Weather and News. **10.0,** Gramophone Records of Popular Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Light Music on Gramophone Records. **12 Noon,** Orchestral Concert, conducted by Maurice de Villers. Part I: Grieg Music. Part II: Viennese Music. In the interval at **12.45 p.m.,** News, and at **1.0,** Time and Exchange. **2.0 to 4.45,** Interval. **4.45,** Talk on Avignon. **5.0,** Concert of Jazz Music, conducted by Roskam. **6.0,** History Talk in French. **6.15,** Topical Talk in French. **6.30,** Orchestral Concert, conducted by Roskam: Marche sportive (Popy); Puppenwalzer (Bayer); Hymn to the Sun (Rimsky-Korsakov); Hindu Song (Rimsky-Korsakov); Overture, Miss Cravache (Pouget); Selection from La Traviata (Verdi); Italian Serenade (Monfred); Spanish Serenade (Chaminade); Love's Dream after the Ball (Czibulka); Selection from Elle est à vous (Yvain). **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German, and Lottery Results. **8.30,** Programme relayed from **Paris (Eiffel Tower).** After the Programme, Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.—12 Noon,** Popular Music on Gramophone Records. **1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.0,** Talk on Flowers. **3.30,** Talk for Women. **4.0 to 4.30,** Interval. **4.30,** Concert from **Munich.** **5.45,** Time, Weather and Agricultural Notes. **6.0** (from **Freiburg**). Talk: The Methods of Swindlers. **6,25,** Talk for Workers: Business References. **6.50,** Time and News. **7.0,** Transmission for all German Stations. **Berlin (Deutschlandsender)** and **Leipzig** Exchange Programme. **8.0,** Johann Strauss Concert, conducted by Gustav Görlich: Waltz, Ich bin dir gut; Annen-Polka; Waltz, Trau, schau, wem; Polka, Unter Donner und Blitz. **8.45,** See **Frankfurt.** **9.30,** Concert of Swabian Folk Music, by the Station Choir and Orchestra, conducted by Gustav Görlich; Soloists, Heinz Möuch (Zither) and Fritz Mühlfenzl (Accordion); Commentary in German and English by Martin Lang. **10.15,** Time, News, Weather and Programme Announcements. **10.45,** Serenade, conducted by Harry Risch; Soloist, Hans Hanns (Tenor). **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire. **7.30 p.m.,** Military Music. **7.45,** Songs from Operas. **8.0,** Viennese Music. **8.30,** Popular Music. **8.45,** 'Cello Solos. **9.0,** Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. In the interval, Light Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Instrumental Solos. **11.15,** Popular Songs. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Song and Dance Programme: Underneath the Arches (Flanagan); I'll always be true (Benatzky); Life's Desire (Evans); Sweet Sixteen (Gilbert); We just couldn't say Goodbye (Woods); If you should ever need me (Burke); Goodnight Sweetheart (Noble); The Clouds will soon roll by (Brown). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Wednesday),** Orchestral Music. **12.15,** Instrumental 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, 965 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.15 to 6.0 p.m.,** Dance Music from the Savoia, Milan. **6.35,** Giornale Radio, and Agricultural and Dopolavoro Notes. **7.0,** Time, Report of the Royal Geographical Society, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio, Weather, and Popular Music on Gramophone Records. **9.0,** Variety Programme. **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; 15 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.—5.25 p.m.,** Gramophone Concert of Operetta Music. **6.5,** Agricultural Talk. **6.30,** French Lesson. **7.0,** On the Blue Danube—Concert by the Josef Holzer Orchestra. Soloist: Hans Skriwanek (Tenor). Waltz, The Blue Danube (Joh. Strauss); Song, Da draussen in der Wachau (Ernst Arnold); March, D'lustigen Weanaleut (Kronegger); Song from Der Fremdenführer (Ziehrer); Gavotte (Hellmesberger); Pestherwalzer (Lanner). **7.30,** Time, Weather and Programme Announcements. **7.35,** Concert (contd.). Potpourri, Wiener Spaziergänge (Komzak); Song from Das Spitzentuch der Königin (Strauss); Song, Im Prater blüh'n wieder die Bäume (Stolz); March, Linzerische Buama (Drescher); Waltz, Donauwellen (Ivanovici); March from Der liebe Schatz (Reinhardt). **8.15,** Topical Talk. **8.30,** Talk: The Austrian Landscape. **8.55,** Wilhelm Kienzl Concert by the Vienna Symphony Orchestra, conducted by the Composer and Karl Auderieth. Soloists: Luise Brix (Contralto) and Margarethe Kolbe-Jüllig (Violin). Don Quixotes phantastischer Ausritt und seine traurige Heimkehr, from Don Quixote; Contralto Solo: An den Schlaf; Symphonic Variations on a Song from Der Kuhreigen; Finale from Sanctissimum, Op. 102; Three Songs: (a) Die Einsame im Herbst, (b) Sandmännchen, (c) Mai. Suite in Dance Form, Op. 21, No. 1. **10.10,** News and Weather. **10.25,** Concert of Variety Music from the Oasis Dance Hall.

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.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Report. **1.25 to 3.10,** Interval. **3.10,** Miscellaneous Announcements, Economic Report, Aviation Report and Anti-Gas Drill. **3.35,** Book Review. **3.50,** Popular Music on Gramophone Records. **4.25,** Talk for Teachers. **4.40,** Talk: Paganism in our Times. **5.0,** Symphony Concert by the Philharmonic Orchestra, conducted by Dr. Wolfstal; Soloist, Mme. Uminska (Violin): Overture, Kalmora (Kurpinski); Violin Concerto (Mozart); Scènes pittoresques (Massenet). **5.55,** Programme Announcements. **6.0,** Light Music from the Gastronomia Café. **6.45,** News. **6.50,** Miscellaneous Announcements. **7.10,** News for Farmers. **7.20,** Radio Journal. **7.30,** Quo Vadis?—Opera (Jean Nouguès), relayed from the Grand Theatre. In the first interval, Music. Talk from **Lwów, 788 kc/s, 381 metres.** In the second interval, Sports News, Radio Journal, Aviation Weather Report, and Police Notes. In the third interval, Reading (Kader-Bandrowsky).

ZURICH.—See **Schweizerischer Landessender.**

Foreign Programmes continued on page XIII.

PROGRAMMES CONTINUED

THE
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AND
EXPERIMENTAL WIRELESS
The Journal of Wireless Research and Progress

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THE SIMPLIFICATION OF ACCURATE MEASUREMENT OF RADIO-FREQUENCY. *By W. H. F. Griffiths, F.Inst.P., A.M.I.E.E.*

AUTOMATIC VOLUME CONTROL FOR RADIO RECEIVERS. *By C. B. Fisher.*

A WAVEMETER WITH ALTERNATIVE CLOSE AND OPEN SCALES.

THE BALANCING AND STABILISING OF HIGH-FREQUENCY AMPLIFIERS. *Abstract of a Paper read before the Wireless Section I.E.E. by W. Ure, B.Sc., E. J. Grainger, M.Sc., A.M.I.E.E., and H. R. Candelo, M.Sc.*

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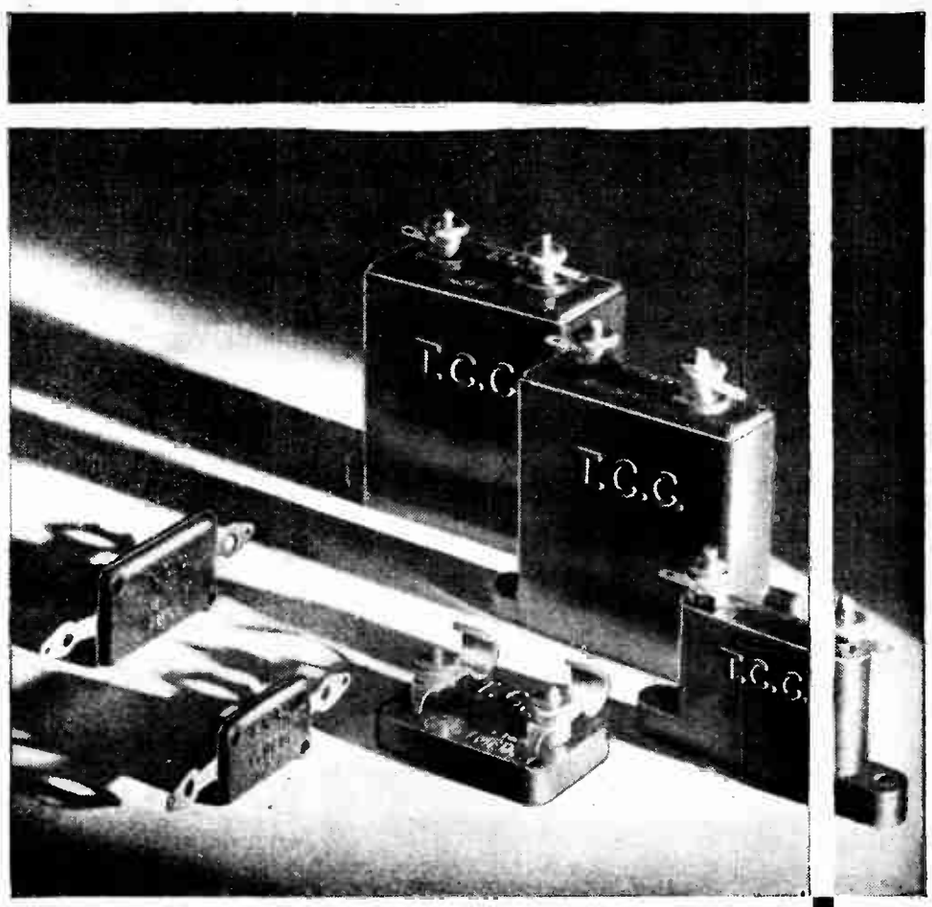

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The Wireless World

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23rd Year of Publication

No. 714. FRIDAY, MAY 5TH, 1933. VOL. XXXII. No. 18.

Proprietors: ILIFFE & SONS LTD.

Editor:
HUGH S. POCOCK.

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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GLASGOW: 26B, Renfield Street, C.2.
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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.

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EDITORIAL COMMENT

Keep Politics Out of Lucerne

THE Lucerne Conference has before it a difficult task—that goes without saying—but whether or not the task which the Conference has set itself is an impossible one, remains to be seen. More than any of its predecessors, this Conference will find itself confronted not with a purely technical problem, but with questions of international politics so involved that the technical considerations may seem subsidiary by comparison.

The nations of Europe tend to become more national in character and to attach greater importance than ever before to broadcasting as a means of national, and perhaps extra-national, propaganda.

The Madrid Conference had broadcast interests represented, although Madrid was concerned with communications as a whole, broadcasting forming only a part of the deliberations. At the Madrid Conference, however, the question of power and range of broadcasting stations was discussed, and provision was made for limitations of power and the choice of the sites remote from frontiers for high power stations, with the object of restricting broadcasting within the limits of a national service, and so meeting the objections which have been put forward against the trespass of high-power transmitting stations over the frontiers and into the service areas of the transmitters of neighbouring nations.

But surely the delegates at Madrid cannot, even at the best, have left the Conference with more than a pious hope that their deliberations on this subject might tend to delay increases of power and trespass over frontiers. It is inevitable that if stations in Europe are put up with the intention that they should give a service area in their own countries for reception with simple sets, then those same transmissions will be receivable at much greater distances with sets of a more sensitive character.

The task at Lucerne should be, we believe, to take whatever steps are possible to prevent interference with the reception of national stations by the transmitters of other nations, but beyond this we do not consider the Lucerne Conference should venture to dictate.

A Clearly Defined Task

It should not be the concern of a technical broadcasting conference to try to contrive, by technical adjustment of power and location of transmitters, to overcome a menace which some nations see in propaganda transmitted by their neighbours. If this problem has to be tackled it should not be left to technical or administrative representatives of broadcasting organisations to deal with it. Their task should be confined to giving us the best possible plan for distribution of broadcasting stations in Europe, so that transmissions can take place with the minimum of mutual interference and provide the widest choice of stations from which listeners can select programmes.

Interest in wireless reception is bound to grow in proportion as the variety of programmes increases. Broadcasting is dependent for its popularity upon music, and music is international, so that an increase in the number of transmitters of high power can have no other effect than to increase the popularity of listening.

The delegates to Lucerne should devote their energies solely to devising the best means of increasing the efficiency of the broadcasting services of Europe.

Practical Short-wave Reception

Receiving Circuits for Wavelengths Down to 2 Metres

By C. C. WHITEHEAD

IN last week's issue the author discussed the various circuits which had been evolved for transmitting at a wavelength as short as 5 centimetres, and in this article practical data are given for reception on ultra-short waves. Although many complicated circuits have been tried, it is interesting to note that some of the simple arrangements such as the reacting detector and the Hartley circuit prove to be among the most efficient.

THERE has been for a few years now a growing interest in work with short and ultra-short wavelengths. The characteristics of waves of the order of 15 metres and upwards are by now well known, and these waves are in extensive use commercially, and fairly popular in amateur circles.

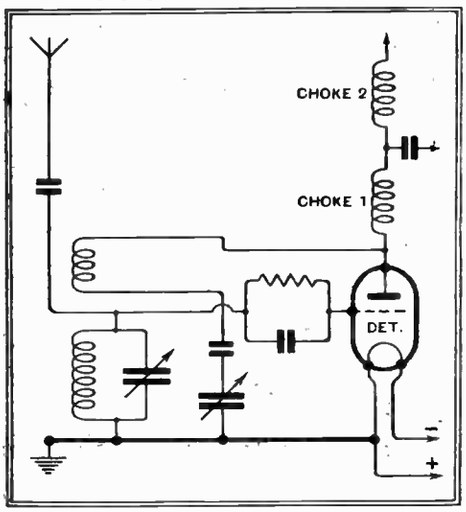


Fig. 1.—For the reception of short waves the simple reacting detector is a satisfactory arrangement.

A firm favourite for many years for reception on these wavelengths was the simple reacting detector circuit shown in Fig. 1 (the choke CH2 being replaced in this case by the primary winding of an L.F. transformer).

If well designed, this circuit was quite sensitive, the great point being the attainment of very smooth reaction. In this latter connection trouble was very often experienced with "blind spots." If the coils and reaction couplings had been set to give smooth reaction at one part of the tuning scale, it would be found impossible to obtain oscillation over some other part of the tuning condenser scale (the "blind spot"), whilst reaction would become fierce and uncontrollable at some other point again (which one might with equal propriety term a "sensitive spot").

This trouble is due to the changing position of current and voltage nodes in the aerial system at different wavelengths. The reaction coupling is normally *via* the interlinked magnetic fields of the aerial and reaction coils, the amount of H.F. current in the latter coil being regulated by the reaction condenser. Now the magnetic field in each coil is necessarily associated with the *current* in that coil. In the short length of wire contained in the reaction coil, owing to the fact that it is a closed or "lumped" circuit, nodes are not likely to occur, or if they do they do not give rise to trouble. It is otherwise in the aerial circuit. The aerial coil forms part of the (usually) extensive aerial system, and a node in this may involve the whole of the coil.

Nodes and Antinodes

Consider Fig. 2 (a), (b) and (c). The aerial system, including the coil, is in this case approximately three-eighths of a wavelength long, with the tuning condenser set at the middle of its scale. This condition is represented at (a), the reaction coupling being set for smooth reaction; note that the amount of current in the aerial coil (assuming normal aerial current distribution) is a mean value. Diagram (b) represents the conditions at the lower end of the tuning scale. Now the aerial system is something over half a wavelength in length (since the working wavelength has been decreased) and a node appears at the position of the tuning coil. Since the reaction is dependent upon the current in the coil, and owing to the new distribution of current in the aerial circuit the current in the coil is almost zero, a great increase in the reaction condenser setting is necessary in order to compensate and produce sufficient reaction. This constitutes a "blind spot"; (c) represents the conditions at the top of the tuning scale. Now, owing to the increased working wavelength, the length of the aerial system is about quarter wavelength, producing an antinode (position of maximum current) at the position of the aerial coil. Here the setting of the reaction condenser will have to be reduced. This may constitute a "sensitive spot."

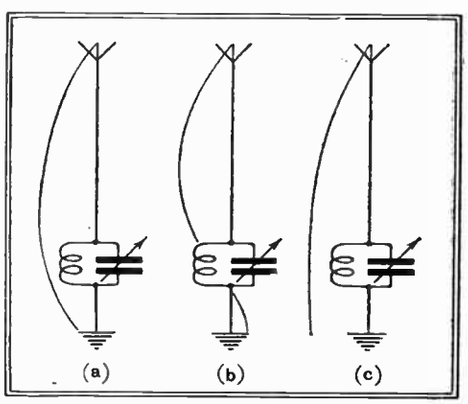


Fig. 2.—An aerial system three-eighths of a wavelength long. Diagram (a) represents the conditions when the tuning condenser is set at the middle of its scale; (b) represents the lower end of the tuning scale; whilst (c) constitutes a blind spot at the top of the tuning scale.

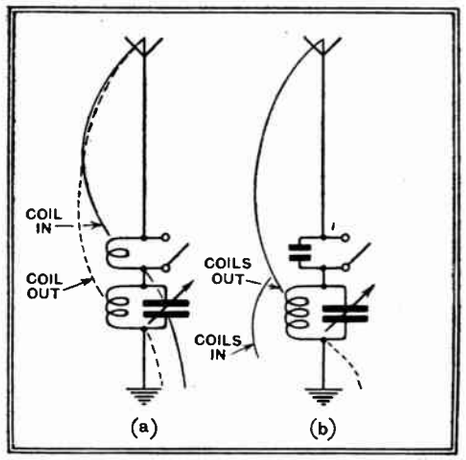


Fig. 3.—By including a series aerial inductance (a) or a condenser (b) the current node may be shifted and blind spots avoided.

Avoiding Blind Spots

There are two cures in vogue for this trouble. The first is the provision of a series aerial inductance or condenser as shown in Fig. 3 (a) and (b). By switching these in or out of circuit the position of the current node may be shifted, since these devices have the effect of altering the electrical length of the aerial circuit by their inclusion. A single small (0.0001 mfd.) series variable condenser will perform the same function. The second is the use of H.F. stage.

The latter brings us to the discussion of another type of receiving circuit. The screen-grid valve, now almost universally used for H.F. amplification, has made feasible the attainment of a certain degree of amplification on very short wavelengths. Even so, the "stage gain" available on these short waves becomes very small as the wavelength is reduced. At the shorter wavelengths (round about 15 metres) a stage gain of very little if anything may be expected, even with an efficient tuned circuit on each side of the valve. But the arrangement (Fig. 4) by separating the aerial and detector grid circuits does away to a great extent with the "blind spot" trouble. So useful has this feature been found that this arrangement

Practical Short-wave Reception—

has been used with an aperiodic aerial circuit consisting merely of an H.F. choke between grid and filament of the S.G. valve. This arrangement, of course, simplifies tuning at the sacrifice of some efficiency in amplification on the longer waves (above 60 m.).

Lately there has been a tendency to use the supersonic-heterodyne type of circuit, especially in connection with broadcast receivers using powerful H.F. amplifiers, on the long-wave side, the latter being used for intermediate-frequency amplification, it merely being necessary to "tack on" a frequency-changer circuit.

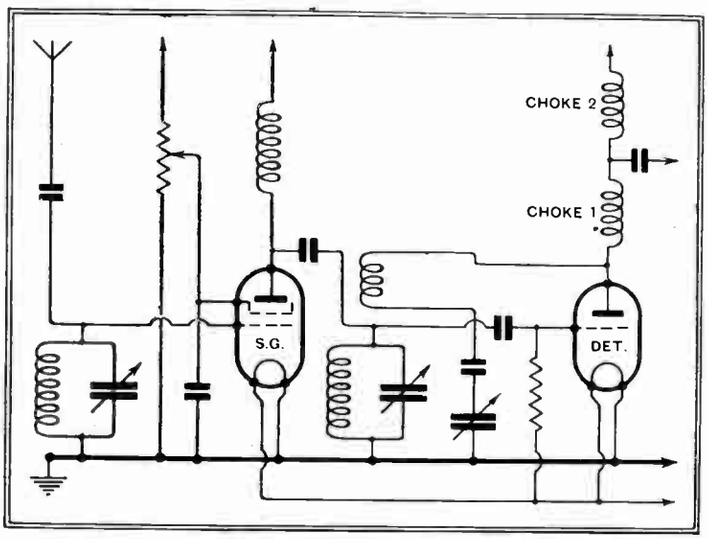
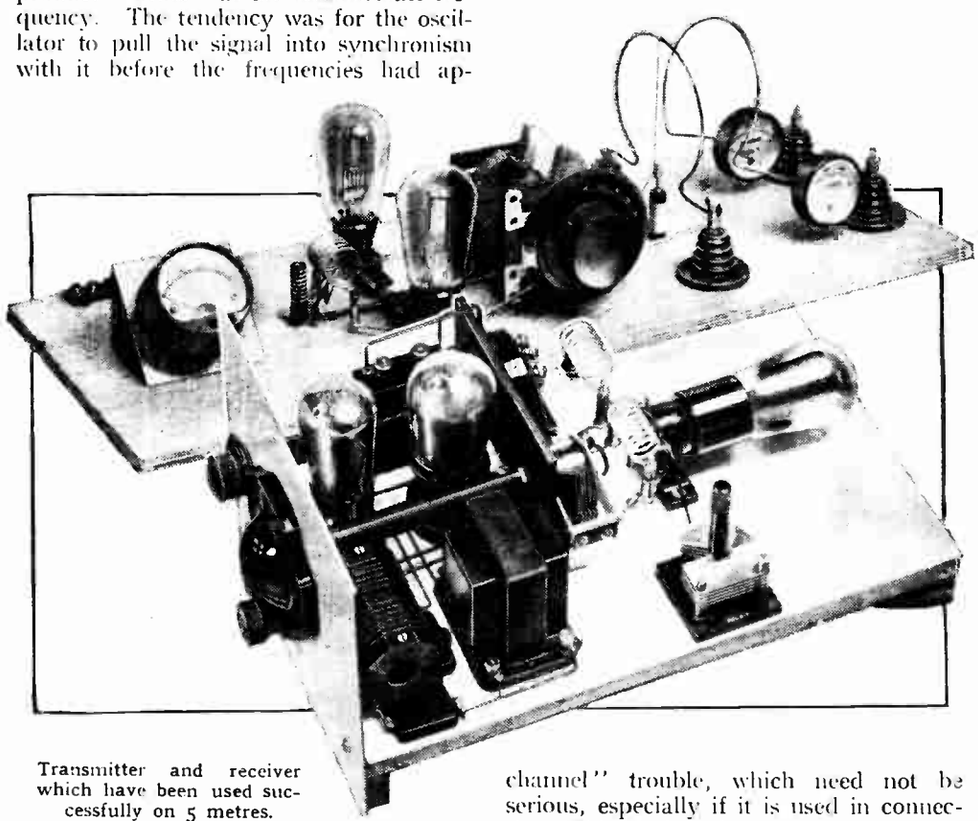


Fig. 4.—Trouble with blind spots can be avoided by separating the aerial and detector grid circuits.

First attempts at application of the superhet principle to the reception of very short waves involved the use of the low intermediate frequencies (below 100 kc.) then in common use. These attempts were not successful owing to the relatively small difference between the signal and oscillator frequencies necessary in order to produce "beats" at the intermediate frequency. The tendency was for the oscillator to pull the signal into synchronism with it before the frequencies had approached sufficiently closely in value to allow the formation of beats of the correct intermediate frequency. The use of higher intermediate frequencies (above 150 kc.) practised in this connection now does away with the trouble (admittedly at some sacrifice of gain) and the combined autodyne oscillator-detector is usually employed.

The simplest form is that shown in Fig. 1. In this case CH2 is an I.F. choke and CH1 a short-wave choke, the condenser coupling the detector-oscillator to the I.F. amplifier. The operation of this circuit, except for the fact that it is used in an oscillating condition, does not differ much from that of the plain detector. There is, of course, the "second-channel" trouble, which need not be serious, especially if it is used in connection with a broadcast H.F. amplifier, since the I.F. can be changed at will should second-channel interference make its appearance.



Transmitter and receiver which have been used successfully on 5 metres.

A screen-grid valve may be used with advantage as a detector-oscillator (Fig. 5), or, to avoid reacting into the aerial, be preceded by a H.F. stage (Fig. 6). A complete receiver, with I.F. and L.F. amplifying stages (but without an H.F. stage), is depicted in Fig. 7. The I.F. suggested is 150 kc., with band-pass couplings.

So much for current practice on wavelengths of about 10 metres and upwards. Recently, the use of waves shorter than 10 metres in length has received considerable attention. Round about wavelengths of 8-10 metres the propagation characteristics of radio waves change greatly. The frequency is too high to permit of refraction back from the ionosphere, so there is no "skip distance" and return zone. Also, owing to the fact that the length of the waves is comparable with the dimensions of natural ground features and buildings, these obstacles cause pronounced "shadows." The "ground wave," which is alone effective, is subject to rapid attenuation under these conditions.

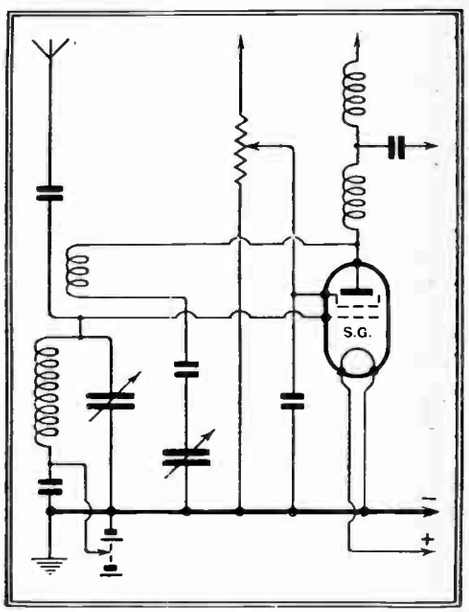


Fig. 5. The circuit of a screen-grid valve used as a detector-oscillator.

But their employment seems, under proper conditions, to offer some marked advantages. Owing to the enormously high frequencies involved, a very great number of stations could be accommodated in the same "service area," without danger of mutual interference. For the same reason, the side bands could be extended to accommodate frequencies up to, say, 100 kc., for television purposes. The use of multiple modulation has been suggested, and tried with some success. Furthermore, by suitable choice of site, power, and aerial system, such a station can be *designed to cover a definite area with sharply defined limits*. This still further helps in the problem of providing additional services, making these waves ideal for local work. If the aerial system is elevated considerably, very long ranges can be obtained with extremely low power, and the shortness of the waves renders the design of sharply directive aerial ("beam") systems easy and convenient.

The methods of reception used for the

Practical Short-wave Reception—

ordinary short waves may, with care, be extended for wavelengths down to about 7 metres. For shorter wavelengths than this special circuits are desirable, and, for wavelengths shorter than 4 metres, necessary.

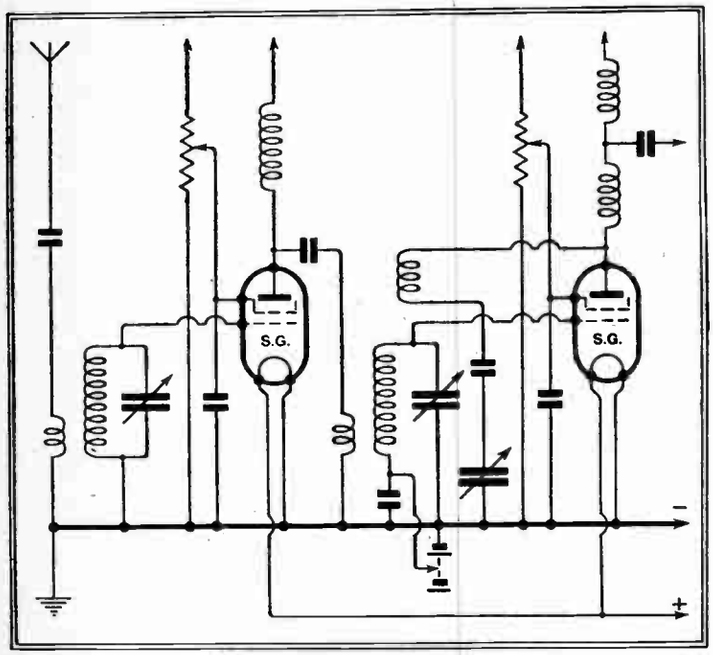


Fig. 6.—To avoid reacting into the aerial circuit the detector should be preceded by an H.F. stage.

For wavelengths shorter than 4 metres circuits of the "Hartley" type, and push-pull circuits, have been advocated, but the writer's experience has led him to the opinion that they are of doubtful value, equally good, or even better, results being attainable with single-valve circuits.

On these wavelengths direct H.F. amplification is, of course, quite out of the question, the choice in receiving equipment lying between the reacting detector and the superheterodyne principle, whilst, for a simple and highly efficient equipment where quality reception is not of paramount importance, the super-regenerative receiver more than holds its own.

The essential part of each of these systems is, of course, the reacting detector or detector - oscillator. There is not space in this contribution to discuss fully the principles of design and construction of these circuits; it must be sufficient to say that all parts must be kept to the smallest convenient mechanical dimensions, as much stray capacity as possible avoided, and all parts not forming an essential part of the *oscillatory* circuits must be connected to the latter at points of low or zero H.F. potential.

It is possible to work on wavelengths down to about 3 metres with circuits of the type shown in Fig. 8 (of the Hartley and "Ultraudion" type).

For wavelengths between 1½ and 3 metres the type of circuit shown in Fig. 9 seems to be best. It has several special advantages, but has the disadvantage of inconvenience of reaction control. Any attempt to control reaction by means of variable capacities leads to detuning difficulties. One arrangement in which this kind of reaction control is used is shown by the dotted capacity C2 in Fig. 9. It is successful, but has the peculiarity that either of the two condensers may be used for tuning or reaction indiscriminately, since both act in the capacity of both tuning and coupling condensers. In a circuit of this type tried by the writer (wavelength about 2.5 metres) a low-capacity valve—the D.E.V.—was used. C was 0.0001 mfd. max., and C2 about 5 mmfd. max. The best method, however, seems to be that shown in the figure (without C2).

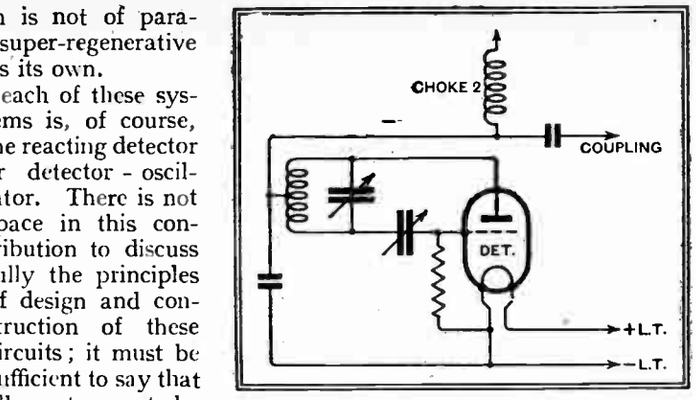


Fig. 8.—Wavelengths as short as 3 metres can be received with the Hartley circuit.

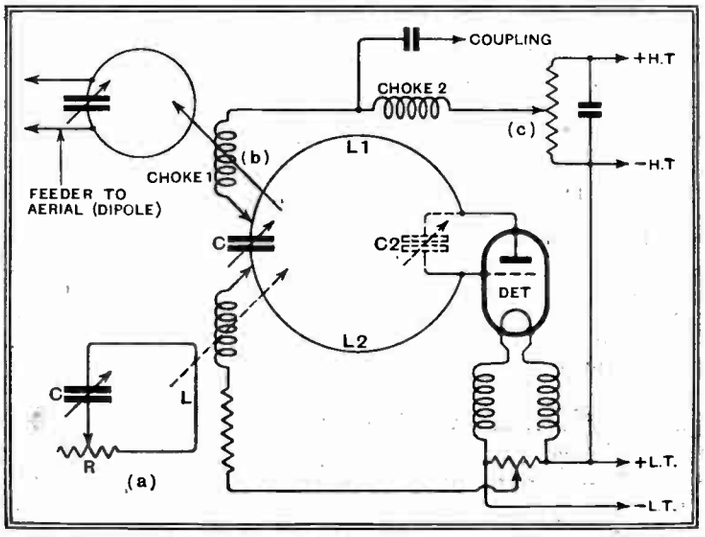


Fig. 9.—This circuit has been successfully used for wavelengths between 1½ and 3 metres.

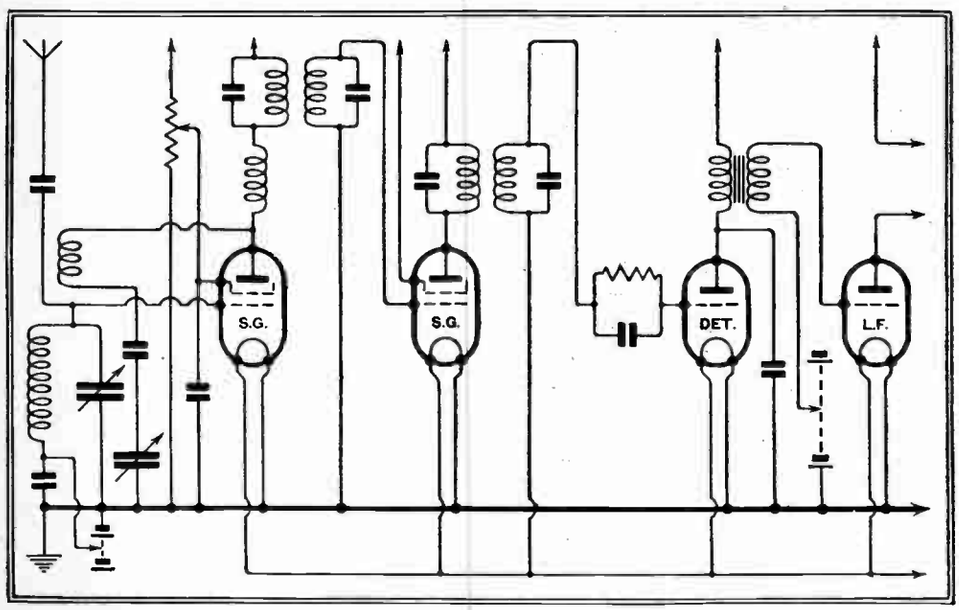


Fig. 7.—Circuit diagram of a complete receiver with I.F. and L.F. amplifying stages. The suggested intermediate frequency is 150 kc.

In practically all the circuits for use on these wavelengths it will be found advisable to use anode, grid, and filament chokes. For anode and grid the chokes may consist of about fifty turns of fine wire on a former ¼in. to ½in. diameter. To avoid the possibility of these chokes resonating and causing the circuit to act as a tuned plate-tuned grid circuit at their natural wavelength, it is advisable to wind them with resistance wire, and to arrange that they shall either have a different number of turns or be wound on formers of different diameters (e.g., the anode

Practical Short-wave Reception—

choke may have, say, 40 turns, the grid choke 50 turns). The filament chokes are most conveniently wound together on one former, ½in. to 1in. diameter, in "bifilar" fashion.

Another successful method of controlling reaction is by means of a separate absorbing circuit L, C, R, Fig. 9 (a), variably coupled to the detector circuit. Reaction may be controlled (after suitable adjustment of the detector anode voltage) either by varying the coupling between the circuits, the tuning of the absorbing circuit (varying C), or the resistance R. The most convenient method appears to be to set the tuning and resistance of the absorbing circuit to optimum values and vary the coupling. Usually the absorbing circuit may consist of a simple ring or closed loop of wire. On these wavelengths (below 3 metres) it is usual to employ a half-wave dipole aerial coupled to the detector by means of a two-wire feeder. The coupling coil of the feeder may be used as the reaction control quite conveniently (Fig 9 (b)).

It will be generally found best to employ metallised valves for the detector, and it will in general not be found necessary with this type of circuit to decap the valve unless the absolute minimum wavelength possible is required. There is no difficulty in getting below two metres without decapping. It may be found necessary to break the connection between the metallised coating on the valve and the filament pin to which it is connected before the valve will oscillate satisfactorily. In this latter case nothing must be allowed to touch or approach the coating whilst the valve is in operation, or the potential of this coating, which is "floating," so to speak, will in all probability be disturbed.

This type of detector-oscillator circuit may be used either in conjunction with a plain L.F. amplifier, a super-regenerative circuit either with separate quenching valve or superhet. If the superheterodyne type of circuit is employed it is desirable to have either a band-pass I.F. amplifier with a wide band or one that is flatly tuned, with a high intermediate frequency in either case (300 kc., at least), because the intermediate frequency is not likely to be too stable on account of the very high signal frequencies involved. Use has been made of the double superheterodyne in this connection, with a first I.F. of about 6,000 kc. When using the super-regenerative type of circuit it is advisable to use a fairly high quenching frequency to avoid the audio-frequency spectrum.

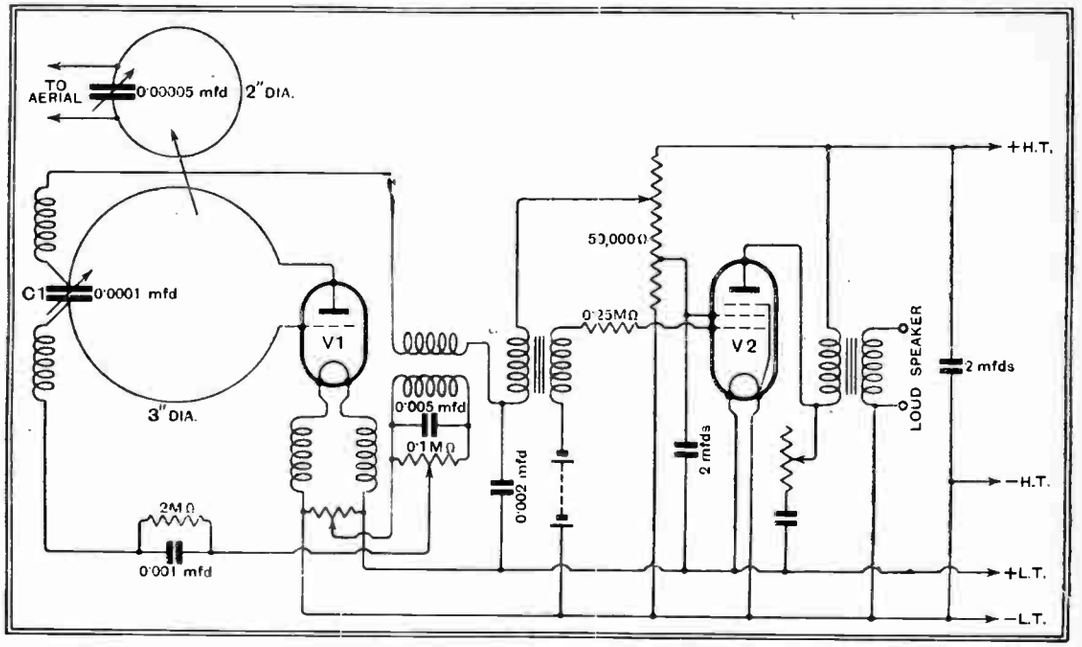
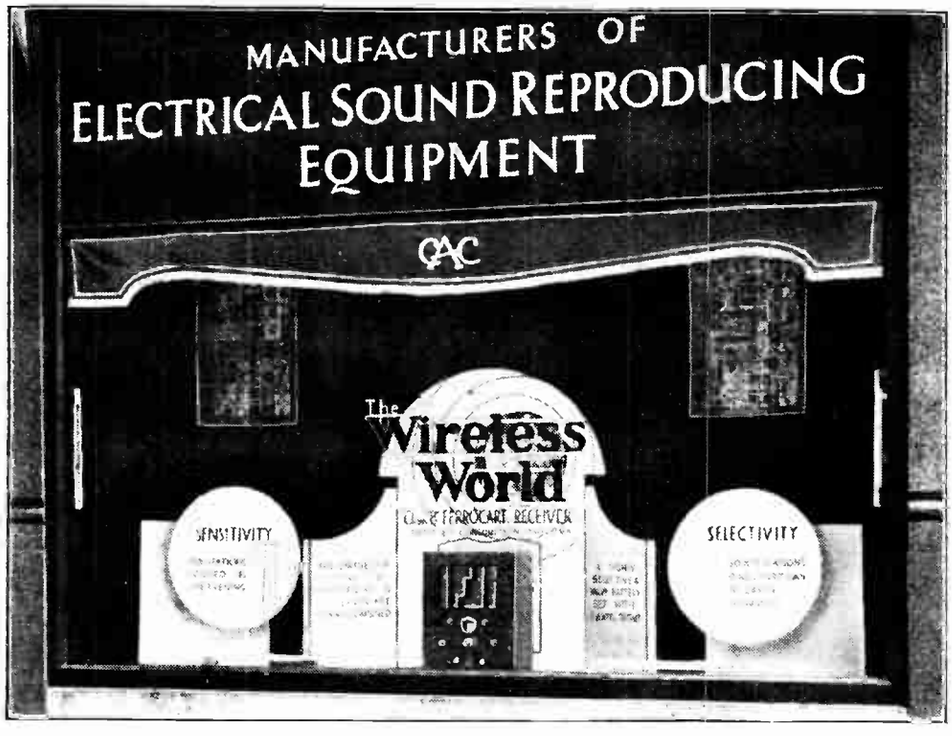


Fig. 10. Suggested circuit for an efficient portable set embodying a self-quenching detector (Micromesh PBI) coupled to a pentode (Pen. 220). This set is suitable for a wavelength of about 2½ metres.

It is advisable to screen all the circuits carefully. A very compact and efficient set for portable work is shown in Fig. 10. It consists of a self-quenching detector coupled to a pentode.

The wavelength range covered by these circuits is very small, e.g., 2.6 to 2.9 metres, but the frequency range comprised is very great (in the case just quoted 10,000 kc.), so there is plenty of room for stations. A tuning range of less than ten per cent. is ample (e.g., 2.5—2.75, 1.9—2.0 m.).

For wavelengths below 1.5 metres reaction types of circuits cannot be used. Use must then be made of the "electron-oscillation" principle, involving circuits which are not so easy to control.



A MODERN SET IN A MODERN SETTING. Here is the attractive window display arranged by C.A.C. Cabinets, Ltd., at their showrooms in Surrey Street, Strand, London, W.C.2, where *The Wireless World* "Class 'B' Ferrocart" Receiver is demonstrated daily.

Amateur Call Book

THE Spring issue of the "Radio Amateur Call Book" is now available and contains 165 closely printed pages giving the call-signs, names and addresses of all known amateur transmitting stations in the world, 140 pages being devoted to the United States, and over eight pages to Great Britain. There is also a convenient list, occupying seven pages, of short-wave commercial stations, and another of the principal short-wave broadcasting stations of the world.

Copies may be obtained in Great Britain from Mr. E. T. Carter, Flat A, Gleneagle Mansions, Streatham, S.W.16, for 6s. post free, or the four quarterly issues for 21s.

Amateur transmitters who have been granted new call-signs or who have changed their addresses are urgently requested to communicate either with Mr. Carter or the Q.R.A. Manager of the R.S.G.B., at 53, Victoria Street, London, S.W.1, or *The Wireless World*, in order that their names and correct addresses may appear in future lists.

UNBIASED

By

FREE GRID

Sophisticated blacks and—

Grave Dance Danger

FOR some time now I have viewed with misgivings the ever-increasing power of broadcasting stations because of the selectivity-cum-quality question, for, after all, even Mr. Stenode will be of no avail if tuning has to be made so sharp that even the carrier wave is cut off.

The recent proposal of a well-known American broadcasting authority has, however, put a far graver complexion on the whole matter, and I think that a word of warning is necessary.

Briefly, he suggests that the power of all stations in the world should be increased, and the simultaneous broadcasting networks so developed that one super-dance band playing in London, Paris or New York could supply music to every broadcasting station in the world. The idea is being taken up with enthusiasm in America, and representations are, I learn, shortly to be made to the B.B.C.

I suppose that it never occurred to this foolish fellow and his fanatical followers that the fact of millions of people—sophisticated blacks and unsophisticated whites—all dancing in step throughout the world will result in such severe vibrations being set up on the earth's crust that earthquakes and volcanic eruptions of unparalleled magnitude are bound to follow.

To appreciate the truth of my prediction one has only to remember that when a body of troops is crossing a bridge it is compelled to break step in order to prevent the evil effects of sympathetic vibration.

If this jazz maniac and his fellow music manglers are allowed to carry out their ideas I trust that science will rise to the occasion and prevent the world-wide catastrophe which must inevitably follow unless due precautions are taken.

To ward off disaster I suggest to the powers that be that participators in this terpsichorean orgy should be led to break step. This could be achieved by equipping every relay station in the dance chain with suitable delay circuits, each having a slightly different time period.

If any reader can suggest something better in order to avert this grave menace to our lives and property I do urge him strongly to take up his pen and write without delay.

Horrible Din

NOT very long ago I was inveigled into Olympia in an unguarded moment by a man who has a passion for visiting every exhibition held there, irrespective of whether it has anything to do with radio or not.

What struck me most was the excellent manner in which music was distributed throughout the exhibition by means of loud speakers. These latter devices were suspended from the roof at a suitable height, and the result was a pleasant background of music sufficient to tone down the shuffling of feet and other offensive noises which people are in the habit of making when going round an exhibition. At the same time the music was subdued enough to permit of easy conversation with people on the various stands.

This in marked contrast to the state of affairs existing in the radio exhibition, where music belches forth with a hideous blare from every stand, so that the asking of technical questions is well-nigh impossible; indeed, in the case of many stands this state of affairs is intended.

I cannot for the life of me say what good purpose is served by having music (?) pumped through the loud speakers on the stands. Many people fondly

—unsophisticated whites.

imagine that it assists them to choose a loud speaker, and it is certainly an entertaining sight to see them rushing from one instrument to another. All I can say, however, is that anyone who chooses a loud speaker because of its performance on the stand has either no ear for music or has lost all sense of self-respect.

If anyone can lay his hand on his heart and honestly assure me that he enjoys the horrible din which we are compelled to put up with at Olympia, I will gladly eat both my hat and my umbrella.

Not Wanted on the 'Phone

ACCORDING to a Press report of an after-dinner speech, a well-known radio publicist has been sparing a little time from giving advice to the long-suffering public in order to tell wireless retailers how to swell the number of their customers.

Briefly, he suggests that at times when broadcasts of universal appeal are being made, such, for instance, as the forthcoming running commentary on the

No greater music.

Derby, they should ring up some householder whom they know to be a non-listener and place a loud speaker close to the microphone of the P.O. telephone.

Such a method of propaganda would, I think, be of very doubtful value. Apart from the fact that the microphone of the ordinary P.O. telephone is noted for its music-mangling properties—and what greater music is there than the sound of the human voice?—there remains the drawback that only one customer could be reached at a time. I am well aware, of course, that, from a technical point of view, there is no difficulty whatever in getting connected up to a couple of dozen people simultaneously as the P.O. telephone service so ably demonstrates each day to many of its subscribers.

In addition to the foregoing objections, it must not be forgotten that a broadcast of universal appeal, like the Derby, is indeed a *rara avis*, and, in the case of most broadcasts, dealers are more likely to offend than to please a potential customer. Can one imagine, for instance, a chamber music addict being won over to radio by a piece of hot jazz, or an undertaker being similarly persuaded if his first introduction to the art happened to be a broadcast appeal by the Royal Life Saving Society?

Tone Control Output Unit

Constructional Details of an Inexpensive Unit for Attachment to Loud Speaker

By A. VAUGHAN

IT is seldom that a receiver without tone control gives equally realistic reproduction on both speech and music, and the majority of modern sets are equipped with this device. To those possessing earlier types of receiver, the tone control unit described in this article will undoubtedly appeal, as it can be fitted to the loud speaker with very little difficulty.

THE addition of tone control to every receiver is rapidly becoming a necessity, owing to the general desire for perfectly natural reproduction. The loud speaker is expected to reproduce a human voice faithfully at its original strength, and equally faithfully reproduce large orchestras at considerably reduced strength. It is a well-known fact that low notes do not carry as well as high notes, so the orchestral reproduction, to be true, must be from a loud speaker emphasising the lower frequencies. Consequently, on speech, the same receiver and loud speaker, without adjustment, will reduce the pitch of the voice due to the low note emphasis. Similarly, if adjusted to give true speech, the orchestra will be minus a considerable amount of bass. Many listeners strike a compromise, while others fit a tone control in the receiver.

Greater Range of Variation

The method of tone control about to be described can be fitted in the loud speaker, and in consequence is a great advantage to listeners using a loud speaker remotely from the receiver. Also, while most forms of tone control simply reduce the high or low note response, leaving the other constant, this method increases one and reduces the other simultaneously, thereby giving a considerably greater range and flexibility of control.

The theoretical circuit arrangement is shown in Fig. 1 from which it will be seen that the output choke is split up into two sections L1 and L2 which can be either one tapped choke or two separate components. C4 is the usual coupling condenser to the loud speaker, C3 a condenser of the same value, C2 a condenser of 0.2 mfd capacity to tune L2 to 130 cycles. The potentiometer R is connected in parallel with the loud speaker and the chokes in series. The choke L2 and condenser C2 being tuned to 130 cycles will offer a high impedance to frequencies round this value (owing to its naturally flat tuning) but the higher frequencies will be passed through condenser C2 to which it will offer a very low impedance. Again, choke L1 will offer a high impedance to the higher frequencies, but will not offer much impedance to the lower frequencies. It will be seen from the diagram that the lower frequency voltages developed across L2 C2 are applied to the Z Y portion *via* C4 and the decoupling condenser C1. The total voltages across the potentiometer are applied to the loud speaker, and by moving the slider Z nearer X or Y, the proportion of high or low notes applied to the loud speaker will be varied accordingly, the high notes being reduced and the low notes being increased simultaneously, and vice versa, with the operation of one control.

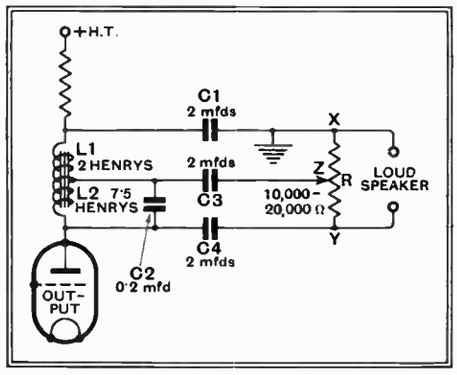
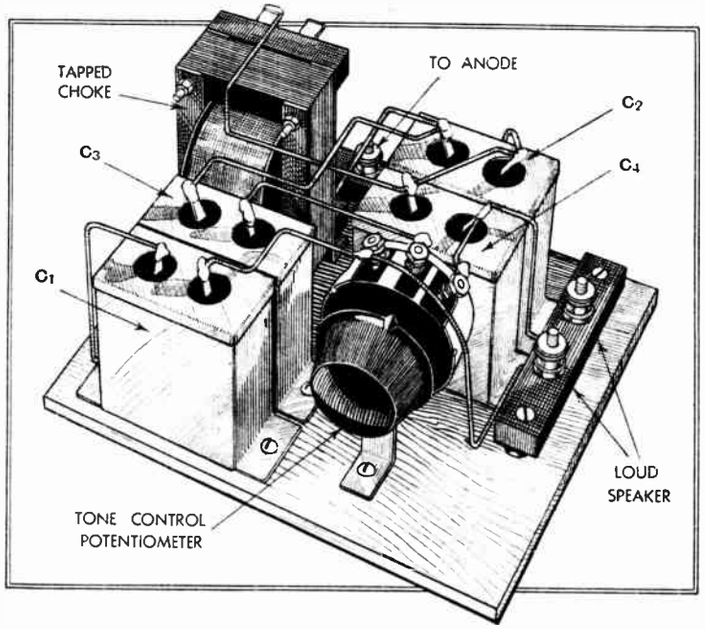


Fig. 1.—Circuit diagram of the tone control unit which is interposed between the last valve and the loud speaker. The potentiometer R should have a value between 10,000 and 20,000 ohms.

In the case where control is desired remotely from the receiver, the potentiometer is fitted in the loud speaker, and three leads must be used for the extension from the receiver, which are connected to the points X Y and Z on the potentiometer. The condensers should be fitted in the receiver, not in the loud speaker, so that H.T. supply is isolated from the extension leads. This method of tone control can be similarly used with a low impedance speaker, but in this case the potentiometer is connected across the primary of the step-down transformer.

Table A gives the impedance of the two chokes at various frequencies, from which it will be seen that the values have been chosen for an output valve of medium impedance. If the device follows a very low impedance output valve, the resistance of R and the inductance of L1 and L2 must be reduced accordingly, but C2 is increased to tune L2 still to 130 cycles. Similarly, after the high impedance valve R, L1 and L2 must be increased and C2 reduced.



The practical layout of components and wiring details can be easily followed in this illustration.

TABLE A

Frequency in cycles per sec.	Impedance of L1 in ohms.	Impedance of L2 C2 in ohms.
50	640	2,400
100	1,260	6,000
120	1,500	11,400
130	1,640	30,000
140	1,760	10,600
200	2,500	4,350
300	3,800	2,700
400	5,000	2,000
600	7,500	1,330
800	10,000	1,000
1,000	12,500	800
2,000	25,000	400
3,000	37,500	260
5,000	62,000	160

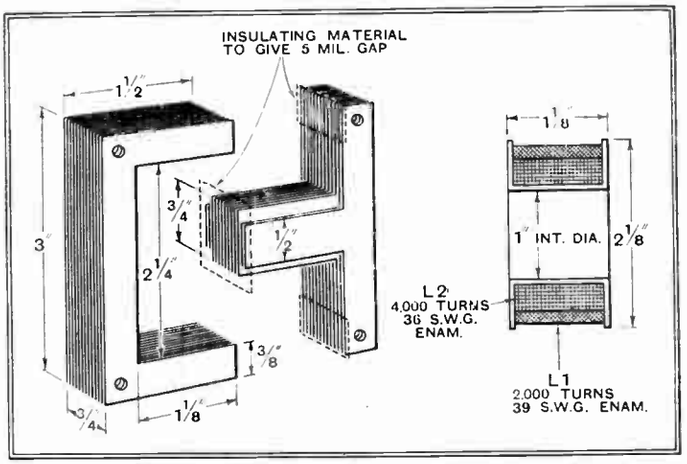
The high impedances shown for L1 at the high frequencies will be reduced somewhat in practice owing to the self-capacity of L1 which has not been taken into account in the table.

Tone Control Output Unit –

The frequency of 130 cycles chosen as the low note resonance calls for some comment. The resonant frequency should be as low as possible, but among the easily audible notes, 25 cycles would be far too low. A frequency of 50 and 100 cycles also must be definitely avoided; otherwise the hum from half- and full-wave rectifiers on all main receivers will predominate, and will in some cases come up to such a level that all smoothing after the rectifier will be nullified. The third consideration is the medium frequencies which must be obtained partly from impedance L2C2 and partly from impedance L1. Otherwise, if the design is such that the medium frequencies are obtained from choke L1 only, they will be eliminated with the higher frequencies as the position of Z is moved nearer X. Similarly, if obtained from L2C2 only, they will be eliminated with the lower frequencies.

To comply with the first consideration that the frequency of resonance of L2C2 should be as low as possible, L2 or C2 must be very large. A choke L2 having a very large inductance would be cumbersome and costly, or have a high D.C. resistance, neither of which is desirable. A very large capacity C2 would by-pass the medium frequencies as well as the high, and all the medium frequencies would be obtained from L1, which has already been seen to be bad design. Therefore, for the medium frequency consideration, neither L2 nor C2 can be very large, so the resonant frequency of L2C2 cannot be as low as the first consideration requires. Hence the compromise of 130 cycles was chosen, in order to satisfy as much as possible the various considerations which have been already referred to.

A point to be remembered if the two chokes are on one core is that the inductance varies as the square of the number of turns. So a choke having a total inductance of 17 henrys would be required to give two chokes L1 and L2 of 2 and 7.5 henrys respectively. The tap position would then be determined by dividing the total number of turns by three and allowing one-third for L1 and two-thirds for L2.



Details of the iron circuit and winding of the tapped choke.

CLUB NEWS

Dual Speakers

"DUAL-SPEAKER Equipment" was the subject of Mr. G. T. Peck's lecture at Slade Radio, Birmingham, recently. Excellent reproduction was given on a demonstration set with both gramophone records and radio.

Hon. Secretary: 110, Hillaries Road, Gravelly Hill, Birmingham.

New Club at Clacton

THE inaugural meeting of the Clacton and District Radio Club was recently held at Dixon's Café, Station Road, Mr. A. J. Dixon presiding.

Full particulars may be obtained from the Hon. Secretary: Mr. Rodney Loader, 49, Southcliff Park, Clacton-on-Sea.

How Valves are Made

THE intricate processes of valve manufacture were recently described to members of the Battersea and District Radio Society by Mr. Parr, of the Edison Swan Electric Co., Ltd. The lecture was illustrated by lantern slides.

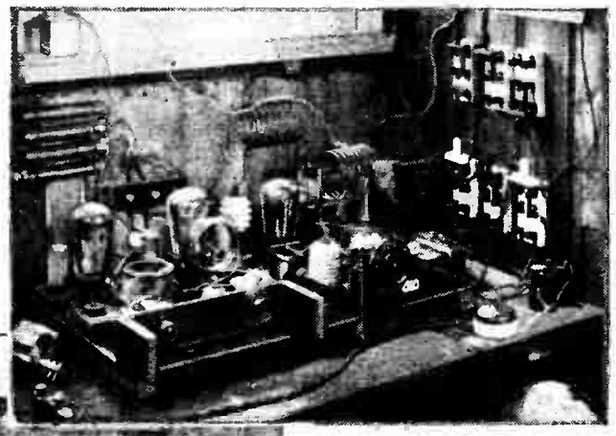
Hon. Secretary: Mr. S. F. Harris, 93, Salcott Road, Battersea, London, S.W.11.

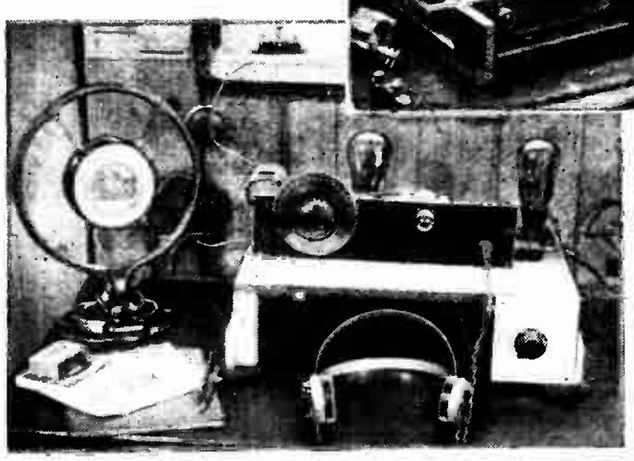
Comparing Pick-ups

COMPARATIVE tests of a number of pick-ups kindly lent by several representative firms were carried out at a recent meeting of the Croydon Wireless and Physical Society. The audience acted as jury, filling up voting papers as they listened to the various pick-ups demonstrated behind the screen. The results were surprisingly uniform.

Hon. Secretary: Mr. H. T. P. Gee, 51-52, Chancery Lane, London, W.C.2.

G 6FM. A compact station owned and operated by Mr. F. D. Milner, at Lower Edmonton. The photo on the left shows the microphone and 2-valve receiver with which several Australian and New Zealand stations have been heard at good strength. Above is shown the 3-valve transmitter and frequency doubler for 40 and 20 metres.





The New Output Circuits

"THE Output Stage of a Wireless Receiver" was the title of a recent lecture by Mr. G. Parr, of the Edison Swan Electric Co., Ltd., before the Smethwick Wireless Society. The lecturer discussed the differences between triodes and pentodes, second and third harmonic distortion, push-pull (including Q.P.P.) and Class "B" amplification.

Prospective members are welcome at the Society's meetings.

Hon. Secretary: Mr. E. Fisher, 33, Freeth Street, Oldbury, Nr. Birmingham.

Television Explained

TELEVISION apparatus was demonstrated before the Radio and Television Section of the Southport Society of Natural Science at a recent meeting. Mr. T. Fazackerley showed a recent type of Baird televisor. The Section staged a radio and television exhibit at the annual scientific exhibition of the Parent Society on April 13th.

Hon. Secretary: Mr. John Clegg, 34, Scarisbrick New Road, Southport.

A Friend in Need

POINTS which puzzle the novice in regard to valve characteristics were recently elucidated by Mr. Deal, of the Mullard Wireless Service Co., Ltd., for the benefit of the members of the Catford and District Radio and Television Society. The Chairman, Dr. Bannounah, set the ball of discussion rolling, and all the members were seen busy telling Mr. Deal their valve troubles.

Hon. Secretary: Mr. H. W. Floyd, 38, Como Road, Forest Hill, London, S.E.23.

A Visit to Brentwood

ON a recent Saturday members of the Ilford and District Radio Society visited the Brentwood receiving station of Imperial and International Communications, Ltd. Mr. Keen, who conducted the visitors over the station, had rigged up a special amplifier to enable everyone to hear signals from EAM, Madrid, which were being received on one of the fourteen-valve superheterodynes.

Hon. Secretary: Mr. C. E. Largen, 16, Clements Road, Ilford.

Short Wave Champion

AN informal debate entitled "Are Short Waves Worth While?" was recently enjoyed by members of the Croydon Radio Society. It soon became evident that the Society's youthful members were ready to champion short waves at all costs, and some of the "old hands" had to use all their skill in presenting arguments against short waves. As a result of the debate the Society is forming a short wave section under the direction of Mr. D. Deacon.

Hon. Secretary: Mr. E. L. Cumbers, 14, Campden Road, South Croydon.

NEWS *of the* WEEK

Current Events in Brief Review

Vienna Testing

WE learn that the 120 kW. station at Bisamberg, near Vienna, has begun testing. The wavelength of Vienna is 507.2 metres.

A New One

THE latest excuse for non-possession of a wireless licence was put forward by a Birmingham defendant last week, who said he thought that he was covered by the royalties for a year.

2RN Returns

THE many protests by crystal listeners in the Dublin area have resulted in the decision of the authorities to reopen the old 1½-kW. station 2RN, which will now work on a wavelength between 200 and 230 metres.

Damped Oscillations

A SENTENCE of one month's imprisonment has just been passed on a German listener who was caught in the act of deliberately oscillating with intent to interrupt reception of broadcast political speeches.

Another "Broadcasting House"

THE celebration of the tenth anniversary of the foundation of Czechoslovakian broadcasting is to be deferred from this month until next autumn so as to coincide with the inauguration of the great new "Broadcasting House" in Prague.

Radio v. Flies

WIRELESS is to be enlisted in the campaign against the common house fly. It is announced by the French "Office National d'Hygiene Social" that all scientific processes are to be employed in making war on flies. Radio will be employed by speakers all over the world to preach a crusade of extermination.

Forty Crowns a Head

THE Czechoslovakian postal authorities offer a prize of forty crowns for information leading to the detection of each wireless "pirate." To make the award more inviting the authorities guarantee that "anonymity will be respected." This is a wise move, for, to parody Congreve, "Hell has no fury like a pirate caught."

Retailers and Interference

APPARENTLY it is not sufficient that French wireless retailers should supply their customers' sets "in apple pie order." According to a recent legal decision at Cherbourg, the seller who installs a receiver must satisfy himself that the set will not be seriously interfered with in its new locality. The trouble arose when a private customer sued a radio firm for 6,000 francs in respect of a set which, although in perfect condition, picked up violent disturbances from a neighbouring H.T. line, no anti-interference device having been fixed. The Court awarded 1,000 francs.

A Distinguished Reader

MARCHESE MARCONI'S experimental cabin on board the "Elettra" was an irresistible attraction in the "Rooms of the Scientists" at the Ideal Home Exhibition. On the day of our visit the last touch of verisimilitude was given by the fact that the gentleman impersonating the great inventor was reading *The Wireless World!*

Nazi Interval Call

NEW interval signals are characteristic of the majority of German broadcasting stations since the National political crisis. The new call at Witzleben, Berlin, consists of the last notes of the well-known Nazi song "Volk an's Gewehr."

Youth at the Key

BRAVO, Master Russell Stedinger, 2816, Delaware Street, Oakland, California! According to the American Radio Relay League, you can claim to be America's youngest licensed radio transmitter, for you are only nine years old and you hold the call signal W6HRZ. What is more, you have already communicated with voice as far as Hawthorne, Nevada.

Keep it up, Russell.

Thanks to Static

WIRELESS retailers in the Larkhill (Liverpool) district have been surprised by the recent mysterious increase in the demand for receiving valves. The Post Office experts have partially solved the problem, for they have discovered that a particularly virulent form of interference has arisen in the district, causing an intermittent crackling in wireless sets in Queen's-drive. The source of the noise has not been traced.

There seems no doubt that many listeners imagined that the trouble was due to faulty valves, hence the increase in the retailers' profits.

Short Waves from America

MOST large metropolitan centres in the United States went on to daylight saving time on Saturday last, April 29th, and short-wave listeners will be interested to know that new schedules have been prepared for those popular stations W2XAD and W2XAF. W2XAD transmits on Mondays, Wednesdays and Fridays from 8 p.m. to 9 p.m. (B.S.T.), and on Sundays from 7 to 9 p.m. (B.S.T.). W2XAF transmits daily from 11.45 p.m. to 3 a.m. (B.S.T.).

Complete for £3 - 15 - 0

HERR HITLER has turned his attention to the wireless trade. We understand that the Chancellor, after meeting representatives of the leading manufacturing firms, has decreed that 20,000 receivers with built-in moving-coil loud speakers, shall be constructed and placed on the German market within a limited period, the cost of each receiver not to exceed seventy-five marks. The quality of reproduction must reach an approved standard, so that users shall be certain of good reception of political broadcasts.

THE WORLD'S YOUNGEST? On the right is eight-year-old Jean Hudson, daughter of Mr. Edgar L. Hudson (W3BAK), of Laurel, Delaware. Although not eligible for licence, this little lady can read and type Morse signals at fifteen words per minute. Her fourteen-year-old brother Roland (on left) is, of course, a veteran at the game. He is seated on his portable transmitter.

The "Magic Bottle"

TO the general public the cathode ray oscillograph is not a familiar object, but undoubtedly it will shortly achieve a much wider fame as a result of the publication of a very important volume entitled "The Applications of the Cathode Ray Oscillograph in Radio Research," by R. A. Watson Watt, J. F. Herd, and L. H. Bainbridge Bell, of the Radio Research Station at Slough. This book will tell how this "magic bottle" can capture and record signals lasting only 1/20000th of a second, make an atmospheric of only 1/500th of a second in duration photograph itself, and indicate the route by which it arrived. These and many other applications will be described in this fascinating volume, which is to be published by H.M. Stationery Office, price 10s. net.

Designing Television Apparatus

"THE Design of Television Transmission Equipment" is the title of a lecture to be delivered by Mr. J. C. Wilson (of the Baird Laboratories) at a meeting of the Television Society to be held at 7 p.m. on Wednesday next, May 10th, at University College, Gower Street, London, W.C.1.

Cards of invitation may be had on written application to the Hon. Secretary, Mr. J. J. Denton, 25, Lisburne Road, Hampstead, London, N.W.3.

Man-made Static: International Conference

THE first world-wide effort to tackle artificial interference with wireless transmission is timed for June 22nd and 23rd when, under the auspices of the International Electro-Technical Commission, an international conference will be held in Paris. Although most of the preliminary work has been carried out by the Radio Electrical Committee of the International Union of Telegraphy, it is felt that the work should proceed on broader lines, and the conference will, therefore, aim at bringing about arrangements between manufacturers of electrical machinery and apparatus as well as the producers and distributors of electrical energy.

Although the good effects which are bound to follow such a conference may not declare themselves immediately, listeners may safely assume that the ether will be much less noisy a year or two hence.

Are Cars Complete Without Radio?

WIRELESS enthusiasts who are seriously considering the possibilities of car radio this summer will be interested in an article based on practical experience, published in the current number of our sister journal, *The Autocar*, in which the writer describes journeys between London and the Midlands in a radio-equipped car. It is important to note that reception, when well toned down, was not disconcerting or calculated to divert the driver's attention from the road.

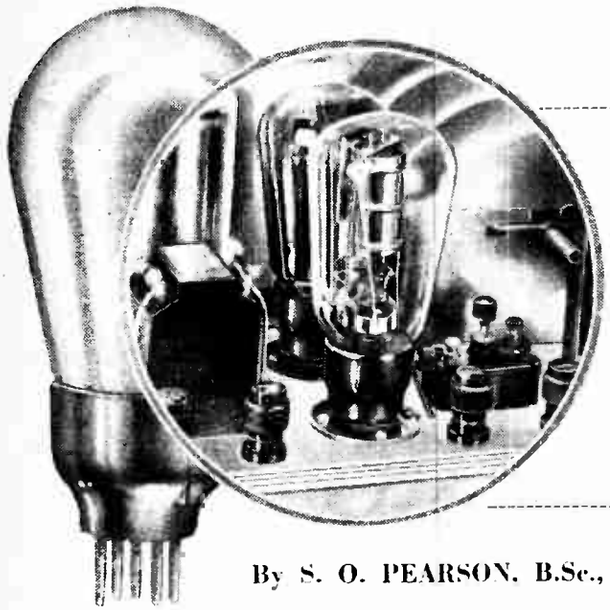
There are still a few technical problems which must be cleared up, perhaps, before wireless can be said to be a perfect concomitant to the modern car, and we endorse a suggestion of *The Autocar* that a sub-committee of the Society of Motor Manufacturers and Traders, Ltd., should meet a sub-committee of the Radio Manufacturers' Association to discuss various knotty points as they arise.

A Lewcos Event

THE Lewcos Staff Dramatic Society presented an admirable performance of Ian Hay's comedy "The Sport of Kings" to a full house at the Guildhall School of Music on April 25th. Lack of space precludes mention of excellent individual performances and Mr. Frank Lockett, the able producer, must accept the praise due to each and all of his well-selected cast.

The Pentode Output Valve

Why the Efficiency is So High



THE pentode is a constant current device and thus differs considerably in its behaviour when compared with a triode. It is shown in this article that if certain compensating circuits are used with the loud speaker the quality of reproduction can be superior to that from any other output valve.

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

THE pentode is an output valve whose electrical characteristics differ very widely from those of any triode, and for this reason the problem of matching the loud speaker impedance to the valve calls for special consideration. The pentode has two outstanding advantages over the triode; first, it is capable of giving a greater output in milliwatts per signal volt input at the grid, and, secondly, the maximum undistorted output is relatively large for the amount of anode current consumed. There is a further advantage that, with certain types of loud speakers which are weak in the upper register, very effective

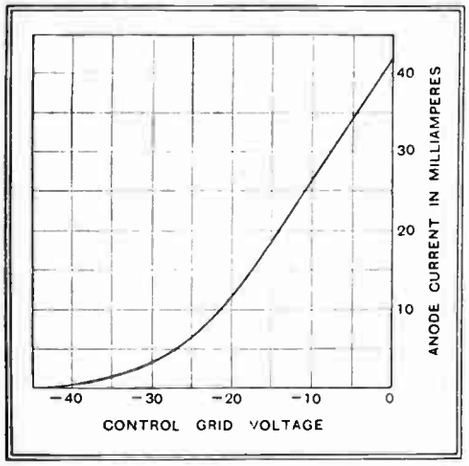


Fig. 1.—Anode current/grid voltage curves for a typical mains pentode taken at an anode voltage of 250 and screen voltage 200.

tone correction is automatically brought into play and this can be adjusted or varied at will.

As in the case of a triode, the pentode possesses the usual anode, cathode (or filament) and control grid. Besides these electrodes there are two auxiliary grids between the control grid and the anode. One of these is "earthed" to the cathode inside the bulb and is the one nearest to the anode, consisting of an open spiral of wire. The next in order is the "priming grid," also a wire spiral, but rather more closely wound than the earthed grid. This is connected to a terminal at the side of the valve base and, under working conditions, is maintained at a constant positive potential somewhat less than that of the anode itself.

A.C. Resistance Values

For a pentode, the curve showing the relationship between anode current and control grid voltage, with the anode and priming grid kept at normal potentials, is very similar in form to that of a triode, as will be seen from Fig. 1. But, unlike a triode, the curve is hardly affected by a change of anode volts, and it is in this respect that a pentode differs so widely from a triode in its operation. Other things being constant, if the anode voltage is increased or decreased, say, 25 per cent. above or below the normal value, practically no change occurs in the anode current.

Now, in a triode, the change of anode current is very nearly proportional to the change of anode voltage, signifying that the A.C. resistance of the valve is more or less constant. But where a change of voltage results in no change of current, as in a pentode, it follows that the internal impedance of the valve must vary in direct proportion to the voltage. The effective A.C. resistance of a pentode cannot, therefore, be stated in the same way as it can for a triode. For instance, a pentode whose apparent A.C. resistance is, say, 60,000 ohms, expressed as the ratio of change of anode volts to change of current, behaves in actual operation as though it has an A.C. resistance of only four or five thousand ohms.

The anode current/grid volts curve of Fig. 1 is not of such practical use as curves showing the relationship between anode volts and anode current for different fixed values of grid voltage. A series of such curves for a representative pentode is given in Fig. 2, and these show clearly that, above a certain value of anode voltage, the current with any one value of grid voltage varies very little with change of anode volts. The dotted line curve is the corresponding one for an ordinary triode output valve and is included to show, at a glance, the great difference in the nature of the characteristics for the two classes of valve.

The most suitable load impedance for the pentode is determined by considerations of the degree of harmonic distortion that may be permitted. In a triode the

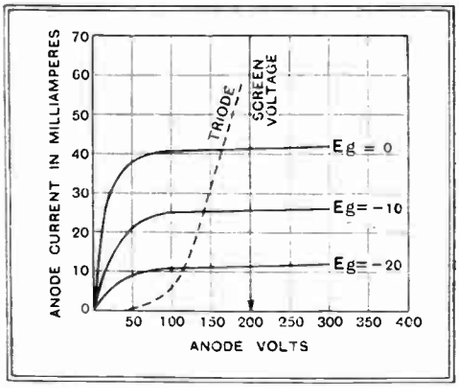


Fig. 2.—Anode current/anode voltage curves for pentode and triode, showing the difference in shape of characteristics.

curvature of the dynamic characteristic curves results in the introduction of a second harmonic, but in the case of a pentode the double curvature results in the addition of not only a second harmonic but a third harmonic also, and the latter usually preponderates. The optimum load impedance is usually chosen so that the harmonic distortion, either 2nd or 3rd, does not exceed 5 per cent. The optimum load is very much more critical for a pentode than for a triode, and for this reason an output choke or transformer with a number of tappings is used to enable the particular loud speaker used to be matched to give the best results. The usual connection with a tapped output choke is shown in Fig. 3.

Speaker Resonance

It has been pointed out that a change of anode volts does not, to all intents and purposes, affect the value of the anode current. So, also, any change in load impedance will not affect the anode current, as it does for a triode. Now the impedance of any loud speaker varies with

The Pentode Output Valve—

frequency, being usually very high at the upper end of the musical frequency scale. Consequently, when such a loud speaker is used in conjunction with an ordinary three electrode output valve, the alternating current delivered to the speaker, with a given signal voltage applied to the grid, falls off as the frequency rises. For this reason most types of loud speaker have been developed in such a way as to compensate for the falling off of current at the higher frequencies, usually by the introduction of some form of resonance.

Constant Current Device

When used with a pentode, the alternating current delivered to the speaker is the same at all frequencies, however the impedance may vary, and so, where an artificial boosting of the upper frequencies is already incorporated in the speaker design, the pentode will result in the reproduction of the upper frequencies being far too pronounced in comparison with those of the middle register, unless some means of partial suppression is provided in the electrical circuit. This correction is effected by connecting a high resistance R across the speaker terminals as in Fig. 3. Although the current supplied by the valve is constant, it divides between the speaker coil and the resistance R in the inverse ratio of the respective impedances. Since R is constant and the speaker impedance rises with frequency, it follows that as the frequency rises a larger proportion of the current will go through R and a smaller proportion through the speaker, as desired. A condenser C of suitable value is connected in series with R to prevent the latter from by-passing any of the current at the very lowest frequencies. Practically all moving iron speakers require compensation of this nature to prevent over shrill reproduction.

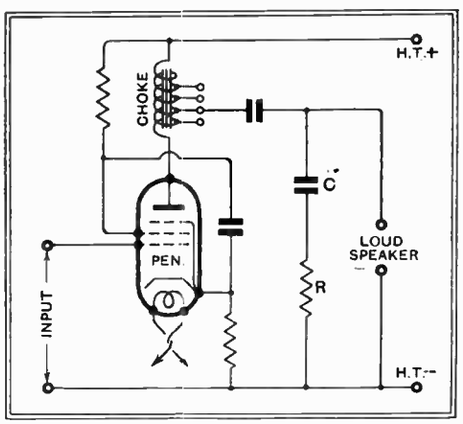


Fig. 3.—Complete pentode output circuit with tapped choke for matching loud speaker and impedance limiting device CR.

Moving-coil speakers are in a class by themselves and require, from the theoretical point of view, constant current at all frequencies, and so it would appear that the pentode would be ideal for operating this type of speaker. But the theoretical conditions are not fully borne out in practice on account of diaphragm or cone resonances. As a matter of fact paper resonance at high frequencies is usually introduced purposely to compensate for loss of high notes when used in conjunction with a triode. So a speaker with a stiff-paper cone must be compensated in the same manner as for a moving iron speaker when used with a pentode. When the cone of the moving coil speaker is made of a very soft material, no compensation is required, but in practice it is unsafe to operate a pentode without a resistance across the speaker or primary winding of the output transformer because the wide variation of valve impedance may cause dangerously high voltages to be developed during the passage of any powerful transients.

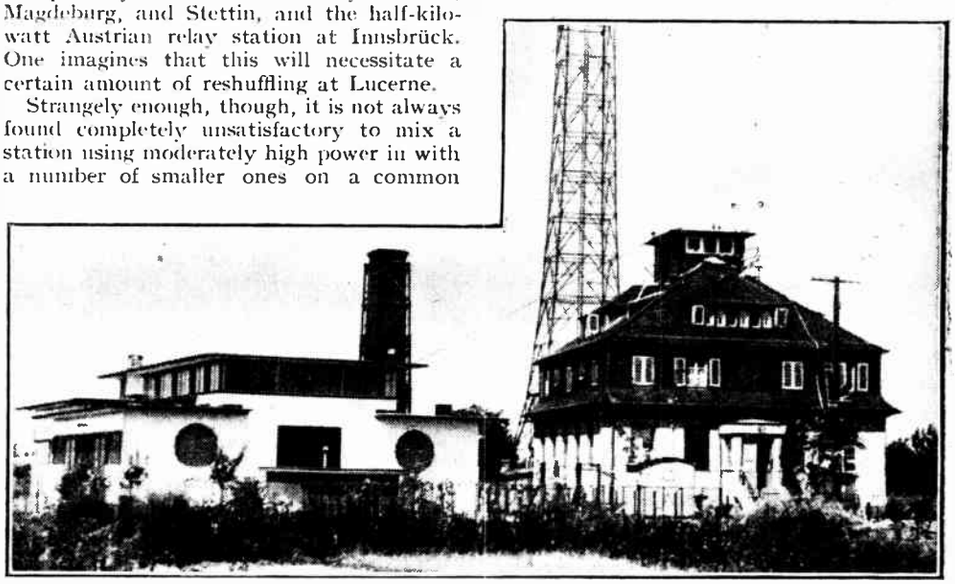
With careful matching and compensation the pentode can be made to render more realistic reproduction than a triode.

DISTANT RECEPTION NOTES

Shared Wavelengths : Results That Astonish

So Portugal is to join the ranks of the high-powered transmitters. The new Lisbon station, which will be able to use up to 100 kilowatts when required, is nearing completion, and tests are likely to start early in the autumn. The wavelength is to be 283.6 metres, which is at present occupied by three German relays, Berlin, Magdeburg, and Stettin, and the half-kilowatt Austrian relay station at Innsbrück. One imagines that this will necessitate a certain amount of reshuffling at Lucerne.

Strangely enough, though, it is not always found completely unsatisfactory to mix a station using moderately high power in with a number of smaller ones on a common wavelength. The most astonishing example is to be found on 453.2 metres. This is occupied by no fewer than nine stations with outputs ranging from 150 watts to 1 kilowatt, and a tenth has recently been added in the shape of the 7-kilowatt Milan Experimental station, which relays Rome. Despite the multiplicity of its wavelength partners, I hear that reception within the service area of Milan is very good, and I have not heard of many complaints from those served by the other relays on the same wavelength. It will be still more interesting to see what happens when common-wavelength working of two super-power stations is attempted—the West National and London National on 261.5 metres.



A POPULAR DEUTSCHLANDSENDER. The transmitter buildings at Frankfurt, one of the best known of German broadcasting stations. The wavelength is 259.3 metres and the power 17 kilowatts. Frankfurt serves two relay stations, Cassel and Trier.

Good Signals from Ireland

Athlone must be classed as one of the most successful of the new high-powered stations. In most parts of England and Wales its transmissions are received at almost local-station strength and the quality is remarkably good. One only hopes that the programmes will not eventually be spoilt by too much advertising.

As an indication of how good conditions still are, despite the nearness of the summer season, I may say that a straightforward four-valve set containing two screen-grids, detector, and a power output stage still brings in a round dozen Continental stations at full loud-speaker strength with the reaction control knob right over at its minimum setting.

Amongst these stations, which are received so strongly that one is to all intents and purposes within their service areas, are Nürnberg (on certain evenings), Trieste, Turin, Heilsberg, Hilversum, Breslau, the Poste Parisien, Brussels No. 2 (now much stronger than No. 1), Leipzig, Rome, Langenberg, and Prague on the medium waves; and on the long waves, Zeesen, Warsaw, and Radio-Paris.

By making the set a little more sensitive numbers of other stations can be brought up to full loud-speaker strength and thoroughly well received. Barcelona, for instance, is better heard now than it has been for some weeks, and Hamburg is often very good indeed. Mühlacker's is a wonderful transmission at times when the London Regional is not working, and there has been little trouble recently from the Algiers heterodyne. Brno is well worth attention, and Göteborg is often to be found coming in well on 321.0 metres. Fécamp still suffers rather badly from spark signal interference. Bratislava on 278.8 metres is often receivable with real entertainment value. There is a slight tailing off at the very top of the medium-wave band, though Vienna and Florence are almost, if not quite, as good as ever. Stockholm and Katowice are nearly always to be relied upon for good quality and good programmes. D. EXER.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

ADAPTORS, by means of which the working currents and voltages of valves may be measured *in situ*, are produced by a number of manufacturers, and are extremely useful as an aid to checking operating conditions with a minimum of trouble.

Misleading Measurements

The adaptor is inserted between the valve under suspicion and its holder, and so the meter may be joined to the appropriate points without disturbing the wiring.

Unfortunately, the leads between adaptor and meter must inevitably introduce some risk of stray inter-circuit coupling, and thus self-oscillation may be provoked. The anode current taken by a valve in a state of oscillation will be different from that consumed under normal working conditions, and so, before relying implicitly on a measurement made in this way, one should satisfy one's self that the set is completely stable.

Self-oscillation may occur when dealing with H.F., I.F., or sometimes with detector valves. The most certain and usually the easiest way of ensuring immunity is to short-circuit the grid coil of the valve concerned; this course will not prejudice the accuracy of the readings in any way.

ONE of the simplest and cheapest methods of rectifying A.C. current for supplying the field of a moving-coil loud speaker is that shown in Fig. 1. The diagram is almost self-explanatory, but it should be emphasised that it is virtually essential that the principle of hum neutralising (hum bucking) should be embodied in the loud speaker.

Energising Field Magnets

It will usually be convenient to wire the rectifier circuit across the "dead" side of the on-off switch of the receiver, so that the current may be supplied automatically when needed. If this plan be adopted, it should not be forgotten that heavier main fuses will be required.

The arrangement shown is applicable to the field windings having the almost standardised resistance of 2,500 ohms; where it is desired to feed the field winding of the older type, which was originally designed for connection to a 6-volt accumulator, the method suggested in Fig. 2 will be found satisfactory. Due to the fact that the voltage required is low, it will be necessary in this case to interpose a step-down transformer between the mains and the metal rectifier.

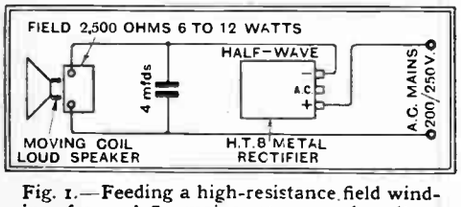


Fig. 1.—Feeding a high-resistance field winding from A.C. mains at normal voltage through a metal rectifier.

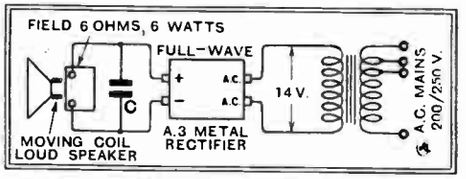


Fig. 2.—Supplying rectified current for an older type of field winding with a low-resistance winding.

One of the advantages of working with a low rectified voltage is that a high-capacity dry electrolytic condenser may be used in the position marked C for purposes of smoothing.

IN the "Class B" Eliminator described in *The Wireless World* of April 14th, a resistance of 1,800 ohms was inserted in series with the rectifier in order to limit the output to 60 milliamps. As this resistance is inserted in the negative lead, it may be regarded as a source of "free" grid bias; by converting it into a potentiometer in the manner shown in Fig. 3, any desired proportion of the total voltage developed across it may be employed for this purpose.

The "Class B" Eliminator

As the current flowing through the resistance in question will be maintained at a sensibly constant value, irrespective of load, by the action of the neon stabiliser, bias might be derived in this way even for a receiver in which anode current varies with modulation—as, for instance, when "Class B" or quiescent push-pull is employed. Without a stabiliser anode supply from the mains is normally ruled out for such sets.

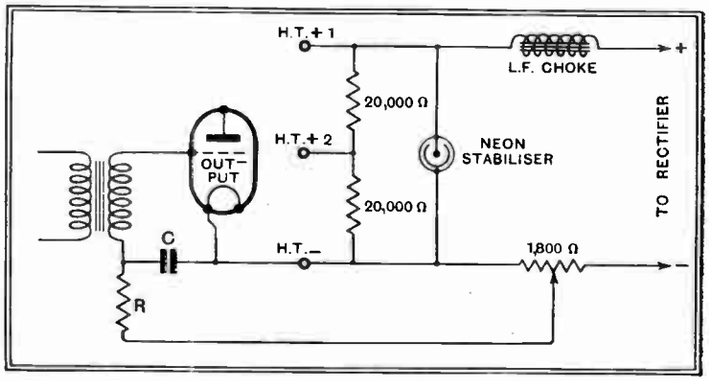


Fig. 3.—Free bias from the "Class 'B' Eliminator"; the decoupling components R and C may have values of respectively 100,000 ohms and 1 mfd.

As a potentiometer of 1,800 ohms is not a standard commercial product, it might be found more convenient to use a standard 300 ohm wire-wound potentiometer in series with a fixed resistor of 1,500 ohms; this would enable bias voltages varying from zero to about 18 to be taken off the variable section.

AS has already been stated in these columns, there is no easier or more certain way of improving the selectivity of an existing set than by adding an extra tuned aerial circuit. Of course, this addition is only applicable to sets in which the existing input circuit is of the single-tuned variety.

Two-circuit Tuner Coupling

It would appear that the great majority of failures to obtain satisfactory results from this addition are due to the fact that provision is not made for sufficiently loose coupling between the added circuit and the existing input circuit of the set. It is sometimes rather difficult to determine exactly whether the coupling is loose enough or not; in cases of uncertainty it is wise not to be satisfied unless it is possible to loosen coupling to such an extent that an easily perceptible reduction in signal strength can be brought about by setting the coupling at minimum.

OCCASIONALLY a failure in insulation between the cathode and the heating element of an indirectly heated valve still gives rise to trouble. A test for insulation between the heater and cathode pins is almost valueless when the valve is cold, as the fault will probably only manifest itself when the heater is working at its normal temperature.

Heater-Cathode Insulation

This is a case where an indirect test may often be made much more easily than a direct one. If the valve under suspicion is biased by means of a resistance in its cathode circuit the fault in question will introduce a short-circuit across this resistance, and so any change made experimentally in its value will *not* be followed by the usual changes in anode current. An indirect test is made by temporarily replacing the fixed resistor by a variable one, and at the same time inserting a milliammeter in series with the anode.

BROADCAST BREVITIES

By Our Special Correspondent

"Bowdlerised" Broadcasting

NOBODY these days seems to love the B.B.C. Balance and Control section. These hard-working and conscientious engineers have always had to submit to a kind of cold indulgence from artistes and listeners alike, but in the last week or two this "necessary evil" attitude seems to have developed into open hostility.

They are accused of "sub-editing" the great conductors ("editing" would be bad enough!), and one critic has gone so far as to accuse them of providing the public with bowdlerised versions of the classics.

Cruel Accusations

These are cruel accusations, and the accused engineers need all the balance and control they can muster to preserve at least an outward calm, for I know that these shafts run deep.

The truth, which is self evident to every reader of *The Wireless World*, is that broadcast programmes would hardly flatter the artistes and conductors if they were left to the tender mercies of even the best of microphones and amplifiers.

Tricks of the Microphone

To some degree, of course, a broadcast soloist can control and balance his performance by various little microphone tricks. These include throwing back the head when a high note is tackled and lowering the voice to a confidential whisper when approaching near to the microphone. But microphone dodges are beyond the scope of, say, a symphony orchestra, and it would certainly distract the Queen's Hall audience to see the instrumentalists rushing to and fro in order to preserve a correct ratio between volume, pitch, and distance from the microphone.

They Would Change Their Tune!

I suggest that the Balance and Control section wastes no time in denying the allegations and defying the allegators; failing which they might take a night off and let the critics hear what an uncontrolled concert really sounds like.

Personally, I should prefer a chorus of corncrakes.

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A Satisfied Empire

IT says something for the popularity of Empire broadcasting that over 5,000 people have actually put pen to paper in order to tell the B.B.C. what they think of the service. Of these practically 700 troubled to complete the very comprehensive questionnaire and another 340-odd actually went to the expense of sending cables.

Who can now say the Empire is indifferent?

Would the Money Flow?

In the light of these figures I think that the B.B.C. "ambassadors" like Mr. Malcolm Frost and his chief, Mr. Cecil Graves, will not find it very difficult to persuade the Dominions and Colonies to pay their just share towards the upkeep and improvement of the service.

What About it, B.B.C.?

HERE is an idea from New Zealand which might well be copied by the B.B.C. I hear that 2YA, Wellington, now has a small auxiliary station working on a shorter wavelength, which is specially used for broadcasting gramophone records while the parent station is sending out the news bulletins, the music being for the benefit of those who have already seen the news in the papers.

Yet listeners at the heart of the Empire have no alternative to the First News Bulletin, most of which is available at length in the evening papers, and, possibly, in some of the more alert morning journals.

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Bravo, West Regional!

CONSIDERING the success which the B.B.C. engineers experienced with the first unannounced modulated transmissions from West Regional, it is not surprising that people in the West are applauding the excellence of the test transmissions which go out daily (Sundays excepted) on 309.9 metres between 11.10 and 11.50 a.m. and between 10.45 p.m. and midnight.

Transatlantic Report

Glowing reports are not confined to Wales and the West of England. I hear that after the early morning test on April 13th, reports came from a ship off the coast of Norway and a listener in St. John's Newfoundland. Splendid reception has also been reported from Berlin.

Wanted: A Sedative

It is in no spirit of vindictiveness that I utter the wish that West Regional will act as a real bromide to Radio Vitus, that little Parisian pest (as D. Exer put it last week) which performs a regular St. Vitus dance between 306 and 312 metres, upsetting Cardiff in the process.

Let Radio Vitus see what fifty kilowatts taste like.

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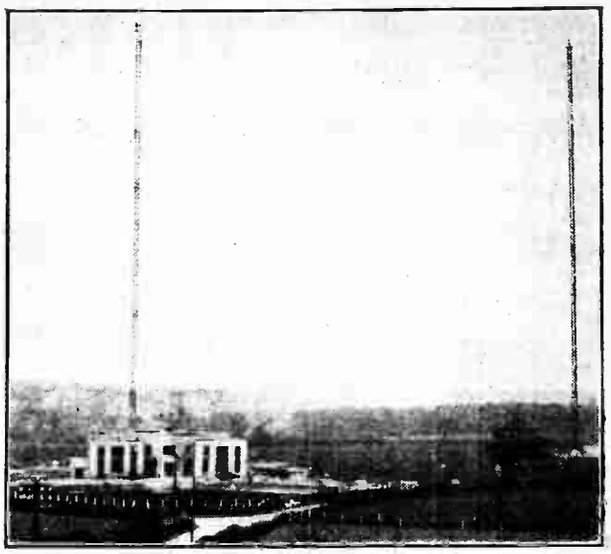
B.B.C. versus Man-made Static

IF you should hear Daventry National working overtime it would be a reasonably safe bet that the B.B.C. is engaged in an experiment to combat man-made static.

Trolley Buses on Test

The trolley bus question was tackled on April 12th with the cordial co-operation of the Hastings Corporation. As all the buses were in service during the day it was necessary to carry out the test after midnight, and for this purpose several buses were run empty through the streets (what the late revellers thought is not recorded!) while Daventry National sent out a special transmission from midnight to 1 a.m.

I understand that some useful data were obtained.



CALLING THE WEST. A striking view of the new West Regional B.B.C. station near Watchet, Somerset, which has begun daily tests on 309.9 metres. In general plan the station resembles its companion transmitters of the Regional scheme.

National Grid Troubles

The B.B.C. fear that electrical interference may increase slightly with the gradual completion of the National Grid electricity scheme, though the static is not so noticeable as might be expected. Most of the trouble seems to be caused in wet weather by surface leakage across insulators; even so, it is only observed by listeners who are very near to the power lines.

By the way, can you tell me why the amount of interference is not affected by the voltage? Apparently a 30,000-volt cable causes no more interference than one of comparatively low voltage.

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On Empire Day

EMPIRE DAY (May 24th) will be notable for broadcast speeches by Mr. J. H. Thomas and the Archbishop of Canterbury from the Empire Day Luncheon at the Junior Carlton Club.

A special Empire Day Programme will be heard in the evening.

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Nightingales Again

THE B.B.C. impresarios are off to Pangbourne to arrange contracts with the nightingales. During the period May 22nd to the 27th it is hoped to relay the song of the nightingale at intervals in the late dance music.

The nightingale is one of the few artistes who are sought for by the B.B.C. His lot is not that of the majority of performers, who, it would seem, can never be quite sure that they will not suddenly receive notice to quit.

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Stick to the Helm, Sir Charles

I AM glad that there is a strong feeling in favour of Vice-Admiral Sir Charles Carpendale's retention of his post as President of the International Broadcasting Union. Much as Sir Charles's services are valued at Broadcasting House, I believe that it is the general view that if he decides to relinquish one or other of his two big tasks he should continue to exert his powerful influence on international broadcasting.

There are not many people with his experience as a pilot in the turbulent wavelength channels.

R.G.D. Supersonic Radio Gramophone

MODEL 701 D.C.

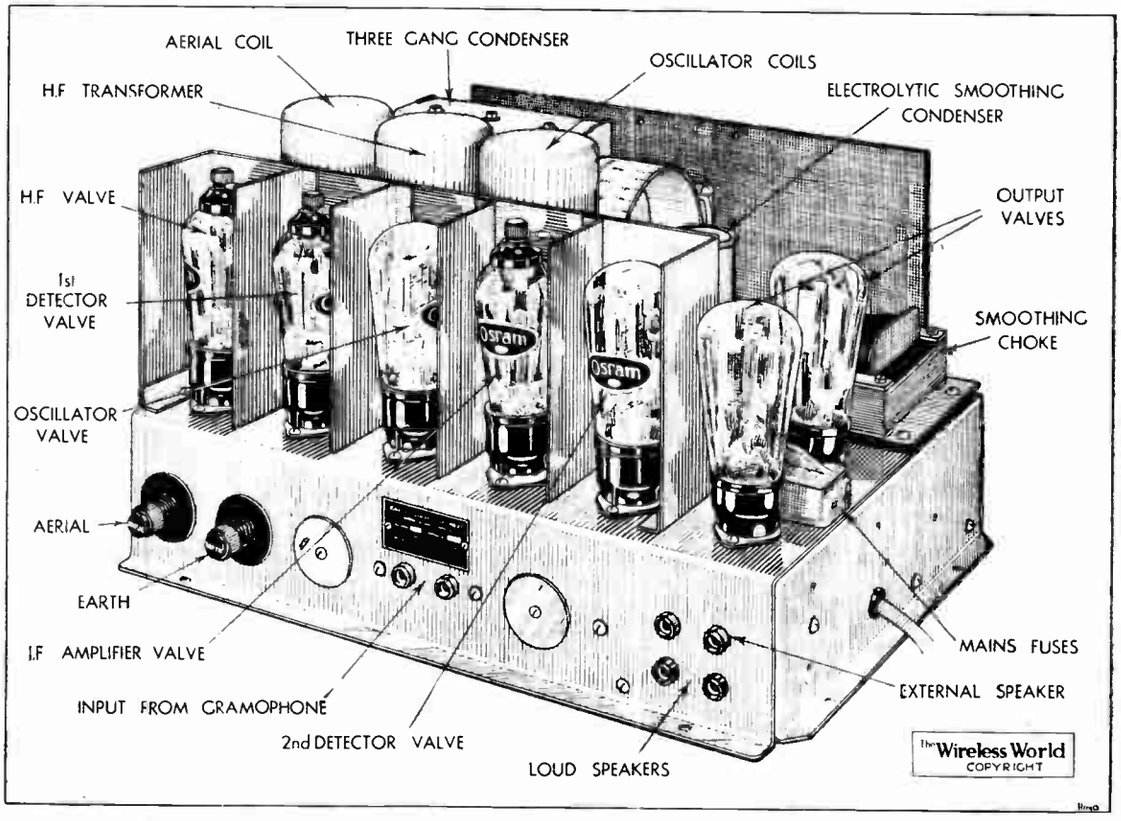
Seven-valve D.C. Superheterodyne Embodying Dual Loud Speakers and Automatic Record Changer

Features: *Seven-valve D.C. superheterodyne radio gramophone. Dual moving-coil loud speakers, automotic record changer, wavelength calibrated scale. Variable-mu H.F. amplifier, separate oscillator and S.G. first detector. Variable-mu I.F. amplifier, anode bend second detector and push-pull output. The controls include: (1) Tuning. (2) Combined wave-change and radio-gramophone switch. (3) Volume control effective on radio and gramophone, also mains switch. (4) Tone control. On motor board (1) Gramophone motor switch. (2) Reject and repeat control.* ***Price:*** *67 guineas.* ***Makers:*** *Radio Gramophone Development Co., Ltd., 15/20, Frederick Street, Birmingham, 1.*

OF the many problems that beset the designer of a D.C. receiver that of obtaining an adequate power output under all conditions is possibly the most important of them all. For there is no simple means of increasing the voltage, as in the case of an alternating current supply, and when deductions have been made for grid bias and the requirements of smoothing about eighty per cent. only of the supply voltage will be available for operating the power stage. Yet, despite the many difficulties, D.C. operated receivers have attained a very high degree of efficiency, as instance the model 701 D.C. radio-gramophone, made by the Radio Gramophone Development Co., Ltd. This instrument is basically the same as their A.C. model, and comprises a seven-valve superheterodyne receiver, an automatic record changer, and dual-compensated loud speakers, and, in common with all R.G.D. products, the workmanship is of the very best.

The circuit employed is comparatively straightforward for a superheterodyne, and consists of one H.F. stage, preceded by a single-tuned circuit loosely coupled to the aerial. This is joined to a screen-grid first detector by an H.F. transformer, the secondary circuit of which is tuned. There is a separate oscillator embodying a triode valve and one intermediate frequency amplifier; band pass I.F. transformers precede and follow this valve. The high and intermediate frequency stages both contain variable-mu screen-grid valves.

Thus there are two pre-selector tuned circuits and four in the I.F. amplifier, the degree of selectivity afforded by this chain of six tuned circuits being adequate for all normal requirements. An anode bend second detector, for which a triode valve is used, follows, and finally there is a pair of output valves working in push-pull. Incidentally, both first and second detectors are of the anode bend type, and, being self-biased, will handle a comparatively large input. The customary split-secondary L.F. intervalve transformer usually preceding a push-pull amplifier is not employed in the present receiver, but in its place is a centre-tapped choke resistance capacity coupled to the detector valve. This may seem on first acquaintance somewhat unusual, but closer examination will reveal that it is but an auto-transformer with a centre-tapped secondary and a parallel-feed input circuit. It does not, of course, provide a voltage step-up, but actually there is no need to enhance the low frequency amplification, as ample power is available even on distant stations. Power is fed to the two moving-coil loud



Rear view of the chassis showing the comprehensive valve screening.

R.G.D. Supersonic Radio Gramophone—

speakers by an orthodox push-pull output transformer, across the primary winding of which is connected a tone control consisting of a variable resistance and a condenser. The loud speakers are of the energised type with their field windings joined in parallel and connected to the mains through a smoothing choke.

Volume is controlled by varying the grid bias of the first H.F. valve simultaneously with that of the I.F. amplifier, and also by reducing the signal input. These three functions are combined in a single control and linked with it is a second potentiometer, which serves as the volume control for the gramophone. This control, in addition to answering for both radio and gramophone, embodies also the mains on-off switch.

Effective Tone Control

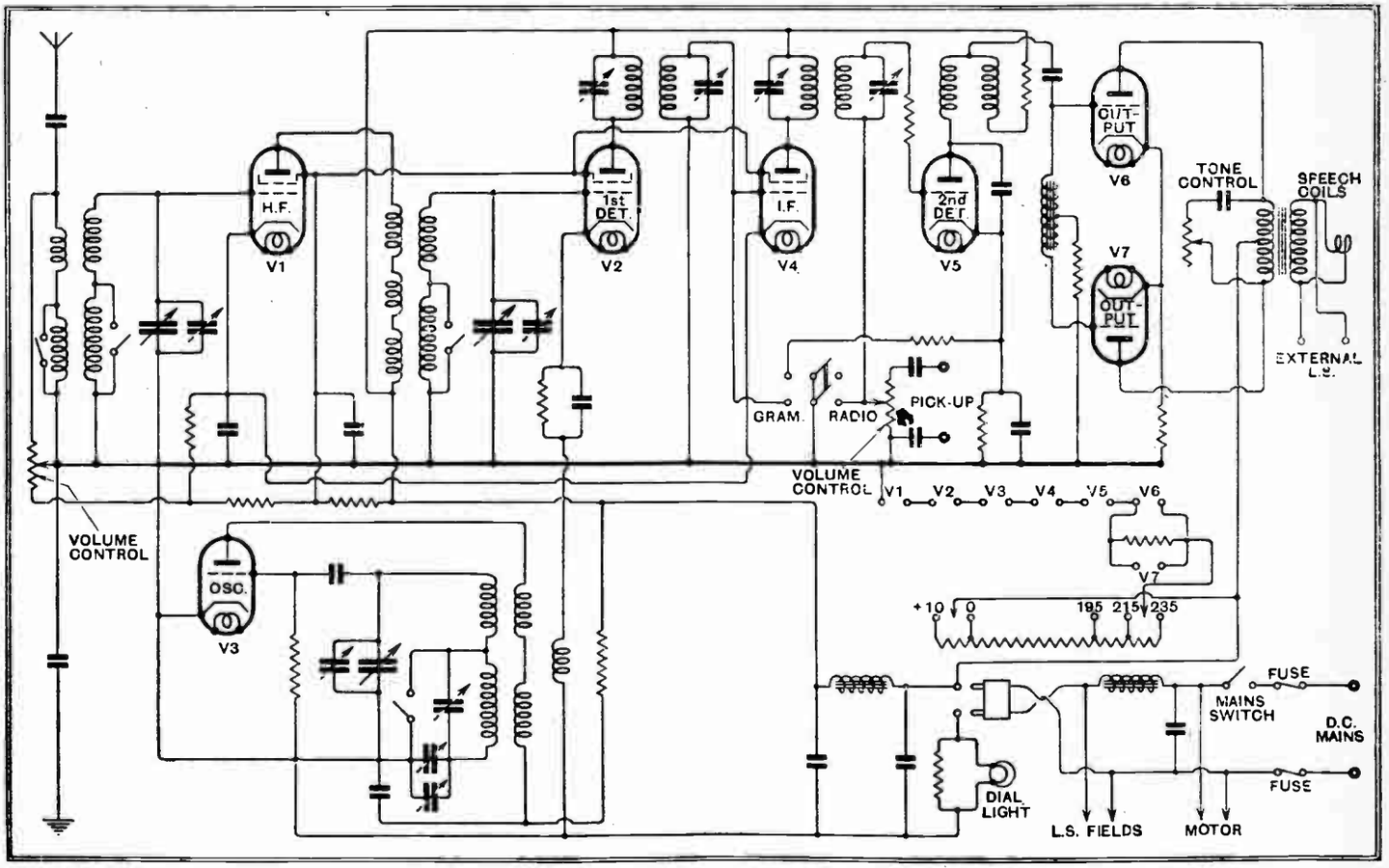
The wave-change switch is made to serve a dual rôle also, for combined with it is the radio-to-gramophone switch. A tone control is not an essential adjunct, for the acoustic output is particularly well balanced; the bass is well in evidence, but does not obtrude or overshadow the upper and middle registers, both of which are well reproduced. Actually, the main usefulness of the tone control would seem to be as a whistle or heterodyne suppressor should interference of this nature be encountered and be sufficiently high in pitch to come within the range of the tone control. A further use for it might be found when playing partially worn records, as it materially helps in reducing surface noises.

The reproduction of the higher frequencies is, perhaps, slightly better on gramophone, which does not imply that broadcast reproduction lacks brilliance, since the difference is only just discernible to a trained ear. Selectivity has its price, but in the R.G.D. receiver the cost is surprisingly low.

Tuning is facilitated by the provision of a wavelength-calibrated scale, marked in bold figures and illuminated from the back, the dial light, incidentally, serving as a polarity indicator. A useful feature is the inclusion of a two-pin plug joined to the mains input leads after the first smoothing choke, which enables this choke to be inserted either in the positive or the negative lead. The plug is a little inaccessible, being located between the output valves and the panel, but it is an initial adjustment, and will probably be dealt with by the installing engineer.

All controls are mounted on an inclined panel placed at a convenient height for easy access when sitting in an armchair. There are two additional controls mounted on the motor-board, and these relate to the operation of the Garrard automatic record changer. They consist of a start and stop, reject and repeat switches. The record changer holds eight 12in. or 10in. records.

As a wireless receiver the performance is fully in keeping with that expected from a well-designed superheterodyne; sensitivity and selectivity are more than adequate to cope with present-day conditions. Quite a short aerial suffices for the reception of all the principal broadcast stations, whilst in many cases the volume control must be adjusted to avoid overloading. Best results, so far as volume and quality of reproduction are concerned, are not necessarily obtained with the volume control at maximum and the optimum position must be found by trial. With the output stage working well within its power-handling capabilities, the volume is ample for a living room of more than average size.



Complete circuit diagram. Provision is made for positive or negative smoothing.

BLUE PRINTS

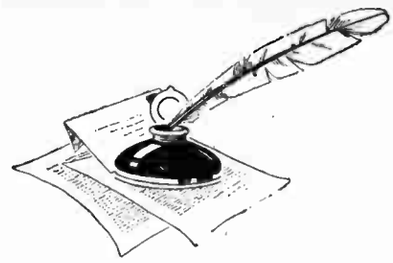
For the convenience of constructors full sized blue prints are available of the following popular *Wireless World* sets that have been recently described, price 1s. 6d., post free:

Monodial A.C. Super. (Booklet, price 1s. 8d. post free.)
Short Wave Two. (November 4th and December 23rd, 1932.)
Straight Three. (December 16th, 1932.)
Modern D.C. Three. (December 30th, 1932, and January 6th, 1933.)
All-wave Monodial Super. (January 27th and February 10th, 1933.)
Modern A.C. Quality Amplifier. (February 17th, 1933.)
Ferrocart III. (February 24th and March 3rd, 1933.)
*** A.V.C. Monodial Super.** (March 17th and 24th, 1933.) With 2·5 watt or 5 watt amplifier. State which is required when ordering.
The Class "B" Ferrocart Receiver. (April 17th, 1933.)
Universal A.C. Short-wave Converter. (April 28th, 1933.)

* Price of this blue print is 2/-.

These can be obtained from the Publishers, Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.

Letters to the Editor.



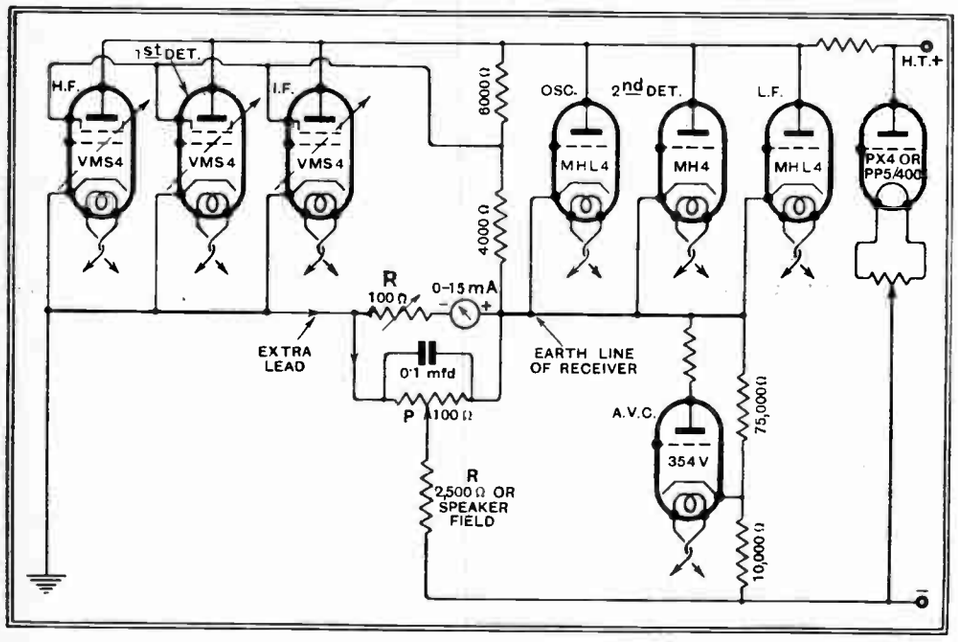
The Editor does not hold himself responsible for the opinions of his correspondents

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

A Direct-reading Signal Strength Indicator

MANY constructors of the Monodial Super with A.V.C. will fit a tuning meter. This is usually inserted in the cathode lead of the three VMS4's. In this position the meter readings are inversely proportional to signal strength. At an extra cost of about four shillings the meter can be made to give readings which are approximately proportional to the field intensity of the received station. This is an obvious advantage, especially to non-technical users of the receiver. A 0-15 milliammeter of low resistance can be made to read zero with no signal, and 12 with maximum R.F. input, corresponding to the old "R" scale of signal strength.

The meter is connected across a bridge circuit, with the three vari-mu valves on one side, and the other three valves and the screen-grid potentiometer on the other, as shown in the circuit diagram. The zero reading is adjusted by the potentiometer P, and the maximum by R. The alterations



to the wiring are quite simple. The resistances are mounted on the power chassis, and one extra lead is run in the A.V.C. cable. The meter is connected through a two-pin plug.

This arrangement can be used with any form of automatic volume control.

Bristol. COLIN COATES.

A.V.C.—A Dissenting Voice!

SHOULD we accept, without question, the general opinion which has suddenly arisen that a set to be useful must embody A.V.C.? Your editorial in the issue of March 24th will, doubtless, prove correct, and next season's sets of the more elaborate type will include A.V.C. in their specifications. Users of less ambitious sets not so equipped, however, may console themselves with the fact that A.V.C. is not without its failings.

The various methods by which A.V.C. is applied were given by C. N. Smythe, B.Sc., of the General Electric Company:—

1. Briefly, simple A.V.C. consists of using the potential developed by a diode detector as a negative bias, increasing with signal strength, which is applied to the H.F. valves. This arrangement only functions when used in a set having more H.F. valves than is desirable.

2. Next, in amplified A.V.C. the D.C. triode, and the appreciable change in anode bias potential is applied to the grid of a current which results renders available large changes of bias potential. A necessary delay action is readily introduced by returning the second element of a double diode detector to the cathode through a generous capacity. This method, used necessarily on a sensitive receiver, gives considerable mush between station settings.

3. Quiet A.V.C. makes use of an additional tuned circuit and valve, and is arranged to render the set insensitive except when a carrier is applied to the detector. As a means of automatic control this is the most satisfactory, the desired results being easily obtained.

Assuming the A.V.C. is to compensate for the effects of fading, it is important to bear in mind that the feeblest parts of the transmission will be unaffected but that the A.V.C. will cut down all other transmission to this weak level. One has only to arrange a receiver to produce this effect in order to at once condemn its use as producing an extremely insensitive receiver. In a superheterodyne the weak signal is represented at the second detector as one of very low modulation, yet A.V.C. takes into account only the amplitude of the carrier. It is also of importance to appreciate that A.V.C. in no way corrects for the distortion which accompanies fading. Some measure of A.V.C. is useful in limiting tuning spread due to detector overloading.

A.V.C. takes the "experimenting constructor" into an intensely interesting field where milliammeters and voltmeters change their readings as he tunes, while involving little more theory than a knowledge of Ohm's Law. The "listening constructor" will probably only find disappointment in that his set will no longer possess those essentials—range with silent background.

The habit of accepting every American innovation as of paramount importance and to be adopted without question should not apply to A.V.C. The majority of listeners in this country have but a single local station and for every other his set should be working initially at maximum sensitiveness.

F. H. HAYNES.

London, E.C.1.

The Price of Components

THE writer was interested to see your leader under the above heading, and, having some knowledge of the component market as well as the set market, he begs to submit the following comments for consideration.

In the first case, experience has shown that the great majority of constructors like their components not only to *be* good, but also to appear good; and it is a very common experience for one to come across constructors who take a pride in showing people the insides of their sets, not only because they have built them themselves, but because of the fine internal appearance, which in many cases is superior to the internal appearance of a completely manufactured set.

The next point to consider is this, namely, that the case, for example, of an audio transformer, apart from any possible electrical advantages it may have, forms a mechanical shield for the winding, preventing not only damage in transit, but damage when being handled by the constructor or when in the dealer's stock or on show in his window. One has only to examine one of the so-called skeleton components, such as manufacturers use, after it has been left out in the open for a short time under conditions corresponding to a trader's window, to realise that not only is it almost impossible to prevent it from deteriorating in performance, but its appearance tends to deteriorate so rapidly that it is not long before it can be classified as "junk."

The next consideration is "performance." In these days of rubbishy reproduction, not only in the case of many cheap manufactured sets on the market, but also—I am sorry to state—in the case of sets put out by reputable papers, it may be that your proposal can be considered as desirable—in other words, if *The Wireless World*, too, is in favour of reducing the performance of its designs to the level one expects from the average type of completely manufactured set, well and good; let it go ahead, and no one will henceforward bother to build to its specifications.

On the other hand, the writer has always felt that, up till now at any rate, *The Wireless World* considered excellence of design and fineness of performance in reproduction

as the first requirements of any receivers described in its columns, and if it continues to believe in that policy it will not be deterred for one moment from using the very best apparatus it can get for use in its sets, irrespective of its cost; for there is very little room for doubt that, in the past at any rate—and, the writer believes, at the present time and in the future—those constructors who build *Wireless World* sets, or the sets of good design put out by certain manufacturers, do so not for any possible saving in cost as compared with the completely manufactured article, but for the joy of the building and the fairly well founded belief that they can employ in their sets better apparatus than the majority of present-day manufacturers can afford to use. J. BAGGS.

New Moston, Manchester.

IN your remarks on the price of components you omit to mention the valve.

We have recently seen American multi-valve sets offered for sale here which include valves such as are making a belated bow in this country.

The English price of the valves contained would in some cases account for a very large part of the selling price of the complete set, loud speaker included, although these sets and valves come from the land of high wages, high prices, and trusts.

In spite of the high price of English valves, the life of heaters is still very much *x*; some will run to the end of their useful emission, and then one may have three or four wasters before chancing upon another long-lifer.

Despite mergers, rationalisation, organisation, research, and so forth, almost every advance of major importance in valve construction has originated abroad.

A comparison of American with English valve prices, or comparison of the prices at which English valves are being sold abroad (after surmounting high tariff barriers) with the prices asked in this country, would be interesting. WM. A. RICHARDSON.

Ashford, Kent.

Schools Wireless

I INFORMED you as long ago as last October that we were thinking of constructing the Monodial A.C. Super or the Modern Straight 5 to use as a school set.

You strongly deprecated the former and even seemed doubtful about the latter.*

However, as the result of some experience and enquiries I meant having a reserve of power and constructed your Modern Straight 5.

Believe me, it is almost ideal. I have the set permanently installed in my room, and loud-speaker extension wires have been run to six of the classrooms. Reception of music in each of these leaves nothing to be desired, though speech suffers somewhat from classroom resonance. In purely speech lessons we place the speaker an inch or so from the baffle board, and so weaken the bass frequencies. In any case, no child has to strain in the least to hear all that is said.

I thought you would be interested to hear of the successful use of one of your sets in a school, and am sure you can recommend it with every confidence to any other enquirer.

I should like to express my gratitude to you and *The Wireless World* staff for a very efficient addition to our facilities here.

H. CHAMBERS, Headmaster,
City of Nottingham Education Committee.

* We hesitated to recommend sets which seemed likely to be rather too ambitious for local reception work.—ED.

LABORATORY TESTS

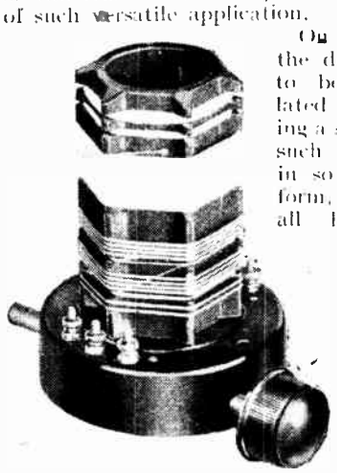
NEW RADIO PRODUCTS REVIEWED

LISSEN UNIVERSAL COIL

THE Lissen Universal Four Wave-Range Coil, to give its correct description, is designed to cover all the broadcast wavebands at present in use when tuned by a 0.0005 mfd. condenser. A four-position switch mounted in the base enables the following wavebands to be selected: 12-34 metres, 27-84 metres, 200-555 metres, and 900-2,100 metres. Particular care is necessary in the layout of the components, and especially in the choice of the tuning condenser, to extend the wave-range down to 12 metres, for we found that although no difficulty was experienced in tuning down to 15 metres with quite normal components and an orthodox layout, more attention to small details was necessary to so reduce the stray capacities that the lowest wavelength could be reached.

Reaction is perfectly satisfactory on all four ranges, and if the reaction condenser, for which a 0.0003 mfd. suffices, is connected in the "earthy" end of the reaction winding no trouble will be experienced from hand capacity. The tuning condenser must be fitted with a good slow-motion drive, and it is essential that it should have a very low minimum capacity.

The presence of the medium- and long-wave windings does not seem to affect the performance of the short-wave section, and on these wavebands the efficiency is as good as can reasonably be expected with a coil of such versatile application.



Lissen Universal four-range coil.

On the whole the designers are to be congratulated on producing a single coil of such wide range in so compact a form, for its overall height is 4¼in., and the diameter of the base 3in. The various coils are wound on a six-ribbed ebonite former measuring 2in. in diameter. The base is a neat bakelite moulding.

The makers are Lissen, Ltd., Lissenium Works, Worple Road, Isleworth, Middlesex, and the price, complete with extension rods, is 15s.

BLOCK L.T. ACCUMULATOR

AN unconventional storage cell in which the customary lead grill filled with oxide paste has been replaced by a special type of compressed electrodes consisting of the active material only has been introduced by Block Batteries, Ltd., Abbey Road, Barking, Essex. Known as the Block Accumulator, it is made in an 80-amp.-hour size, nominal rating, and takes the form of a cylindrical bakelite container in which is a seamless lead cylinder having pasted on to its inside surface the active paste forming the negative electrode. The positive element is a light lead core heavily pasted with a lead oxide. This is adequately insulated and is immersed in the usual solution of sulphuric acid.

Block plateless two-volt accumulator rated at 80 amp.-hours.

This method of construction leads to a considerable saving in weight and space, for it is claimed that in the Block cell double the amp.-hour capacity is obtained for a given size.

The new accumulator is an improved version of the original Fuller block-type cell, but is far more convenient for radio use than its prototype, since the charging rate is commensurate with that of any normal battery of equivalent capacity. It is, however, suitable for slow discharge only, and the normal rate is of the order of 0.5 amp. Owing to the particular nature of its construction, the cell may be left in a fully charged state without attention for long periods. Very little leakage of the charge takes place and, furthermore, internal sulphation is so slow that the cell does not suffer harm from this cause.

A specimen cell has been subjected to a test consisting of continuous discharge at 0.5 amp. and after the first charge 77 hours elapsed before the voltage dropped to 1.8. Subsequent discharges gave 80 hours and 78 hours work respectively under similar conditions, so that it would seem that on continuous work an actual capacity of about 40 amp.-hours may be expected. On intermittent discharge we fully expect the battery will give a considerably longer working time.

The battery is fitted with non-interchangeable terminals clearly marked and a large filler cap with a gas vent. It is available in a variety of coloured containers, and the price is 11s. 6d. for a two-volt cell.

BUSCO SWITCHES

A READJUSTMENT in the prices of Busco Switches, samples of which we reviewed in our issue dated March 31st last, brings the two-point model down to 1s., whilst the three-point type is obtainable for 1s. 3d.

Change of Address

The Public Address Department and the Special Products Branch of the Marconiphone Co., Ltd., hitherto occupying premises at 21, City Road, London, E.C.1, are now accommodated in Radio House, 210-212, Tottenham Court Road, London, W.1. The telephone number is Museum 4144.

READERS' PROBLEMS

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

Ferrocart and Q.P.P.

A READER who has already purchased the essential components for Q.P.P. amplification asks whether this system is applicable to the Ferrocart Class B receiver. We gather that he intends to use low-power output valves of the LP2 type, and so presumably an intermediate stage of L.F. amplification between the detector and the push-pull output valves will not be needed.

There is no basic reason why the Ferrocart set should not be modified in this manner; it is suggested that the receiver up to and including the detector valve should be built exactly as described, and that the output stage should be rearranged as shown in Fig. 1. It will be noticed that slight

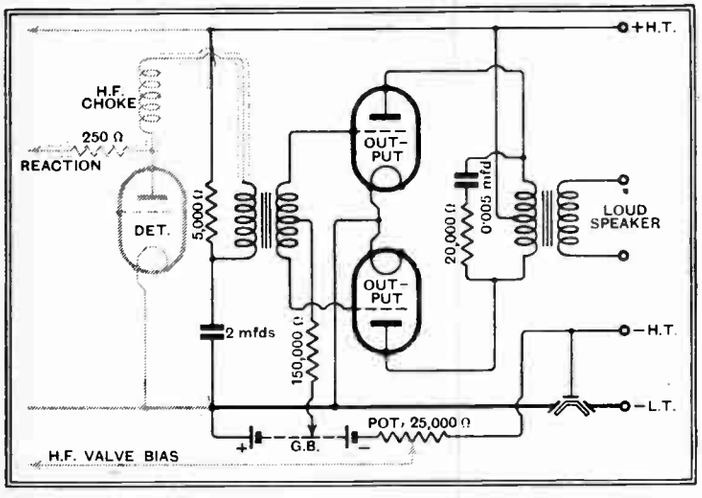


Fig. 1.—The Ferrocart "Class B" receiver, modified by the substitution of a Q.P.P. output stage. Alterations to the original circuit are shown in full lines.

modifications will become necessary in the grid bias system; in order to simplify matters the arrangement illustrated provides for adjustment of output valve bias by means of battery tappings, the potentiometer being used solely as a volume control by variation of H.F. valve bias. There are advantages in using a potentiometer for critical adjustment of output valve bias as well, and if this refinement is desired it is suggested that two potentiometers might be connected in the manner described in the "Readers' Problems" section of the issue for March 17th.

It should be noted that, for the arrangement at present under discussion the push-pull intervalve transformer must be of the high-ratio type specially designed for Q.P.P.

A Bad Earth

WE are asked what can be deduced from the fact that the removal of the earth connection from an A.C. mains receiver makes no apparent difference to sensitivity or selectivity. Our correspondent, naturally enough, seems to think that a defect in his receiver is indicated.

We do not think that this is so; perhaps the most logical implication is that the earth connection is poor and ineffective, but it should be remembered that all mains sets are earthed to a greater or lesser extent through the mains themselves.

It would nevertheless be well worth while to go to the trouble of trying to improve the earth connection.

L.F. Reaction

IT is a matter of some importance that interaction between pick-up and loudspeaker should be avoided, and accordingly connections and components associated with the output circuit should not be placed in close proximity to the pick-up and its leads.

From a description of the effects noticed by a querist, we are inclined to think that attention to this matter should remove his difficulties. The set works satisfactorily as a broadcast receiver, but when the pick-up is in operation L.F. instability and whistling occur when the volume control is set towards maximum. If the leads associated with the input and output ends of the amplifier are in any way mixed together it would be advisable to separate them, and if it is not possible to give greater spacing than at present the expedient of shielding these wires should be tried. It is worth while pointing out that flexible screened wire specially made for pick-up connections is available commercially.

Smoothing Unnecessary

WHEN a receiver is to be fed from the accumulator battery of a house-lighting plant, it is usually quite unnecessary to fit any smoothing devices. This statement is made on the assumption that the set will not be used while the accumulator battery is being charged; while charging is actually in progress there is bound to be a more or less noisy background, unless a fairly extensive smoothing system is included.

In spite of the fact that the usual smoothing equipment is fitted to his receiver, a correspondent finds that reception suffers while charging is in progress, and asks us to suggest how this interference may be prevented.

We suggest that in the first place the brushes of the charging dynamo should be attended to, and that sparking should be reduced as much as possible. At the same time, it would probably be wise to fit an "interference suppressor" to the dynamo; the simplest arrangement, consisting of a pair of large condensers shunted across the output, with an earth connection to their junction point, will probably improve matters. There is also the possibility that interference is being caused by the electrical ignition system of the engine which drives the dynamo, and it may be necessary to fit the usual preventive devices.

A.C. Practice with Battery Valves

ONE of the advantages of indirectly heated valves is that their cathodes need not be connected together. In practice, and particularly in certain A.V.C. circuits, matters are so arranged that a considerable difference of potential may exist between the cathode of one valve and that of the others in the receiver.

A querist, who is trying several rather unconventional systems of A.V.C., bemoans the fact that he is forced to use battery valves, and so is barred from employing any method in which the cathodes are at different potentials.

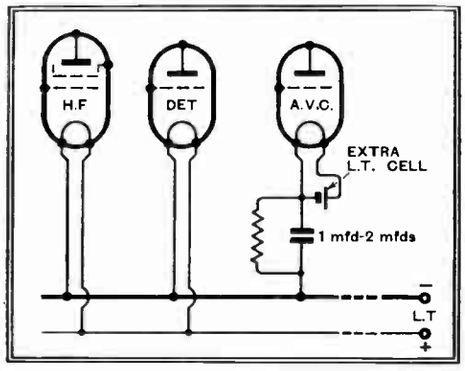


Fig. 2.—By heating a battery valve from a separate L.T. cell its cathode may be treated exactly like that of an A.C. valve, and, if necessary, isolated by a high resistance from the filament circuits of the remaining valves in the receiver.

This correspondent loses sight of the fact that, as L.T. accumulators are now so inexpensive, it is quite a practical expedient to feed any valve of which the cathode must be isolated from the others by means of an extra cell. An arrangement of this sort works quite satisfactorily, and so none of the special schemes devised for indirectly heated valves are to be ruled out entirely for battery users. For instance, it is possible to isolate the cathode of a valve in the manner shown in Fig. 2.

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.

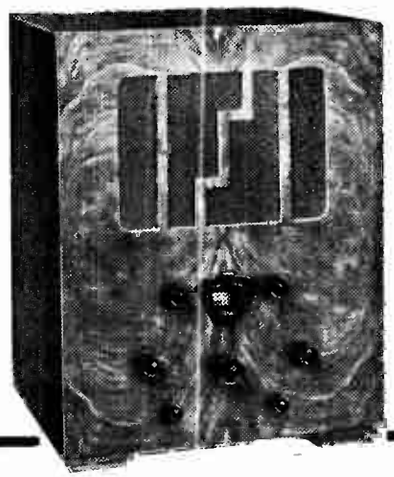
"THE WIRELESS WORLD"

CLASS "B" FERROCART RECEIVER

By sending their orders direct to us *without delay*, all "W.W." readers can rest assured that delivery will be effected *by return*. Up to the time of going to press we have been able to supply any component on demand, owing to our having ensured adequate stocks in readiness. The demand, however, for this excellent Receiver is increasing daily and we advise the immediate placing of orders to obviate the possibility of disappointment.

Trade Enquiries Invited.

The fact that this handsome Cabinet, finished in beautifully figured Walnut, was chosen by "The Wireless World" for their latest Receiver, speaks for itself. Fashioned on modern lines, it is of extremely neat design, and its construction leaves nothing to be desired. Special care has been taken to ensure that Cabinet resonances are eliminated. Overall dimensions:—Height, 19¾ in. Width, 15 in. Depth, 12⅜ in. Complete with Loud-speaker Baffleboard "Konductite" metal-lined baseboard and removable back. Front drilled ready to take the "Ferrocart" Receiver, if desired, without extra charge.



Cabinet with metal-lined baseboard - **32/6**

"This Receiver embodies the most advanced technique in Battery Receiver design. Selectivity approaching that of a Super-heterodyne is obtained . . . . ." (*vide "The Wireless World," March 31st, 1933*). In view of the remarkable performance of the new Class "B" Battery Valve, both as regards quality of reproduction and power output, it can safely be predicted that this type of output will be included in the majority of future battery sets. In efficiency it is considerably greater than any other output stage, and, in combining this method of amplification with the undoubted superiority of the Ferrocart Coils, "The Wireless World" has to be congratulated on evolving a circuit which, at least as far as battery operated sets are concerned, has totally eclipsed all previous efforts.

KITS AS SPECIFIED
(Designer's first Choice).

KIT 'A'	Complete (less Valves, Batteries, Cabinet and Loud Speaker)	**£8-3-6**
KIT 'B'	Complete with Valves (less Batteries, Cabinet and Loud Speaker)	**£10-9-9**
KIT 'C'	Complete with Valves, Cabinet and Loud Speaker (less Batteries)	**£14-1-9**

Detailed Lists, Post Free.

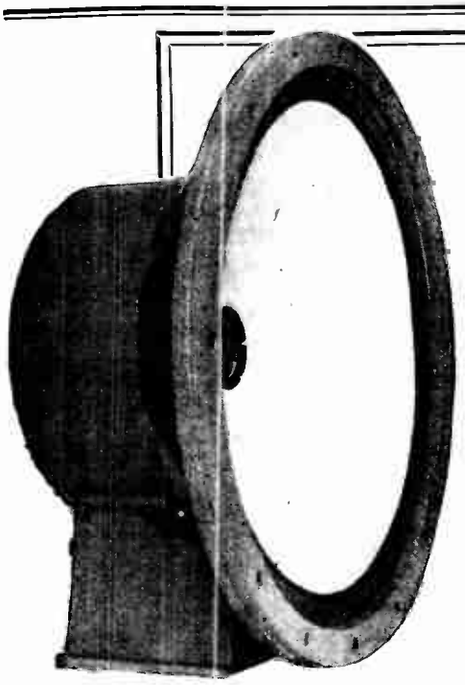
FREE DEMONSTRATION

All readers of "The Wireless World" are cordially invited to see and hear this wonderful Receiver at our Surrey Street Showrooms, where we are displaying a working model of the complete instrument.
Hours of business: 9 a.m. to 6 p.m. Two doors from the Strand, facing Aldwych tube station.

The CITY ACCUMULATOR Co., Ltd.,
Showrooms: 4, Surrey St., Strand, London, W.C.2.
Office and Works: 7, Angel Court, 173, Strand, London, W.C.2.
Telephone: Temple Bar 8620. Telegrams: Cityacco, Estrand, London.

"PARMEKO"

NEW "SENIOR" MODEL LOUD SPEAKER



It is capable of handling a large input without distortion. Supplied complete with Unit, Base and Transformer, giving Ratios of 11 : 1 and 22 : 1.
PRICE **£7**

In order to meet the demand of those who prefer a Loud Speaker of the large cone type, we have recently introduced our "SENIOR" MODEL. This speaker will be found similar in all respects to our "STANDARD" MODEL, with the exception that it has a 12" diameter diaphragm with a cone angle of 120°.

CATALOGUE AND FULL PARTICULARS FREE ON REQUEST

PARTRIDGE & MEE LTD.,
"Parmeko" Works,
Aylestone Park, LEICESTER.
74, New Oxford Street,
LONDON, W.C.1.
Mus. 5070.

MISCELLANEOUS ADVERTISEMENTS

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

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ADVERTISEMENTS for these columns are accepted up to **FIRST POST on MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Stamford Street, London, S.E.1, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 26a, Renfield Street, Glasgow, C.2.

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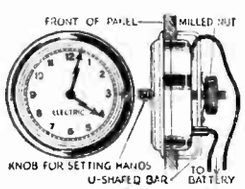


FIT THIS ELECTRIC CLOCK TO YOUR SET!

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 3¼" dia. in any panel up to ½" thick. Easy to fix—no screws required. Only ⅝" 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 6666.

12/6 COMPLETE WITH BATTERY
POSTAGE 6D

EPOCH

MOVING COIL SPEAKERS

The Finest in The World in Each of Their Price-classes.

Ask your dealer or call for a demonstration at Exmouth House.

Send for New Booklet W.S.5a. It is free.

EPOCH RADIO MANUFACTURING Co. Ltd.
Exmouth House, Exmouth St., London, E.C.1
At the Junction of Rosebery Avenue and Farringdon Road.
'Phone: Clerkenwell 8666 (4 lines).

ELECTRADIX
to the
FORE AGAIN!
THE
VEST POCKET TESTER
DIX-MIPANTA

Bakelite Case
Size: 2¼ in. × 3 in.

NO PROJECTING TERMINALS.

A 2 Guinea Tester for

19/6

The Junior companion of the famous D.C. Dix-on. meter.

A wonderfully versatile Moving-Iron, Multi-range portable or panel meter for

A.C. or D.C.

THREE RANGES OF VOLTS:
0—7·5 v. 0—150 v.
0—300 v.
(3 Scales)

Used for Milliamps reads:
0—12½ m/a. and
0·75 m/a.

for transformer testing.

MICROPHONES—20 Models at prices from 1- each.

Write for List "W.S."

ELECTRADIX RADIOS,
218, UPPER THAMES STREET, E.C.4.

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 0000, 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 unknown persons 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 Iliffe & 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.

RECEIVERS FOR SALE.

W.W. Battery Single Dial Super; £5.—129, Peckham Rye, S.E.15. [2555

BETTER Part Exchange at Appleby's, the originators of radio part exchange over 14 years ago.

APPLEBY'S, 109, Edgware Rd., Hyde Park, London. Factors and Valuers of Radio. [2465

MAJESTIC Brentwood 9-valve Superhet; cost 33 guineas month ago, accept 25 guineas.—Box 6902, c/o *The Wireless World*. [2556

ZETAVOX Receivers and Radiograms, also public address amplifiers and equipment; write for quotations.—Sanders, 12, Eastbourne Rd., W.4. [2557

Q.P.P. Two Chassis, Mazda Pen.220A.s, H.T. and G.B. batteries, output transformer, unused; bargain, £4.—Sanders, "Dunsley," Beaconsfield Rd., Tring. [2541

KOLSTER-BRANDES 321, S.G., Det., Pentode, all electric, 100-250v. A.C., M.C. speaker, new, makers' guarantee; £7, or offer.—23, Semley Rd., S.W.16. [2572

CLIMAX Band Pass Three, £16 16 A.C. Receiver, complete with valves in sealed carton, £5/8, carriage paid; c.o.d.—Epton, 93, New Rd., Chingford, E.4. [2466

"WIRELESS World" Receiver Design, any model assembled and tested free, when we supply the specified components.—Sanders, 12, Eastbourne Rd., W.4. [2569

CLIMAX All-electric 200-250 A.C. Band Pass Three, in walnut cabinet, complete with valves and moving coil speaker; list price £16 16, unopened, £8/8; c.o.d., carriage paid.

50/-.—Ediswan D.C. all-electric set, S.G., detector and Pentode, without valves, can be converted to A.C.; list price 21 guineas, unopened packing; c.o.d., carriage forward.

PHILIP KAY, Ltd., 167, City Rd., Finsbury, London, E.C.1. [2541

1933 McMichael Superange Portable Four, number 53599, new January 17th, calibration scale, case type, rexine; £12, or offers; as new.—Box 6309, c/o *The Wireless World*. [2565

MONODIAL Super Radiogram, in handsome walnut cabinet, 5-watt amplifier, twin M.C. speakers, complete with all valves; cost £45, £30 for quick sale, or exchange for small car of equivalent value.—Box 6310, c/o *The Wireless World*. [2571

MAGNIFICENT Stenode Radiogram 7 valve A.C. Superheterodyne Receiver, specially built in the Stenode laboratory, in beautiful walnut pedestal cabinet; cost over £100, accept £35.—Apply Gardiner, 45, Conduit St., London, W.1. Phone: Regent 4486 for appointment, or write for list. [2534

ACCUMULATORS—BATTERIES.

ACCUMULATORS.—Fuller's 6,500 milliamp. high tension, 12 ten volt units supplied for 7/6 down; lists free.—Leslies Radio, Catford, S.E.6. [2485

CHARGERS AND ELIMINATORS.

SERADEX Class B Components; details for stamp.

SERADEX Filter Condensers, type B, 400v. D.C. working, non-inductive; 1.0 mfd. 1/6, 2.0 mfd. 2/3, 4 mfd. 4/5; see lists.

SERADEX Glass-wound Resisters, type C.125, 1½ watts; 25 to 1,500 ohms 9d., 5,000 ohms 1/-, 10,000 ohms 1/3; intermediate sizes next highest price.

LISTS from Trevor Pepper, 48, Wake Green Rd., Birmingham 13. [2547

Chargers and Eliminators.—Contd.

A.C. Battery Charger, 1 amp., 110-250 v. mains, two years' guarantee, 10/-; ½ amp., 7/6.

380 0-380, 250 m/a., two 2·0-2·6 a., R. and B. transformer, 17/6; massive smoothing choke, 7/6.

WEARITE 300-0-300 v. 60 m/a., 4 v. 2·5 a., 4 v. 4a.; 10/-; many others.—Frost Radio, 21, Red Lion St., E.C.1. [2576

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

TRICKLE Chargers, 2-6v., with Westinghouse rectifiers, complete, ½ amp. 11/9, 1½ amp. 19/11; seven days' trial; postage 9d.

TRICKLE Chargers, L.T. and H.T., illustrated lists free; Auto-transformers, mains transformers, etc.—Arden Agency, Wollaston, Wellingborough. [2457

N.P. Battery Chargers for A.C. Mains, eliminators, 4 tappings, to 120 m/a., 57/6; with trickle charger, 76/6; photographs.

N.P. Trade Price Lists and Photographs of Battery Chargers: Senior Two will do 1 to 36 2v. cells, also H.T. 120v. at ¼ amp.; 105/-; H.P. terms; Westinghouse rectifiers.

N.P. Valve Chargers, one, two or four circuits; from 65/-; state requirements.

N.P. Specialise in Battery Chargers and Eliminators of all sizes, for A.C. mains.

N.P. Have a Few Soiled Instruments; bargains; lists.—Nash Products, Ltd., Stechford, Birmingham, 9. [2536

A.C. or D.C. Chargers for 2 to 200 cells at Low Prices; state requirements; dynamos and rotaries in stock, all sizes, Brown's Genemotor, battery supercoders for H.T. for 2v. or 6v. input, 37/6 and 52/6; television and sewing machine universal motors, 25/-; lists.—Electradix Radios, 218, Upper Thames St., E.C.4. [0393

VORTEXION. Wimbledon, for the latest type transformers, all with screened primaries and 12 months' guarantee, absolute reliability (we supply talkie equipment); regulation guaranteed within 5%; all models except supers, which are 2%; you cannot buy more reliable or better looking transformers, nor a pressed shrouding, but a substantial casting free from hum.

VORTEXION.—Specified for A.C., quality amplifier, 400 volts 110 m.a., 4v. 3, C.T., 4v. 2, 4v. 1, C.T., terminals, 24/-; tagged leads, 20/-; shrouded, 24/-.

VORTEXION.—Ferrocart III. 350-0-350, 60 m.a., 4v. 2·5, C.T., 4v. 3·5, C.T.; open type 15/6, shrouded 19/-; post 3d.

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

VORTEXION Model for Universal A.C. Short-wave Converter; open type 10/6, shrouded 12/6; post 9d.

VORTEXION.—Open type H.T.8 model, 4v. 4a.; 12/6; post 1/-.

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 Kit for Output Transformer.—Sankey laminations, B.I. wire, Empire cloth, cast aluminium frames and terminal strips, state secondary gauge required, 7/6; made to specification, 9/6.

(This advertisement continued on next page.)

Chargers and Eliminators.—Contd.

(This advertisement continued from previous page.)

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

VORTEXION. 5-watt Microdial 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, 150 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 500 v., 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.×1¼in., a super job, 2% regulation; 35/- shrouded, with terminals, less terminals, 30/-, open type 26/-; post 1/3.

VORTEXION. Autos to B.I.S.A. specification, 100 or 110 volts to 200 or 220 or 240 volt, 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 1/3; 2,000 watt autos, £4/10.

VORTEXION.—Chokes, 20 h. at 120 m.a., 8/6; 30 h. at 60 m.a., 5/6; 30 h. at 150 m.a., open type 10/6, shrouded 12/6; post 1/-.

VORTEXION.—1,000 volt 60 m.a. transformers, weight 34 lb., £4/10, or similar wattage; carriage free.

VORTEXION.—4+4 mf. 500 peak electrolytics; 4/6.

VORTEXION.—Transformers made to your specification.

VORTEXION, 152, The Broadway, Wimbledon. Tel.: Liberty 2814. [2560

CABINETS.

RADIOGRAM Cabinets; fully illustrated list free; remarkable values. Gilbert Cabinet Maker, Swindon. [1686

WE Can Supply Brand New Complete Gramophones, London made cabinets, at less than the cost of cabinets; ideal for converting to radiograms; 28 models to choose from; 52/6 to £10; illustrated list free.—Radley's, Ltd., Canal Rd., Bradford. [1786

DYNAMOS, ETC.

ROTARY Converter, 12in., 200-350 volts output, 50/-; wanted, M-L, 24 or 32 input, 400 ont.—Jersey, Cummor Hill, Oxford. [2527

LOUD-SPEAKERS.

COLUMBIA A.C. and D.C. Moving Coil Speakers, fitted variable ratio transformers in attractive figured oak cabinets; from 37/6 complete.

ALL Types of Moving Coil Speakers, pots and windings, etc.; going cheap.—R. Newman, 309, Roman Rd., Bow, E.3. [2418

MOVING Coil Speakers, guaranteed, latest types at special prices to clear; write for full particulars.—Sanders, 12, Eastbourne Rd., W.4. [2568

18/9—W type P.M. moving coil speakers, originally 49/6, 8¾in. cone, reputable manufacturers' 1933 surplus; class B 2/6 extra; also class B transformers, 7/9 (new); carriage paid; cash or c.o.d.; 3 days' approval.—Streete, 84, Riverside Rd. Highbury, N.5. [2552

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

27/6!!—6v. D.C. speaker, as above; £2/7/6, speaker as above for 100/250 A.C.

SIMPSON'S Electric Turntables, 25/-, carriage paid; cash with order, or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2554

B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas, highly sensitive and wonderful tone response, will handle up to 10 watts output, available for 6v., 100v., 200v., 30/-; also A.C. models £2/10; carriage paid, c.o.d., or cash with order; the best value in speakers obtainable to-day.—Seekamp, 46, Farringdon St., London, E.C.4. [1425

MAYFAIR RADIO Have for Disposal Set Manufacturers' New Surplus Moving Coil Speakers, Rola F6, 90-130 volts (2,500 ohms), 200-250 volts (6,500 ohms), listed 35/-, at 18/- each; as above, F7, listed 47/6, at 25/-; F6 P.M., listed 49/6, at 28/-; F7 P.M., listed 60/-, at 32/-; F6 P.M., Class B, listed 49/6, at 29/-; power or pentode transformer; cash with order, or c.o.d.—Mayfair Radio, 31, George St., Hanover Sq., London, W.1. [2543

CHAL-ELECTRIC Offers New Set Manufacturers' Surplus (last few) Rola Moving Coil Speakers: F.6, 7½in. cones, following voltages, 6 volts (18½ ohms), 110-175 volts (2,000 ohms), 90-130 volts (2,500 ohms), 150-200 volts (4,700 ohms), 200-250 volts (6,500 ohms), listed 35/- at 18/-; F.7, 9in. cones, voltages as above, listed 46/6, at 25/-; F.6 P.M., listed 49/6, at 28/-; F.7 P.M., listed 60/-, at 32/-; state if power or pentode transformer required.—Chal Electric, 6, Conduit St., London, W.1. [2545

TRANSMITTERS.

RAYMART Short Wave Transmitting and Receiving Gear; we are specialists; colonial and tropical receivers our specialities; staff includes G.5N.I., G.6X.K., and Ex S.U.8R.S. Radio Mart, 84, Holloway Head, Birmingham. [2533

VALVES.

D.P.5 400, 15/-; A.C./S.I.V.M., 10/-. Jolls, 17, Marshall Rd., Cowley, Oxford. [2529

THE Following Valves are Guaranteed as New, and any valve differing from the makers' characteristics will be exchanged, all latest types.

A.C. Pens., P.T.4s, G.I.1s, A.C.S.G./V.M.s, Pen.4Vs, P.T.625s, V.M.S.4s, D.C.2/Pens., D.U.T.s, M.P.T.4s, V.M.4Vs, A.C.S.1 V.M.s, P.M.24Bs, D.C.2S.G. V.M.s, 11/-; M.S.4s, M.S.4Bs, A.C.S.G.s, S4V.A.s, S4V.B.s, M.S.G. L.A.s, D.S.B.s, A.C.2s, P.X.4s, D.C.2S.G.s, 9/6; U14s, 10/-.

(This advertisement continued in third column.)

ORPHEUS, when he went to petition for the release from Hades of his bride Eurydice, well understood how to cast a spell over the Powers of Darkness by his music.

Of course, the trouble with Orpheus was that he *would* look back and so he lost all that his art had gained.

We made the first moving coil speaker just on twenty-three years ago, and we have never looked back.

The Magna speakers which we make to-day are, by common consent, the most faithful reproducers of speech and music known.

SPECIFICATION.

Magnavox Speakers are supplied with multi-ratio universal transformers, or with push-pull transformers to special order.

D.C.142 "Magna," 8½-inch cone, 2,500 ohms field coil - - **£3 5 0**
Voltage, 100-200; current, 40-80 M.A.

D.C.142 "Magna," 8½-inch cone, 5,000 ohms field coil - - **£3 7 6**
Voltage, 140-280; current, 28-56 M.A.

DUAL COMPENSATED.

D.C.142/144, 2,500 ohms field coils with either No. 20500 or No. 20503 transformer - per pair **£5 0 0**

Full details of the complete Magnavox range are found in Catalogue No. D636, a copy will be sent on request.

MAGNAVOX

MAGNAVOX (GREAT BRITAIN) LTD.,
89, KINGSWAY, LONDON, W.C.2.

Valves.—Contd.

(This advertisement continued from first column.)

M.L.4s, A.C./Ps, 41M.P.s, P.M.24s, 8/-; A.C./H.L.s, 164Vs, 354Vs, A.C.2 H.L.s, 41M.H.L.s, U10s, U.U.60/250s, M.H.4s, M.H.L.4s, 7/6; V.S.2s, 215S.G.s, 220S.G.s, P.M.12s, P.M.12As, 9/-; 442 B.U.s, D.W.3s, 8/6.

ALL Types of Brand New American Valves in Stock, first class makes: 247s, 235s, 224s, 236s, 237s, 233s, 244s, 12/-; 227s, 226s, 280s, 9/6; 242s, 232s, 11/-; U.X.210s, 15/-.

U.X.250s, 7 watts output, 16/-; 281s, 14/6; for quickest delivery send telegraph money order.

OVER 4,000 Valves Always in Stock for Immediate Delivery; carriage paid; cash with order or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2555

ANOTHER New Large Purchase of a Set Manufacturer's Stock of Valves, guaranteed as new, all latest types, and any valve differing from the makers' characteristic exchanged free.

210 H.L.s, 210H.F.s, 210L.F.s, P.M.1H.F.s, P.M.1L.F.s, H.L.210s, H210s, L210s, 3/9; 215Ps, 220Ps, L.P.2s, P215s, D.E.P.215s, P.M.2s, P220s, P.M.2A., 4/9; D.H.s, 41M.H.L.s, 41M.Hs, M.H.4s, A.C./H.L.s, A.C./2H.L.s, 354Vs, 904Vs, D.C.3/H.L., 7/-; 41M.P.s, M.L.4s, A.C./P.s, 7/6; P.T.4, P.T.41, P.E.N.4V., M.P./P.E.N.s, A.C./P.E.N.s, 12/-; latest metallised S.4V.B.s, M.S.4B.s, M.S.G./H.A., A.C./S.G.s, 9/-; Coso M.V.S.G., 12/-; 442-B.V., 1807s, 7/9; 1821s, 7/-; D.O.60s, 40/-.

4,000 Valves are Always in Stock for Immediate Despatch; prompt attention, for cash or c.o.d.

NEWMAN, 309, Roman Rd., E.3. [1659

COMPONENTS, ETC., FOR SALE.

HOYNE'S Transformers and Chokes.

250 0-250v. 60 m.a., 4v. 1-2a., C.T., 4v. 2-4a., C.T.; 10/-, post 9d.

250 0-250v. 60 m.a., 4v. 1-2a., C.T., 4v. 2-4a., C.T., 4v. 1a., C.T.; 12/6, post 1/-.

350 0-350v. 60-70 m.a., 4v. 2-3a., C.T., 4v. 3-4a., C.T., Ferrocart III model; 12/6, post 1/-.

350 0-350v. 70-80 m.a., 4v. 2-3a., C.T., 4v. 3-4a., C.T., 4v. 1-2a., C.T.; 13/6, post 1/-.

350 0-350v., 120 m.a., 4v. 2-3a., C.T., 4v. 4-6a., C.T., 4v. 1-2a., C.T.; 16/-, post 1/-.

400 0-400v. 90 m.a., 4v. 2-3a., C.T., 4v. 3-5a., C.T., 4v. 1-2a., C.T.; 14/6, post 1/-.

500 0-500v. 140 m.a., 4v. 2-4a., C.T., 4v. 2-6a., C.T., 4v. 2a., C.T., 4v. 2a., C.T.; 27/6, post 1/3.

WESTINGHOUSE Model 0, 110, 135v. 90 m.a., 4v. 2-4a., C.T., suitable for H.T.6 or 7; 10/-; post 9d.

WESTINGHOUSE Model 0, 200, 240v. 200 m.a., 4v. 2-5a., C.T., 4v. 1-2a., C.T.; 14/6, post 1/-; suitable for H.T.8 or 9.

LINE Transformers (auto-wound), 0-100, 110, 200, 220, 240v., 60 watt, 8/-, post 9d.; 120 watts, 11/-, post 1/-; 180 watts, 15/-, post 1/3.

HOYNE'S Chokes, 20h. 70 m.a., 3/6, post 6d.; 30h. 60 m.a., 5/6, post 9d.; 30h. 120 m.a., 9/6, post 1/-; 40h. 150 m.a., 12/6, post 1/-.

CLASS B Transformer: ratio 1/1, inductance 60-25h. 0-15 m.a., secondary resistance 100 ohms each half, 11/6, post 9d.; output transformer; ratios 1/1, 1.5/1, 2/1, 11/6, post 9d.

PARALLEL Fed Nickel Iron Audio Transformers; ratio 3/1 or 5/1, primary inductance 80h.; 3/6, post 4d.

HOYNE'S Transformers are Used Exclusively by Well Known Set Manufacturers.

HOYNE'S Transformers for Perfect Insulation, regulation and reliability; all components are clamped in solid cast aluminium clamps, and fitted with well marked terminal strips; power transformer primaries are tapped and screened; better components are not available at any price; be safe and use Hoyne's guaranteed transformers.

HOYNE'S for the Quickest Service, all from stock.

HOYNE'S Transformers Built to Your Specifications.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 3303. [2537

MAYFAIR RADIO Offer Set Manufacturers' New Surplus, all guaranteed.

MAINS Transformers.—All tapped and screened primary, L.T. windings, C.T., 500-0-500 at 120 m.a., 21/-; 450-0-450 at 120 m.a., 20/-; 350-0-350 at 120 m.a., 19/-; above have following L.T. windings—4v. 2a., 4v. 5a., 4v. 2.5a.; 400-0-400 at 120 m.a., 4v. 6a., 4v. 3.5a., 4v. 2a., at 24/-.

SMOOTHING Chokes.—20 henry 30 m.a. (400 ohms), 6/-; 30 henry 60 m.a. (600 ohms), 7/3; 50 henry 60 m.a. (500 ohms), 8/6; 20 henry 120 m.a. (375 ohms), 9/6.

CONDENSERS.—C.E.C. non-inductive 750 test, 1 mfd., 1/1; 2 mfd., 1/9; 4 mfd., 2/6; 1,500 test, the following 500 A.C. working, 800 peak, 1 mfd., 1/9; 2 mfd., 2/4, 4 mfd., 4/-; multiple blocks, 20 mfd (4+4+2+2+2+2+1+1), 11/-; 11 mfd (4+2+2+2+1), 6/9; 4 mfd. (2+2), 4/-; 5 mfd. (2+2+1), 4/9.

VARIABLE Condensers, with screens, covers, trimmers, disc drive, escutcheon plates, knob, etc., sealed cartons, J.B. Nu-Gang, 3-gang, 15/-; 2-gang, as above, 10/-.

H.F. Chokes, H.M.V. 50-60 m.a., 100,000 microhenrys, 1/- each, or 9/- dozen.

CONSTRUCTORS' Kits, Radio for the Million, A.C.3, sealed cartons, with valves, 354v, M.S.4, Pen.4v. (det., S.G., and Pentode); listed £6 12, at 72/6.

RESISTANCES. Every value in stock: 1-watt type, list 1/-, at 8d.; 2-watt type, list 2/-, at 1s. 4d.; 3-watt type, list 3/-, at 2/-; state requirements.

ALL Carriage Paid; cash with order, or c.o.d.—Mayfair Radio, 31, George St., Hanover Sq., London, W.1. [2544

Components, etc., for Sale.—Contd.

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 customers; goods tested for callers and guaranteed.

POLAR STAR 3-gang Condensers, 16/6; with drive, 18/6.

R.I. Hypercore Chokes, second-hand, 10/6; R.I. Hypermu transformers, second-hand, 9/-; R.I. 7/14H choke, 10H at 100 m.a., second-hand, 10/6; Colvern T.G.S.C. coils, 3/6; Burndept needle armature pick-ups, 25/-; Ferranti 6 mf. blocks, 3/-; Parmeko mains transformers for A3 rectifiers, tapped to 14v., 10/6.

RYALL'S Mains Transformers, new goods, 250v. 60 m.a., 4v. 1 amp., 4v. 3 amp., 10/6; ditto super type, with 4v. 3.5 amp., tapped at 150/150v., 15/6; 350v. 60 m.a., 4v. 2 amp., 4v. 4 amp., 12/9; step up or down transformers, 60 watt 110v. to 250v., tapped, 10/-; H.T.6 or H.T.7, with 4v. 4 amp., 10/9; filament, 4v. 3.5 amps., 8/9; H.T.8, 12/9.

RYALL'S Chokes.—20h. 120 m.a. resistance, 260 ohms, 8/9; 40 h. at (C.T.) 100 m.a. resistance, 600 ohms, 10/6; 25 h. at 60 m.a. resistance, 260 ohms, 6/9; constant inductance chokes; 200 h. at 5 m.a., resistance 1,200 ohms, 8/9; 60 h. 60 m.a., 2,500 ohms, 12/9.

T.C.C., type 84, 1 mfd., 375v. working, 1/3; T.C.C., 2 mfd., 350 working, 1/6.

RYALL'S Mains Condensers, offered with confidence, all with terminals, 4 mfd. 250v. working, 400v. peak, 3/6; 4 mfd. 400v. working, 600v. peak, 4/-; 4 mfd. 750v. working, 1,000v. peak, 5/6; 2 mfd. 750v. working, 3/6; new goods, guaranteed one year; ditto, bakelite cased, non-inductive, 350v. working, 1 mfd., 1/6; 2 mfd., 2/-; 4 mfd., 3/-; 0.1 mfd., 1/-.

RYALL'S Moving Iron Meters, first grade air damped, with zero adjustment, A.C. meters, 0-250v., 18/-; A.C. and D.C., 0-50 m.a., 15/-, size as above.

MOVING Iron Meters, in cases, as above, A.C. meters, 0-12v., 10/-; 0-250v., 12/-; 0-3 amps., 10/-; A.C. and D.C., 0-50 m.a., 10/-; 0-10 m.a., 8/6; D.C.

RYALL'S Wire Wound Resistances, accuracy within 2 per cent. guaranteed, on vitreous tubes, wire ends, 250, 300, 330, 500 1-watt, 510 3-watt, 540 3-watt, 715 2-watt, 750 2 watt, 800 1-watt, 1,200 1-watt, 3,000 10 watt, 2/-; 6,000 3-watt, 4,000 2-watt, 5,000 5-watt, 25,000 3-watt, 50,000 5 watt, prices 1-watt 1/-, 2-watt 1/3, 3-watt 1/6, 5-watt 1/9.

MULLARD H.T. Unit, complete, 150v. 30 m.a., 240v. input, 30/-; Regentone S60 eliminator, 200v. 30 m.a., 4v. 6 amp., £2; Six Sixty valve eliminator, 200v. 30 m.a. and G.B., 32/6.

VALVES.—As new: M.S.4, 7/6; A.C. P. 8/6; Marconi P.T.2, 8/6; D.S.B., 10/6; A.C. S2, 11/-; S4V.A., 9/-; R.L., 8/-.

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., Thursday 1 o'clock, Saturday 6 p.m.

R. [2540

MAINS RADIO'S Exclusive Set Manufacturer's Surplus, as new; carriage paid or call.

T.C.C. Blocks, 250v. working, 4+2+2+2+2 mfd., 4/6; T.C.C. 0.1 mfd., 250v. working, 8d.; Ekco 5-pin chassis valve holders, 1/3; ½ dozen Polymet 0.0002 mfd., 1/2 ½ dozen; 10ft. screened heater wire, 9d.; Marconiphone pick-ups, 24/-.

VALVES.—M.H.4, 6/3; M.S.4, 6/9; A.C.P., 4/6; A.C./S2, M.S.4B (metallised), 7/9.—Mains Radio Development Co., 4/6, Muswell Hill Rd., London, N.6. [2552

PEPPER Offers the Following, under the usual guarantee; cash or c.o.d.; carriage paid over £2.

LOUD Speakers, W.B., 105 type P.M., 35/-; Turner 75/- P.M., with output transformer, 37/6; Magnavox D.C. 144, boxed, 17/6; Baker's Elomag, 7,000 ohm fields, 14/6; Baker's Power P.M., complete, 37/6; Epoch 66, 6 volt field, 19/11; Baker's ditto, 200v., 19/11; Permag Minor, 15/-; ditto, in cabinet, 19/11; heavy duty P.A. speaker, 1,000 ohm field, 2,000 ohm speech coil, cost £6, £1/19/6; Triotron units, etc., 2/11; headphones, 2/11; Amplion Lion chassis, L.14, 22/6; Darwin permanent magnet, 3lb., 5/6; Wufa unit, 10/6.

PICKUPS.—B.T.H. latest 42/- type, with volume control, £1 5/-; ditto nickel, listed 45/-, £1 4 6; Marconi 63/- type, £1 7/6; Igranic Phonovox, with arm, 9/11; Millgate heads, 3/6.

MICROPHONES.—Harlie, listed 63/-, 16/6; Ekco 42/- type, 12/-; Stromberg, 7/6; Burndept, hand type, 7/6.

VARIABLE Condensers.—Polar Lotus, J.B., Ormond, etc., 0.0003, 0.0005, 1/11 each; slow motion types, 2/9; differentials from 1/3.

A.C. Power Packs, output 300 v. 125 m.a., smoothed, complete, 39/6; ditto, output 500 v. 120 m.a., complete, 52/6; special eliminators, in cases, Westinghouse Rectified, output 200 v. 100 m.a., 3 lower fully decoupled taps, with 4 v. 6 amp., 49/6.

A.C. Eliminators, metal rectified unless stated otherwise.—Ekco 5160, output 60 m.a., 150 v., cost £10, 39/6; Regentone W1aS2, 150 v. 30 m.a., with 4 v. 4 a., cost £6, 39/6; Ekco 20 m.a., £1/3/6; G.E.C. 150 v. 50 m.a., with valve rectifier, 32/6.

SUNDRIES.—Valve holders, Benjamin, etc., 4d.; Wearite utility low capacity switches, 6d. each, 2/9 per dozen; Ferranti safety box, 8/6; Harlie 10/6 tone controls, some boxed, 2/11.

ACCUMULATORS, Exide, Fuller, 6 volt car batteries, 85 amp., good order, 12/6 each; Exide 5,000 m.a. 10 v. H.T. units, good order, 2/6 each; Oldham ditto, 2,000 m.a., 1/6 each; carriage extra.

METERS.—Ferranti 50 m.a., portable, 15/6; Weston 150 v. 1,000 ohms volt, cost £4, 27/6; Pifco-meter, 5/6; Sifam 0-lamp, moving coil, 7/11; ditto Pocketmeter, 3 range, 3/11; 25-0-25 amps., 3/6; 0-30 v., 2/11; Thermo ammeter, by Turner, 1.5 amp., 12/6; few 0-10 m.a., also 0-15, 0-20, etc., 4/11.

(This advertisement continued in third column.)

PILOT AUTHOR KITS
Exact to Specification

CLASS "B" FERROCART RECEIVER

KIT "A" Author's Kit of FIRST SPECIFIED Components including **Peto-Scott PLYMAX Baseboard, Ready Assembled,** but less Valves, Cabinet and Speaker. CASH or C.O.D. Carriage Paid **£8-10-0** or 12 monthly payments of **15/7.**

1 Peto-Scott "Plymax" Baseboard 10" × 14" × ⅜" ready drilled with battens and brass metal strips	9 6
4 Cossor Valves as specified	£2 6 3
1 Polar "Star" 3-gang .0005 mfd. Var. Condenser with disc drive	£1 10 6
1 Set of 3 Colvern Ferrocart Coils	£2 10 0
2 Multitone Transformers as specified	£1 7 0
1 Amplion Loudspeaker with Class "B" transformer	£1 19 6

PETO-SCOTT CLASS "B" ELIMINATOR PERFORATED METAL BOX complete with Plymax baseboard 10" × 7" ready drilled, with battens and bracket for plug socket. Cash or C.O.D. Carriage paid 15/-

A.V.C. MONODIAL SUPER

KIT "A" Author's Kit of FIRST SPECIFIED Components for Set only including Ready Drilled Polished Oak Panel, **Ready Assembled and Drilled PLYMAX Set Chassis,** screws, wire and sleeving but excluding Eliminator Components, Valve and Cabinet.

Cash or C.O.D. Carriage Paid **£11 . 10 . 6**

or Deposit £1-10-6 and 11 monthly payments of £1

COMPLETE KITS

2·5 WATT MODEL Includes all FIRST SPECIFIED Components for Set and 2·5 Watt Power Chassis with Valves, less Cabinet. Cash or C.O.D. Carriage Paid. **£26-18-0.** *or deposit* **£4-18-0.** *and 11 monthly payments of* **£2-4-0.**

5 WATT MODEL Includes all FIRST SPECIFIED Components for Set and 5 Watt Power Chassis with Valves, less Cabinet. Cash or C.O.D. Carriage Paid. **£31-8-0.** *or deposit* **£6-8-0.** *and 11 monthly payments of* **£3-10-0.**

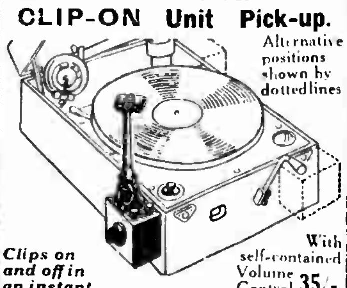
A.C. SHORT WAVE CONVERTER

KIT "A" Author's Kit of FIRST SPECIFIED Components including **Peto-Scott Ready Drilled Plywood Panel and PLYMAX Baseboard, Ready Assembled,** but less Valves. CASH or C.O.D. Carriage Paid **£8.11.6** or 12 monthly payments of **15/9.**

1 Peto-Scott Ready Drilled PLYMAX Baseboard	10 0
1 Cyldon 00015 Variable Condenser, Type S.W.15	11 6
1 Igranic S.M. Dial, Type 2296 56	9 6
1 R.I. Smoothing Choke, 25 H., 850 ohms	8 9
1 Sound Sales Mains Transformer, Type S.S., as specified	£1 5 0
1 Westinghouse Metal Rectifier, Type H.T.6	15 0

PETO-SCOTT CO. LTD.
77, CITY ROAD, LONDON, E.C.1.
West End Showrooms: 62, High Holborn, London, W.C.1.

NEW BELLING-LEE CLIP-ON Unit Pick-up.



Electric Reproduction from your **PORTABLE** gramophone without loss of portability.
Write for booklet.
BELLING-LEE FOR EVERY RADIO CONNECTION
Cambridge Arterial Road, Enfield, Mdx.

CRESSALL RESISTANCES

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

Please write for Lists

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

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

10% Reduction on Prices Advertised on page 7, column 3, last week.

WILL Customers who have Written Us during the Past Few Weeks, and received no reply, please write again, as owing to our recent fire a large amount of correspondence was destroyed.

ALL Goods Offered Above are Guaranteed in Perfect Order, and may be had on three days' approval against cash.

TREVOR PEPPER, 48, Wake Green Rd., Birmingham 13. [254

L.S.5A.s, 8/- each; mica condensers, 0.1 mfd., 800v. working, T.C.C., 2/6 each.—Mitchell, 12, Woodland, S.W.20. [256

EVERYTHING for Movies and Talkies, 'Phone, write or, better still, call and inspect immense stock of bargains.

ILLUSTRA ENTERPRISES, 159, Wardour St., London, W.1. Tel.: 6889 Gerrard. [162

PUBLIC Address Gear, amplifiers, speakers; largest stocks in Midlands.—Radio Mart, 44, Holloway Head, Birmingham. [253

A.F.5, 16/6; A.F.3(C), 10/-; unused 3-gang K.B.L.C. and oscillator, 17/6; Harlie pick-up, 13/6.—Hulbert, 24, Pargeter Rd., Warley, Birmingham. [256

UTILITY Screened 2-gang 0.0005 Condensers, complete with trimmers disc, dial, escutcheon, knob, 7/11 (listed 19/6); ditto, with Uniknob, 8/6.

RADIOPHONE Radiopak 3-gang 0.0005, screened trimmers, 8/11; ditto, superhet, 4-gang 9/11; (listed 45/-).

VARLEY or Pye H.F. Chokes, 2/6 (listed 7/6).

MAGNAVOX M.C. Speakers, 2,500 ohms, with transformer, 16/-; ditto Lamplugh Silver Ghost, 4,000 ohms, 14/6.

MAZDA AC SGVM, 10/11; Cossor 41 MP, 7/6; as new.

EPTON, 93, New Rd., Chingford, E.4. Phone: Silverthorn 1427.) [2564

RADIOGRAMO Cabinets, oak Queen Anne feet, 37×22½×17½, 38/-; pedestal set speaker cabinets, oak, turned legs, 36×21×11, 22/6; carriage forward.

ULTRA Air Chrome Double Linen Diaphragm Speaker Chassis for True Reproduction, 5/-; Columbia L.F. transformers, nickel core, bakelite case, ideal for parallel feed, all new, guaranteed, 3/9.

SPENCERS' Special Loudspeaker Units, 5/-, good job; Celestion ditto, 7/6.

MAGNAVOX Moving Coil, 2,500 ohms, 11in. cone, 28/6, 9in. 22/6, 7½ 18/-; all new, guaranteed.

3-VALVE A.C. Chassis, with moving coil speaker, S.G.V.M., det., Pen., all new, guaranteed; £3.

MIDLAND RADIO MANUFACTURERS, Clearing House for Radio Bargains, 60, Hockley Hill, Birmingham. [2528

CHAL-ELECTRIC Offers New Set Manufacturers' Surplus Coils (10 sets only); Colvern Ferrocart, (3), ganged and screened; listed £2 10, at 38/- per set.

VARIABLE Condensers, complete with screens, covers, trimmers, disc drive, escutcheon plate, knob, etc., 1933 Polar 3 Star, listed at 30/6, at 16/6; J.B. Nu-Gang 3-gang, fitted as above, 15/-.

CONDENSERS, multiple blocks, 1,500 test 500 A.C. working, peak 800, 20 mfd. (4+4+2+2+2+2+2+1+1), at 11/-; 11 mfd. (4+2+2+2+1), at 6/9; 4 mfd. (2+2), at 4/-; 5 mfd. (2+2+1), at 4/6.

MAINS Transformers, all tapped and screened primary, L.T. windings, C.T. 500-0-500 at 120 m.a., 4v. 2.5a., 4v. 5a., at 18/6; 350-0-350 at 120 m.a., 4v. 2.5a., 4v. 2a., 4v. 5a., at 19/-; 250-0-250 at 60 m.a., 4v. 1a., 4v. 1a., 4v. 3a., at 12/-; for Westinghouse H.T.8, 200 volts at 200 m.a., 4v. 3a., complete with Westinghouse H.T.9 metal rectifier, 27/-; for H.T.9, 240 volts at 200 m.a., 4v. 4a., complete with Westinghouse H.T.9 metal rectifier, 34/-.

ROTARY Converter, new (shop soiled), electro-dynamic, 90-watt model, complete with filter unit and silence cabinet; listed £14, at £7; cash with order, carriage paid, or c.o.d. Chal-Electric, 6, Conduit St., London, W.1. [2546

LISSEN Skyscrapers, A.C. mains kit, guaranteed unopened, with valves, £6 2 6, cost £7 19 6; ditto battery kit, 65/-.—Aldridge, 29, Chatterton Rd., London, N.4. [2550

BRITISH Radiophone Radiopak Super Het 4-gang, 0.0005, fully screened with trimmers; list 37/6, our price 9/11; c.o.d., postage paid.—Kay, 167, City Rd., London, E.C.1. [2542

MOVING Coil Milli-Ammeters, 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. [0355

"WIRELESS World" Q.P.P.2, W.B. speaker, P.M.4/Q.P.P., 30/-; Sound Sales Q.P.P. transformer, 9/-; Sifam meter, 0-10 m.a., 6/6; 2 Mazda Pen. 220A, 24/-; Colvern B.M.1S., 4/3; R.M.3S., 4/3.—Kellaway, 41, Harley Terrace, Gosforth. [2526

PREMIER SUPPLY STORES Offer the Following Manufacturers' Surplus Brand 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).

SPECIAL Offer of Shrouded Transformers, input 200-250 volts, output 500-0-500v. 120 m.a., 4v. 1-2a., 4v. 2-3a., 4v. 2.5a., 4v. 3-5a.; 19/6, cost 50/-.

T.C.C. Electrolytic Condensers, 440v. D.C. working; 4 mfd. 3/-, 8 mfd. 3/6.

T.C.C. 1 mfd. 2,000v. Working Condensers, 3/-; 1×1×0.1+0.1+0.1+0.1+0.1+0.1 mfd., 250v. working, 2/-.

ROLA 2,000 ohms and 6,500 ohms type F.6 Moving Coil Speakers, 17/6; A.C. model 200-250v., 27/6; type F.5 permanent magnet, 20/-; type F.6 permanent magnet, 31/-.

(This advertisement continued on next page.)

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

DOUBLE Reading, moving iron, volt meters, read A.C. and D.C., pocket watch type, 0-120v. and 0-12v.; 5/-.

AMPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms (100-250v.), with output transformer, 12 6; ditto, 200-250v. A.C., 22/6.

WESTON Meters, projecting type ammeters, 0-4, 7 6; milliammeters, 0-5 and 0-100, 15/-.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors 100-250 volts, 30/- complete; double spring gramophone motors with 12in. turntable, 15/- complete.

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

EKCO Microphones, complete with transformer, a really fine job, 18 6; wire wound Clarostat Potentiometer, 50,000 ohms, 2 6.

SPECIAL Offer of Wire Wound Resistances.—1-watt, any value up to 10,000 ohms, 6d.; 4-watt, 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/-.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms quarter amp. and 500 ohms half-amp., 5/- each.

FOR Callers Only.—The following valves, guaranteed as new: S4VB., M.S.G.L.A., D.W.3, P.T.4, P.T.625, M.S.4, M.S.4B, 41M.H., M.L.4, 354V, 904V, U5, D.S.B., D.C.S.G., V.D.S., 442B.U., U.C.60 250, at half list price.

THE Last Few Western Electric 4211-D Valves, 10v. 3a. filament, 750v.-1,000v. plate, 50-65 m.a., impedance 3,500 ohms, amplification factor 12; cost £5; to clear at 15/-.

500 Volt 125 milliamp Full Wave Rectifying Valves.—4v. 2a. filament, 7/6.

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

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 5/-.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 50 milliamps., 80- and 120-volt taps, 42/6; with 4 volts 4 amps., c.t., L.T., 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps., 80- and 100-volt taps, with 4 volts 3-4 amps. c.t., L.T., 37/6; or with trickle charger, 42 6.

PREMIER Eliminators, output 120 volts at 20 milliamps., 30- and 100-volt taps, 27 6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps., 80- and 100-volt taps, 15/-; larger model, output 200 volts at 50 milliamps, 80- and 120-volt taps, 25/-.

ACCUMULATOR Chargers.—200-250v. A.C., all incorporating Westinghouse rectifiers: 2v. at half-amp., 8 6; 2, 4 and 6 volts at half-amp., 17 6; 2, 4 and 6 volts at 1 amp., 22 6; 12v. at 1 amp., 27 6; 6 or 12 volts at 2a., 35/-; 12v. at 1.5a., 30/-; 6v. at 3a, 39 6; 12v. at 3a., 52, 6; three separate 12v. 1a. circuits, 75/-.

HIGH Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 milliamps., 5/6.

WESTINGHOUSE Metal Rectifiers, 120 volts at 20 milliamps., 6/6; 180 volts at 30 milliamps, 8 6; 250 volts at 60 milliamps., 10/-; 200 volts at 100 milliamps., 11/-; 300 volts at 60 milliamps, 11/-; 8 volts at half-amp., 6 6; 6 volts at 1 amp., 9, 6; 12 volts at 1 amp., 12 6; 6 volts at 2 amps., 20/-.

T.C.C. Condensers, 250 volts working, 4+4+1 mfd., 5/-; 500 volts working, 4+4+2+2+2 mfd., 7/-; 575 volts working 6+4+2+2+2 mfd., 10/-; 300 volts working 4+4+2+1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. Condensers, 8 6; Western Electric, 400 volts working, 0.01+0.01 mfd., 1/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 4 mfd. 400 volts D.C. working (300 volts A.C. working), 4/-.

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

PREMIER Guaranteed Mains Transformers, engraved terminal strips with terminal connections, input 200-250 volts 40-100 cycles, output 135 volts 80 milliamps., for voltage doubling, 8 6; 4 volts, 3-4 amps., c.t., L.T. 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps., 8 6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps., 4 volts 1-2 amps., 4 volts 2-3 amps., and 4 volts 3-4 amps (all centre tapped), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps., 4 volts 4-5 amps., and 4 volts 2.5 amps; 15/-.

H.T.8 Transformers, 250 volts 60 milliamps, rectified, with 4 volts 3-5 amps. c.t., L.T., with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, 300 volts 60 milliamps, rectified, with 4 volts 3-4 amps c.t., L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, 200 volts 100 milliamps, rectified, with 4 volts 3-4 amps. c.t., L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER Mains Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8 6; 4 volts 3 amps., 7 6; 4 volts 5 amps., 8 6; 6 volts 2 amps., 7 6; 14 volts 4 amps., 12/6; 22 volts 1 amp., 10/-.

MAINS Transformers, output 350-0-350 volts 90 milliamps., 4 volts 3 amps. c.t.), and 4 volts 2 amps. (c.t.); 12 6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all centre tapped); 17 6.

(This advertisement continued in third column.)

ENJOY Short Wave RECEPTION—with

the latest MAGNUM Short Wave Adaptor

FOR A.C. MAINS AND BATTERY SETS.

Model T. For sets using British Valves.
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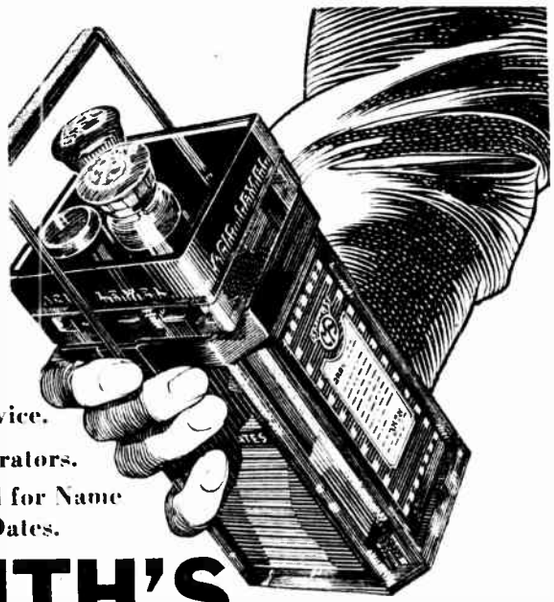

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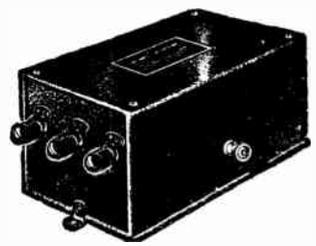

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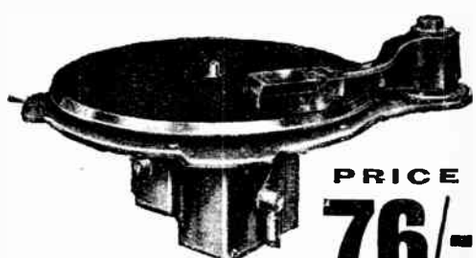

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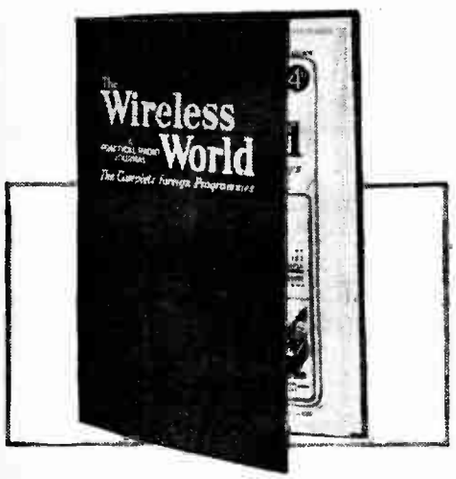

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W.W.58

WEDNESDAY

MAY THE TENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral concert from Bournemouth. "A Musical Pilgrim's Progress," by J. D. M. Rorke.
LONDON REGIONAL	Non-stop light music. Brahms Centenary Concert from Queen's Hall.
MIDLAND REGIONAL	Russian music, orchestral programme.
NORTH REGIONAL	Relay from the Shakespeare Theatre, Liverpool.
WEST REGIONAL	Dramatic reconstruction of the trial, in 1741, of Samuel Goodere and Matthew Mahony.
SCOTTISH REGIONAL	Ballad concert.
BELFAST	Military Band concert.

ABROAD

BRUSSELS (No. 1)	8 p.m. Operetta: "La Mascotte," by Audran.
BRUSSELS (No. 2)	9 p.m. Concert from the Grand Hotel, Antwerp.
COPENHAGEN	8 p.m. Oratorio: "Samson," by Handel.
EIFFEL TOWER	8.45 p.m. Concert in honour of the Romanian National Festival.
HEILSBERG	7 p.m. East Prussian composers, concert from Königsberg (relayed by other German stations).
PRAGUE	8.15 p.m. Dvorak concert.
ROME	8.45 p.m. Opera: "Germania," by Franchetti.
STRASBOURG	9 p.m. Symphony concert from Besançon.
STUTTGART	8.20 p.m. Brahms concert from the Mannheim Castle.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** German Lesson. **7.30,** Time Signal. **7.31,** Workers' Union of Ireland Band. **8.30,** Soprano Solos by Jean Nolan. **8.50,** Australian Monologues by T. E. Rowley. **9.0,** The Station Orchestra. **9.15,** Monologues by T. E. Rowley. **9.25,** Baritone Solos by M. J. Gallaher. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations. Talk in Catalan and Relay from the Guildhall. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Station Orchestra: Intermezzo (Huppermann); Waltz, Schatzwalzer (Strauss); Selection from El salto del pasiego (Caballero); Gondola Song (Moskovsky); Romance (Davidov); Slav Dance (Glazunov). **11.0,** Recitations. **11.15,** Pianoforte Recital by Rosaura Comat. **11.40,** Concert by the Station Orchestra (contd.): Adagio from Symphony No. 7 (Beethoven); Scènes alsaciennes (Massenet); Overture, King Stephen (Beethoven). **12.0 Midnight** (in an interval), News. After the Concert, Light Music on Gramophone Records. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Chamber Music; Soloists, Mario Cidulli (Pianoforte) and Anna Molteni (Soprano). In the interval, Talk. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER; 183.5 kc/s, 1,635 metres; 60 kW. **2.45,** Dramatic Programme for Young People. **3.30,** Weather and Exchange. **4.30** (approx.), Concert from **Hamburg. 5.0,** Talk: Greek Tragedy—Euripides. **5.30,** Leo Schrattenholz Concert by the Augmented Chamber Orchestra, conducted by Hans Georg Görner; German Poems for Mixed a-Capella Choir: (a) Alle Stunden verwunden, (b) Auf die Erde bauen, (c) Wir bauen alles fest; Das Urlicht. **6.0,** Poetry Reading. **6.5,** Concert by the Steiner Brothers' Orchestra: Overture, Titus (Mozart); Dynamidenwalzer (Jos. Strauss); Minuet and Scherzo (Schubert). **6.35,** Wireless Technical Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** See **Hamburg. 9.0,** Reading (Felix Timmermans). **9.30,** See **Munich. 10.20,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0** (approx.), Concert from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN; 715 kc/s, 419.5 metres; 1.5 kW. **5.30 p.m.,** Reading by Friedrich Georg Jünger. **5.50,** Topical Programme. **6.10,** Recital of Folk Songs. **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.5,** Announcement. **8.10,** Orchestral Concert, relayed from the Café Moka Efti. **9.0,** Presenting the Colours—Comedy (Josef Ruederer). **10.15,** Weather, News, and Sports Notes. **10.30** (approx.), Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW. **6.15 p.m.,** Radio Journal. **7.30,** News and Market Prices. **7.40,** Tourist Talk. **7.55,** Lottery Results. **8.0,** Talk for Farmers. **8.15,** News. **8.30,** Brahms Centenary Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW. **5.55 p.m.,** Kodály Concert for his Fiftieth Birthday, by the Bela Bartok Vocal Union and the Station Orchestra. Soloists: Sági Margit (Songs) and R. Maendzinski (Pianoforte). Introductory Talk by Dr. Jos. Sebestyén. **6.55,** Report. **7.0,** See **Prague. 7.10,** The May Ball—Play in Three Scenes (Karl Schönherr). Czech Translation by Vl. Gamza. **8.5 to 10.15,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert of Dance Music. **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Concert: Variations on a Theme of Mozart (Beethoven); Pastorale (Mozart); Potpourri of Old Operetta Music; Variation on the Impromptu in B Flat Minor (Schubert); Potpourri of Hungarian Melodies (Traditional). **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Talk for Parents. **4.0,** Broadcast for Schools. **4.30,** Schumann Song Recital by Ruth Ball (Soprano): Seit ich ihn gesehen; Er, der Herrlichste von allen; Ich kann's nicht fassen, nicht glauben; Du Ring an meinem Finger; Helft mir, ihr Schwestern; Süsser Freund, du blickest; An meinem Herzen; Nun hast du mir den ersten Schmerz getan. **5.0,** Talk for Kindergarten Teachers. **5.20,** Agricultural Prices. **5.25** (approx.), Talk: Literature and Nationality. **5.45,** Violin Recital of Old Italian Music by Günther Bille: Concerto in A Minor (Vivaldi); Canzonetta from the Violin Concerto in D (Boccherini); Sonata in A Minor (Veracini). **6.20,** Talk: The Power of Political Propaganda. **6.50,** Weather for Farmers, News and Cattle Market Report. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Hurcht amal har Sketch in Dialect. **9.0,** Announcements. **9.10,** Concert by the Silesian Philharmonic Orchestra, conducted by Franz Marszalek: Academic Festival Overture (Brahms); Prelude to Gandeamus (Humperdinck); Concelietta (Graener); Prelude to Act III of Der Pfeifertag (Max von Schillings); Heiteres Spiel (Blumer); Light Orchestral Suite, La Burla (Weingartner); Waltz from Der Rosenkavalier (R. Strauss). **10.30,** Time, Weather, News, Sports Notes and Programme Announcements. **10.50,** Dance Music from **Berlin (Witzleben). 1.0 a.m. (Thursday).** The Silesian Heaven—Recital of Silesian Folk Songs by the Station Choir, Orchestra and Soloists, conducted by Ernst Prade. **3.0** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.15 p.m.,** Talk for Workers: School Problems. **6.25,** German Transmission: News, Talk and Broadcast for Workmen. **7.0,** See **Prague. 7.25,** Programme of Poems by Taras Shevchenko, the National Poet of Ukraine, and National Ukrainian Songs. **8.5,** See **Prague. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Gramophone Concert: Overture, 1914 (arr. Debroy Somers); Sérénade à Lisette (Cabidi); Golliwog's Cake Walk (Debussy); Comme au plus beau jour (Popper); Selection from Hans the Flute Player (Gannes); Chanson d'Arlette (de Taeye); Selection from Enlevez-moi (Gabaroche); Kol Nidrei (Bruch); Selection from The Cinema Star (Gilbert); Eclat de rire, from Manon Lescaut (Auber); Dance of the Tumblers (Rimsky-Korsakov-O'Donnell). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **5.0,** Gramophone Concert: Spanish Songs (Falla): (a) Nana, (b) Cancion, (c) Polo, and (d) Tirana; Waltz (Liszt); Concerto for Clarinet (Weber); Andante pastoral (Taffanel); Coronation Scene from Boris Godunov (Mussorgsky). **5.30,** Variety Programme. **6.0,** Talk on the Unemployed. **6.15,** Gramophone Records: Military March (Schubert-Tausig); Polichinelle (Rachmaninov); Prelude in B Flat (Rachmaninov). **6.30,** Sextet in G, Op. 36, for Two Violins, Two Violas, and Two 'Cellos (Brahms). **7.15,** Talk: The Belgian Coast. **7.30,** Medical Talk. **8.0,** La Mascotte—Operetta (Audran). Concert Version by the Radio Orchestra and Choir, conducted by Charles Walpot, and Soloists. In the interval, Poems dedicated to May—Readings from the Works of Gezelle, Deubel, Viélé-Griffin, Gille, Hardy, Melloy and Nothomb. **10.0,** Le Journal Parlé. **10.10,** Dance Music relayed from the St. Sauveur Palais de Danse.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: Réunion des Braves (Axt); Bird Songs at Eventide (Coates); Berceuse (Andolfi); Selection from Fra Diavolo (Auber); The Marriage of the Marionettes (Wetzel); Holzschuhtanz (Fetras); Agitato (Zamecnik-Parès); Humoresque (Barns); Selection from Mam'zelle Nitouche (Audran); Waltz (Rohrecht); Selection from Louise (Charpentier); Très pressé (Zamecnik-Parès). **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot: March of the Cadets (Sousa); Waltz, On the Banks of the Neva (Eilenberg); Jubilee Overture (C. Bach); Vibraphone Solo: Romance (Löhr); Selection from A Kiss in Spring (Kalman); Mazurka (Wuyts); Melody (Richter); Scènes napolitaines (Massenet). **6.0,** Gramophone Records: Auvergne Airs (Debroux); Dance of the Dervishes (Bendix). **6.15,** Talk: The Vastness of the Universe. **6.30,** Gramophone Concert: The Mill in the Black Forest (Eilenberg); Saxophun (Wiedoeft); Selection from The Three Musketeers (Friml); Polka, The Canary and the Frog; Parade au jardin des enfants (Bendix); Pizzicati (de la Rivière); La tourterelle (Damaré); Valse vanité (Wiedoeft); Selection from Romeo and Juliet (Gounod); Selection from Les Saltimbanques (Ganne). **7.15,** Talk: The Rhine in May. **7.30,** Review of Foreign Affairs. **8.0,** Gramophone Records: Overture, Patrie (Bizet); Ballet Music from Nausicaa (Lalo). **8.35,** Dramatic Programme. **9.0,** Concert relayed from Grand Hôtel, Antwerp. Conductor: André Fellenan. In an interval at **10.0,** Journal Parlé.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Military Music. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Choral Concert of Sacred Music. **8.20,** Symphony Concert of Romanian Music: The Station Orchestra, conducted by C. C. Nottara. **9.45,** Concert of Popular Romanian Music by the Fanica Luca Orchestra. **10.15,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **7.45 p.m. to 12 Midnight. 5.0 p.m.,** Concert by the Zsiga Rácz Cigány Band. **5.50,** Reading. **6.20,** Concert by Bachmann Orchestra; Soloist, Paul Fekete; relayed from the Café Rajnapark. **7.15,** Talk. **8.0,** Count Apponyi Memorial Concert by the Budapest Concert Society Orchestra, conducted by Emil Sauer: Chaconne (Bach-Hubay); Suite (Weiner); Funeral March from the Eroica Symphony (Beethoven); Memorial Address; Pianoforte Concerto in A (Liszt); Les Préludes (Liszt). **9.40,** News Bulletin. **10.0** (approx.), Concert by the Béla Rácz Cigány Band. **11.0,** Concert from the Café Simplon. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.1 p.m.,** Music by A. Bendix and his String Ensemble from the Wivex Restaurant. **2.0 to 3.0,** Interval. **3.0,** Gramophone Concert: Constance's Aria from Il Seraglio (Mozart); Dream from Manon (Massenet); Mephistopheles Serenade from Faust (Gounod); Melancholy Serenade (Tchaikovsky); Three Melodies. **3.30,** Concert by the Radio Orchestra, conducted by Launy Grøndahl: Dance from King and Marshal (Heise); Prelude to Act III of Esther (Horneman); Movement from the Suite On the Bosphorus (Lange-Müller); Prelude to Act II of Saul and David (Nielsen); Suite, Summer Life (Glass). **4.15,** Talk for Children. **4.30** (approx.), Concert (contd.): Torch Dance (Lumbye); Waltz, Resignation (Lumbye); Selection from La Fille de Madame Angot (Lecocq); Gavotte (Kovarovic); Piece (Bloch); Moorish Rhapsody and French Military March from the Algerian Suite (Saint-Saëns). **5.40,** Exchange and Fish Market Prices. **5.50,** Talk. **6.20,** French Lesson. **6.50,** Weather and News. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Agricultural Talk. **8.0,** Time Signal from the Town Hall. **8.1,** Samson—Oratorio in Three Parts (Handel), for Soloists, Choir, Pianoforte and Orchestra, relayed from St. Martins Church, Randers. **10.10,** News Bulletin. **10.25,** Reading. **10.50,** Dance Music from the Ritz. In the interval at **12 Midnight,** Time Signal 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.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Opera and Operetta Music. **5.30 to 7.0,** Programme in English by the I.B.C., C. Danvers Walker, T. St. A. Ronald and B. McNabb announcing. **5.30,** Concert of Special Request Items for Portsmouth and Southsea Listeners: Largo (Handel); Two Eyes of Grey (McGeogh); Violin Solo: John Anderson my Jo; My Heart is where the Mohawk flows (Carson); Selection from Miss Hook of Holland (Rubens); For the sake of the Days gone by (Wallace); Gipsy Melody (Nicholls); Let's all sing like the Birdies sing; Shenandoah (arr. Terry); Turkey in the Straw; Selection from The Gipsy Princess (Kálmán). **6.15,** Concert of Light Music for Isle of Wight Listeners: The Hit Parade; Body and Soul (Green); If I had a talking Picture of you (de Sylva); Sometimes I'm happy (Vollman); Sous les toits de Paris (Moretti); In the Night (Tate); Selection from The Desert Song (Romberg); I'm a dreamer (de Sylva); Varsity March; Musical Comedy Medley (arr. Hall). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** The Listeners' Half Hour and News. **8.30,** Popular Concert. **9.0,** Dramatic Programme. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Dicolians: Put that sun back in the sky; Georgia on my mind; Lullaby of the leaves; Good-night Vienna; Goofus; You've got what gets me; If I didn't have you; Love, you funny thing; The Echo of a Song; Don't tell a soul; Gone for ever; Living in clover; One little quarrel; I got rhythm; Oh! Mona. **11.0,** Club Concert for Land's End and Penzance Listeners: Selection from The Pirates of Penzance (Sullivan); Am Meere (Schubert); Wohin? (Schubert); Piccolo Solo: Deep Blue Sea (Brewer); Drake's Drum (Stanford); The Old Superb (Stan-

SUN. MON. & TUES. PROGRAMMES

ford); The Grasshopper's Dance (Bucalossi); Song of the Vagabonds (Friml); Blonde Women, sung by Marlene Dietrich; The Lute Player (Alitson); Das Lied von der See (Künneke); The Wedding of the Rose (Jessel). **12 Midnight,** Military Band Concert: Overture, Zampa (Herold); King's Guard March; Wiegenlied (Brahms); Tally Ho; In a Monastery Garden (Ketelbey); National Emblem March (Bagley); Selection from The Three Musketeers (Friml); March, Thunder and Blazes. **12.30 a.m. (Thursday),** Songs from the Shows: The Night was made for Love, from The Cat and the Fiddle; A New Love is Old, from The Cat and the Fiddle; Selection from Frederika (Lehár); Farewell, from The Maid of the Mountains (Fraser-Simson); Love will find a way, from The Maid of the Mountains (Fraser-Simson); You are my Heart's Delight, from The Land of Smiles (Lehár); I give my heart, from The Dubarry (Millöcker-Mackeben); Selection from the Dubarry (Millöcker-Mackeben). **1.0,** Violin Solos: Lord Lovat's Lament; Lea Rigs; Quartet; Union Reel; Kashmiri Love Song; Chant Hindu; Quartet; Unlucky Bines; Mary Morisson; The Logie o' Buchan. **1.30,** Popular Songs: The first week-end in June (Ellis); I'm in the market for you (Hanley); Sweet temptation (Young); Orchestra: Selection from Viktoria and her Hussar; I fell for you (Walker); Just like in a story book (Hanley); Who cares? (Hackforth). **2.0,** Dance Music by the Hcolians: The King's Navee; Leave a little for me; Toasts; How do you do, Mr. Brown?; I can't write the words; Let's all dance the Polka; The Lady I love; How are you?; Isn't it romantic?; Balloons; Liszt, Chopin and Mendelssohn; Ain't cha comin' out to-night?; When they're on the love parade; Big Ben's saying Good-night. **2.57 a.m.,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres.**—**5.0 p.m.,** See **Munich. 5.50,** Economic Notes. **6.0,** Talk. **6.25,** Topical Talk. **6.50,** Time. Programme Announcements. Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Reading: Literary Self Portraits (arr. Alfred Simon). **8.20 to 10.15,** See **Stuttgart. 10.15,** The German Almanac. **10.25,** Time. News. Weather and Sports Notes. **10.40,** Dance Music from **Stuttgart. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HANOVER.—See **Hamburg.**

HAMBURG

Call ha (in Morse). **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.**—**4.30 p.m.,** Concert from the Liner Bremen, conducted by Franz Koennecke: Fatherland Overture, 1813 (Weber); Waltz, Deutsche Grüsse (Strauss); Waltz, Erinnerung an Wien (Baussner); Serenade, Op. 7 (R. Strauss); Intermezzo from Stimmungsbilder, Op. 9 (R. Strauss); Helmsmun's Song and Sailors' Chorus from The Flying Dutchman (Wagner); March, Heil Hitler! (Koennecke). **5.30,** Hamburg, Bremen and Lübeck—Report from the Senate's and Citizens' Councils of the Hanseatic Free Cities. **6.30,** Reading: The Vindication of Xantippe's Honour. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Variety Programme by the Radio Male Voice Choir and Quartet and Soloists. **9.0,** Reading. **9.30** (from **Flensburg**), Vocal Concert, relayed from the Deutsches Haus. **10.0,** Time. Weather, Announcements, Sports Notes and Police Report. **10.20,** Topical Talk. **10.30** (from **Kiel**), Orchestral Concert, conducted by Hans Döring: March, Mein Heimatland (Leuschner); Selection from Fedora (Giordano); Waltz, Im Reiche der Venus (Gröschel); Selection from Grigri (Lincke); Blumengeflüster (Blon); Ein Opernabend (Manfred); Die Heinzelmännchen (Eilenberg); Schleswig-Holstein, Meeresumschlungen (Wilke).

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert of Classical Music. In the interval at **1.20,** News. **2.30,** A Programme arranged by the Post Office, with Gramophone Records. **3.0,** Exchange Quotations. **3.20,** Talk for the Housewife. **3.30,** Talk for Parents. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Preciosa (Weber); Selection from Undine (Lortzing); Evening Idyll (Humphries); Gipsy Eyes (Filippini); Waltz, An der schönen grünen Narenta (Fetras); Schwarzwald-Suite (Thiele); Fantasia on Chopin Music (Kenzak); Serenade from I Medici (Leoncavallo); Falling Leaves (Carena); Overture, Le Postillon de Longjumeau (Adam); Ballet égyptien (Luigini). **5.45,** Bridge Lesson. **6.15,** Agricultural Prices. **6.25,** Talk: What People still do not know about the Telephone. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Königsberg;** East Prussian Composers Concert by the Wireless Male Voice Choir, the Königsberg Opera House Orchestra, conducted by Erich Seidler, and Willy Binder (Tenor): Introductory Talk: E. Th. A. Hoffmann Ouvertüre (Otto Besch); Von der Nehrung -for Tenor, Male Voice Choir, and Orchestra, Op. 49 (Herbert Brust); Symphony in F (Hermann Götz). **8.0,** Pianoforte Recital by Gerhard Wiemer. **8.30,** See **Langenberg. 10.0,** News. **10.10** (approx.), Concert by the Little Station Orchestra, conducted by Eugen Wilcken: Modern Dance Suite (W. Niemann); Serenade No. 5 for 'Cello (Volkmann); Suite Op. 98 (Dvorak); Love Waltz from The Ballet Suite (Max Reger); Divertissement, Op. 43 (Tchaikovsky); Spanish Suite (Joaquin Nin); Divertissement hongroise (Schubert); Wo die Zitronen blüh'n (Joh. Strauss). **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by De Notenkrakers, conducted by D. Wins. In the Interval: Gramophone Records. **2.25 to 2.40,** Interval. **2.40,** Programme for Women. **3.40,** Programme for Children. **6.10,** Concert of Light Music by De Fliereluiters. **7.10,** Medical Talk. **7.40,** Topical Talk. **7.55,** Violin and Pianoforte Recital by L. van Coevorden and Brookhouse McCarthy: Violin Concerto in E Minor, Op. 64 (Mendelssohn); Gramophone Records; La chasse (Bastin); Scherzo Tarantella (Wieniawsky). **8.38,** S.O.S. Messages. **8.40,** Talk. **9.0,** Life in these Days— Musical Play (Nick). **10.40,** News. **11.10,** Organ Recital by J. Jong: Evening Bells (Billi); Tiny Tailor (Brown); Lullaby of the Leaves; In a Clock Store (Orth); The Old Man of the Mountains (Young); In a Monastery Garden (Ketelbey). **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Thursday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **12.55,** Polovtsian Dances from Prince Igor (Borodin) on Gramophone Records. **1.10,** Time Signal. **1.11,** Quintet Concert. **2.40,** Programme to be announced. **3.10,** Gramophone Concert: Symphony No. 2 in D Minor, Op. 43 (Sibelius); Karelia Suite (Sibelius); Symphonic Poem, Le Fontane di Roma (Respighi). **4.10,** Concert by Marie Grebe de Lange (Soprano) and the Amsterdam Instrumental Ensemble; Trio Sonata in B Minor (Loeillet); Dido's Aria from Didone Abbandonata (Sarri); Aria from Enrico Leone (Steffani); Sonata in G Minor (Marcello); Aria, Allegro, Prestissimo, Andante and Aria for Violin and Pianoforte (Jean Marie Leclair); Soprano Solos (Brahms): (a) Des liebsten Schwur, (b) Vergebliches Ständchen; Prayer for Soprano, 'Cello, and Pianoforte (Verspruy); 'Cello Solos: (a) Elegy (Fauré); Butterflies (Popper); Trio (Turina). **5.40,** Time Signal. **5.41,** Programme for Children. **6.40,** Time Signal. **6.41,** Concert by a Children's Choir. **7.10,** Report of the Department of Buildings and Roads. **7.40,** Time Signal. **7.41,** Police Notes. **7.55,** Time Signal. **7.56,** News Bulletin. **8.10,** Talk. **8.40,** Time Signal. **8.41,** Choral Concert. **9.40,** Time Signal. **9.41,** Talk: Antarctic. **10.15,** Trio Concert: Trio in E Flat for Violin, Viola, and Pianoforte (Mozart); Trio in E Flat, Op. 40, for Violin, Horn, and Pianoforte (Brahms). **11.10,** News Bulletin. **11.20,** Gramophone Concert: Concerto No. 1 in G Minor, Op. 26 (Bruch); Harre, meine Seele (Malan); Es ist bestimmt in Gottes Rat (Mendelssohn); Dir, dir Jehova will ich singen (Bach); Alles, was Odem hat (Bach); Gods Voorzienigheid; Psalm 105, Verses 1 and 3. **12.10 a.m. (Thursday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Notes. **8.10,** Scientific Talk. **8.20,** Reading. **8.30,** Radio Concert. **9.0,** News Bulletin. **9.15,** Concert, with Commentary. **12 Midnight to 1.0 a.m. (Thursday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Military Band Concert: El Abanico (Javaloyes); Bullfighters' March (Kottoun); Quand Madelon (Bonsquet); Post Horn Gallop (Koenig); Medley of British Songs (arr. Dundas); National Emblem (Bagley); Le Rêve Passe (Krier); March, King Cotton (Sousa). **12.30 a.m.,** Dance Music: What more can I ask?; I may never pass your way again; Brighter than the Sun; A Boy and Girl were dancing; I'm playing with Fire; Do you recall?; Willow, weep for me; Can't we meet again. **12.57,** I.B.C. Good-night Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15,** Pianoforte Recital by Maire Halava. Clair de lune (Palmgren); Nocturne (Heikki Aalto); Three Pieces (Debussy): (a) Le soir à Granada, (b) Reflet dans l'eau, (c) Pagodes. **6.40,** Recitations. **7.0,** Concert by the Station Orchestra, conducted by Erkki Linko. Soloist: Pia Ravenna (Songs). Overture, Schirin und Gertrude (Graener); Minuet (Bolzoni); Songs (a) Aria from La Traviata (Verdi), (b) Waltz, Frühlingsstimmen (Joh. Strauss); Gavotte, Harlequin and Columbine (Kaskel); Symphonic Poem, Les Préludes (Liszt). **8.0,** Talk. **8.25,** Light Music on Gramophone Records. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, relayed from **Frankfurt. 12.50 p.m.,** Weather, Time and Announcements. **1.0,** Concert, conducted by Wolf. Soloist: Marta Brihmayer (Soprano). Der Adler von Lille (Blankenburg); Waltz, Waldeszauber (Vollstedt); Songs (R. Strauss): (a) Cäcilie, (b) Befreit, (c) Meine Mutter hat's gewollt, (d) Unter Blüten; Overture, Paragraph 3 (Suppé); Römische Suite (Zimmer); Liebeslied (Kreisler); Schön Rosmarin (Kreisler); Selection from Manon Lescaut (Puccini); Strauss Operetta Potpourri (Schlögel). In an interval at **2.0** (approx.), Announcements. **2.30,** Sponsored Concert with Gramophone Records. **3.0,** Talk: Films in Schools for Local History Lessons. **3.30,** Economic Notes and Time. **3.50,** Programme for Young People. **4.30,** Concert, conducted by Eysoldt: Coronation March (Kretschmer); Overture, Hunyady Laszlo (Erkel); Rhapsody in A Minor (Dvorák); Minuet (Mozart); Suite, Aus aller Herren Länder (Moszkovsky); Scenes from Le Postillon de Longjumeau (Adam). **5.50,** Talk: Protection against Aerial Attack. **6.15,** The World on Gramophone Records: Among the Nomad Shepherds of Epirus. **6.50,** Weather. Time, Economic Notes and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Announcements. **8.5,** Violin Concerto in D (Brahms). **8.50,** "Bastien und Bastienne"—Musical Play in One Act (Mozart). **10.0,** Announcements, Educational Notes and Sports Notes. **10.25,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Spring Overture (Goetz); Minuet in D (Schubert); Mauriche Rhapsodie (Humperdinck); Overture, Semiramis (Rossini). Selection from Der Freischütz (Weber); Selection from As you like it (Wetzler). In the interval at **1.0 p.m.,** News, Weather and Time. After the Concert, Exchange Quotations. **2.0,** Reading. **2.15,** Talk on the Post Office. **3.0,** Violin Recital by Erika Hupfeld, with Friedbert Sammler (Accompanist). **3.35,** Economic Notes. **4.0,** Programme for Young People. Part I—German Folk Song Recital, relayed from the Stadt-Kirche, Pirna. **4.35** (approx.), Part II—Illustrated Talk on Music. **5.5,** German Folk Dances with Commentary. **5.50,** Economic Notes, Weather and Time. **6.0,** Book Review. **6.20,** Talk on Economics. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** Topical Talk. **8.15,** A Relay from Pirna. Part I—Military Band Concert, conducted by Kurt Heinitz: March, Heil Reichskanzler Adolf Hitler (Heiniz); Prelude to Das Modell (Suppé); The Mill in the Black Forest (Eilenberg); Three Marches; Concert Polka; Die beiden kleinen Finken (Kling); March, Heil Pirna (Heinitz); Four Marches. Part II—Bunter Abend. **10.15,** News. **10.30** (approx.), Dance Music relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. F. Miklavcic announcing. **5.0,** International Broadcasting Club Concert: What more can I ask? Brighter than the Sun; Falling in love with you; Ladies, you're lucky for me; Zigeuner, you have stolen my Heart; Night of Love Divine; For you, Rio Rita; Sweet Amanda. **5.30,** Reading. **6.0,** Gramophone Records. **6.30,** Children's Songs. **7.0,** Russian Lesson. **7.30,** Literary Talk. **8.0,** Song Recital. **8.30,** Quintet Concert. **9.30,** Time and News. **9.50,** Light Music on Gramophone Records. **10.30** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 a.m.,** Concert of Light Music and Mexican and Cuban Songs. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Thursday),** Talk. **12.40,** Light Music. **1.0 a.m.** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, and Radio Journal, followed by Request Gramophone Records. **9.25,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Political Review. **10.40** (approx.), Romanian National Festival Programme. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta; Potpourri, From A to Z (Geiger); Waltz, Vive la Danse (Waldteufel); Humoresque (Simicek); Polka, Tonnie (Kostál); March (Labsky). **7.0 to 10.15,** 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 Kaiselslautern, 536 kc/s, 560 metres; and Nürnberg, 1,256 kc/s, 239 metres.**—**5.0 p.m.,** Orchestral Concert, conducted by Erich Kloss: Prelude to Die Marketenderin (Humperdinck); Largo from the Symphony From the New World (Dvorák); Scenes from André Chénier (Giordano); Liebeswalzer (Reger); Oriental Suite, An den Ufern des Nils (Platen); Hungarian Dances Nos. 2 and 4 (Brahms); Ballet Music from Ritter Pasman (Joh. Strauss). **5.45,** Talk: From an Artist's Studio. **6.5,** Talk: One Hundred Years of Electro-Magnetic Telegraphy. **6.25,** Time, Weather and Agricultural Notes. **6.40,** Dialogue—Reminiscences of the Origin and Development of the Nazi Storm Troops. **7.0,** Transmission for all German Stations, relayed from **Heilsberg. 8.0,** National Revolution Festival Programme by the Students of Munich University and Technical College and the Bavarian Students' Association, relayed from the Studentenhaup: Overture, Egmont (Beethoven); Address; Two Movements from the Small Serenade, Op. 55 (Trunk); Address; Two Songs; Address; Recital of Two Ballads; Die Ehre Gottes in der Natur (Beethoven). **9.30,** Variety Programme by the Station Orchestra and Choir, by Franz Käppel Trio, and Soloists. **10.20,** Time, Weather, News, and Sports Notes. **10.45,** See **Stuttgart.**

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres; and Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Concert relayed from the Grand Hotel: Rakoczy Overture (Kéler Béler); Waltz, The Blue Danube (Joh. Strauss); Selection from Tiefland (d'Albert); Indian Song (Dvorák); Impromptu (Schubert); Danse macabre (Saint-Saëns). **6.0,** French Lesson. **6.30,** Two Talks for Girls. **7.0,** Announcements, Weather and News. **7.30,** Talk relayed from the Trondheim Technical School. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, Oberon (Weber); Symphony No. 6 (Haydn); Lyric Suite (Grieg); Selection from La Boutique fantasque (Rossini-Respighi); Intermezzo from L'Amico Fritz (Mascagni); 1812 Overture (Tchaikovsky). **9.10,** Holge Krog reads from his own Poems. **9.30,** Agricultural Market Report. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** A Sketch. **11.15** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

MAY 10th **WEDNESDAY** *continued*

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Light Music on Gramophone Records. **8.30** (in an interval), Time Signal and Announcements. **8.45,** Concert of Popular Music; Soloists: Hella Helt di Gregorio (Soprano) and E. Paladino ('Cello): Slav Dance (Dvorak); Soprano Solos: (a) Ungedulbi, (b) Erstarrung (Schubert); Persian Dance from Khovantschina (Mussorgsky); 'Cello Solos: (a) Nocturne (Cassela), (b) Mazurka (Cauniiti); Minuet (Boccherini); Soprano Solos: (a) Cavatina from Linda di Chamonix (Donizetti), (b) Cäcilie (R. Strauss); 'Cello Solos: (a) Andante (Barbieri), (b) Gigue (Barbieri); Selection, Casanova a Venezia (Pick-Mangiagalli). In the interval, Talk: Confessions before the Microphone. **10.0,** Song Recital. **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). **7.0 p.m.,** News. **7.15,** Weather Report. **7.25,** Le Journal Parlé. **7.45,** Programme for Children. **8.15,** Le Journal Parlé (contd.). **8.45,** Concert of Romanian Music in Honour of the Romanian National Festival, The Station Orchestra, conducted by Edouard Flament; Soloists, Mme. Pia Igy (Songs) and M. Hertz (Pianoforte): Novelettes (Andrico); Songs: (a) Chrysanthemum (Dragoi), (b) Love Song (Paschil), (c) Green Leaf (Keriac); Pianoforte Solos: (a) Toccata (Enesco), (b) Finale from a Sonatina (Negrea); Four Popular Romanian Songs with Cobza accompaniment; Pianoforte Solos: (a) Nocturne (Mihalovici), (b) Dance (Mihalovici), (c) Melody (Nottara); Extracts from the First Orchestral Suite (Enesco); Songs: (a) Song (Alessandrescu); (b) The Pipe (Schiletti); Violin Solo, Intimacy (Godestan); Romanian National Anthem. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **6.45 p.m.,** Journal Parlé and Foreign Press Review. **7.5,** Popular Music on Gramophone Records. **8.0,** Talk; Parasites. **8.15,** Interval. **8.30,** Le Chandelier—Play (Alfred de Musset), arranged for Radio by A. Allehaut. **10.30,** Dance Music, relayed from the Lido. **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc s, 1,725 metres; 75 kW. **6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Educational Talk. **12.15 p.m.,** Extracts from Norma Opera (Bellini), by the Radio Paris Orchestra. **12.30,** Organ Recital from the Gaumont Palace: Ich liebe dich, my dear (Blight); Melody (Lattai); Ballet Music from Sylvia (Delibes); Tell me to-night (Spoliansky); Flitter-Wochen (Seide). **1.0,** Exchange, News and Weather. **1.5,** Concert by the Radio Paris Orchestra: Selection from Le roi malgré-lui (Chabrier-Anvray); Selection from La Vanuina (Bastide-Delsaux); Selection from J'adore ça (Christiné); Overture, L'écossais de Chafou (Delibes). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.40,** German Lesson. **7.0,** Medical Talk. **7.20,** Concert: Paysage clair (Pons); Quand l'ombre descend (Marie); La Lanterne magique (Godard); Selection from Iris (Mascagni); Selection from Le Petit Elfe Fenne-l'oeil (Schmitt). **7.50,** Commercial Prices and News. **8.0,** Reading. **8.45,** Two scenes from Parsifal Opera (Wagner) on Gramophone Records. In the interval at **8.30,** News and Weather; at **8.40,** Fashion Review by Mlle. José. **9.15,** Press Review and News. **9.30,** Act II of Tristan and Isolda—Opera (Wagner) on Gramophone Records.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from **New York.** **8.45,** Microphone Melody Makers. **9.0,** Teaberry Baseball Scores. **9.5,** Business News. **9.15,** Programme to be announced. **9.30,** Weather and Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Jean and Gene. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Programme to be announced. **11.15,** Time and Weather. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 2.30 a.m. (Thursday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15 a.m.,** The Townsend Murder Mystery. **12.30,** String Symphony. **1.0,** Enco Crime Clues. **1.30,** Time and Tastyeast Jesters. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Adventures of Sherlock Holmes. **2.30,** Programme to be announced. **3.0,** Dr. Curtis Howe Springer.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** Concert in Honour of the Romanian National Festival; The Station Orchestra, conducted by Otakar Parik; Soloist, Sophia Munteanu (Songs); Romanian Rhapsody No. 1 (Enescu); Seven Songs; Finale from Orchestral Suite, Op. 9 (Enesen). **5.0,** Talk. **5.10,** Rye the Magician Historical Marionettes Play (Skalova). **6.5,** Agricultural Talk. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk for Children and Talk for Workers. **7.0,** Chimes. **7.1,** Talk; Romania. **7.10,** Talk on the following Transmission. **7.15,** Comedy in Three Acts (Effimin). **8.5,** Talk on the following Transmission. **8.15,** Dvorák Concert arranged by the Society for the Erection of a Dvorák Monument, relayed from the Lucerna Concert Hall; The Czech Philharmonic Orchestra and the Prague Choral Society, conducted by Talich; Soloists, Zdenka Zikova (Soprano) and Vilem Zitek (Bass): Overture, Husitska, Op. 67; Te Deum, Op. 103, for Soloists, Choir and Orchestra; Symphony in E Minor, Op. 95, From the New World. In the intervals at **9.0** and at **10.0,** Time Signal. **10.15,** News. **10.30,** Talk in French. **10.45** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc s, 403 metres; 25 kW.; **Geneva, 395 kc s, 760 metres.** **7.0 p.m.** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**), Talk; Sparkling Wines. **8.0** (from **Lausanne**), Song Recital by Laura Gloria. **8.30** (from **Lausanne**), Talk; Alpine Smugglers. **9.0** (from **Lausanne**), Popular Concert, conducted by M. Held. **9.15** (from **Lausanne**), Song Recital by M. Firzel. **9.45** (from **Lausanne**), Popular Concert (contd.). **10.0,** News and Weather. **10.10,** Tourist Talk; Lake Leman. **10.30** (from **Lausanne**), Dance Music from the Bel-Air Métropole. **11.0** (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.**—**1.0 to 2.15 p.m.,** Orchestral Concert: Jnanita (Hamnd); Fiorella (Culotta); A sera in terra toscana (Limenta); Tell your Father, tell your Mother (Nicholls); Partugtia degh tzigani (Ranzato); Legend (Brusselmans); Ronda brasiliana (Escobar); Selection from The Flower of Hawaii (Abraham); Serenata a Frieda (Baragli); Per te (Santengini). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange, Report of the Royal Geographical Society and Giornale Radio. **5.30 to 6.15,** Orchestral Concert: Il bel Cecè (Culotta); Visione di Liù (Ricciardi); Un'altra volta (Vidale); Fantasia, Nozze istriane (Smareglia); Pulcinella and Tarantella (Brugnoli); Etude (Scriabine); Testina cara (Chiappino). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.0,** Report of the International Institute of Agriculture (in Spanish, German and French). **7.20,** Giornale Radio. **8.0,** Time, Announcements and Light Music on Gramophone Records. **8.15,** Medical Talk. **8.30,** Giornale Radio and Sports Notes. **8.45,** Germania—Opera in Four Acts (Franchetti). In the intervals, Theatre Talk and Poetry Reading. Giornale Radio after the Programme.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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 9.0 p.m.** (approx.), **New York** Relay. **8.0,** Pop Concert. **8.30,** Texas Cowgirl. **8.45,** Charis Programme. **11.45,** Stock Reports. **12 Midnight,** Royal Vagabonds, from **New York.** **12.30 a.m. (Thursday),** Utica Club Programme. **1.0 to 2.30, New York** Relay. **1.0,** Band of Famous Brands. **1.15,** Rocking Chair Memories. **1.30,** Musical Programme. **2.0,** Corn Cob Pipe Club of Virginia. **2.30,** Dance Hits of Yesterday, from **New York,** followed by Programme Resume.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc s, 459 metres, 60 kW.; **Basle, 1,229 kc s, 244.1 metres;** and **Berne, 1,220 kc s, 245.9 metres.** **12.28 p.m.,** Time Signal from Neuchâtel Observatory, Weather, and News. **12.40** (from **Berne**), Light Music on Gramophone Records. **1.35** (from **Berne**), Weather and Exchange. **1.40 to 3.30,** Interval. **3.30** (from **Berne**), Popular Music on Gramophone Records. **4.30** (from **Berne**), Programme for Children. **5.0** (from **Berne**), Light Music on Gramophone Records. **5.30,** Weather Report. **5.35** (approx.) **to 6.50,** Interval. **6.30** (from **Zürich**), Talk: Grecian Temples. **7.0** (from **Zürich**), Time, Weather, and Market Prices. **7.15** (from **Zürich**), English Lesson. **7.45,** Concert of Swiss Music. **9.30,** Weather and News. **9.40** (from **Zürich**), Light Music and Dance Music. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc s, 436 metres; 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Göteborg, 932 kc s, 322 metres; Hörby, 1,166 kc s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres;** and **Sundsvall, 554 kc s, 542 metres.**—**5.0 p.m.** (from **Malmö**), Concert of Light Music by the Bracony Mandoline Trio, relayed from **Malmö, 1,301 kc s, 231 metres.** **5.30,** Talk. **6.0,** Gramophone Records of Popular Music. **7.0,** Talk: Health and Hygiene. **7.15,** Weather and News. **7.30,** Talk. **8.0,** Song Recital by Elizabeth Kolmodin, with Readings. **8.30,** The Ladies' Pet a Comedy in Three Acts (Sarment). **9.45,** Weather and News. **10.0,** Dance Music, relayed from the Berns Dance Hall. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Classical and Light Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Talk: Electrical Apparatus in most Common Use. **5.0,** Orchestral Concert, conducted by Rosskam. Soloist: Grégoire (Violin): Overture, Masaniello (Auber); Selection from Coppélia (Delibes); Violin Solo: Kuyawiak (Wieniawski); Melody (Schumann); Ich grolle nicht (Schumann); Interlude from Le roi d'Yvetot (Adam-Boucoiran); Selection from The Geisha (Jones); Three Dances (German) **6.0,** Concert, relayed from **Lille, 1,130 kc s, 265.4 metres.** **7.0,** Talk: The Economic Situation of the French Middle Classes in 1913 and in 1932. **7.15,** Talk in German. **7.30,** Time and News. **7.45,** See **Paris (Eiffel Tower).** **8.15,** Press Review in German, and Lottery Results. **8.30,** Gramophone Concert: Overture, Oberon (Weber); Polonaise in A Flat (Chopin); Indian Lament (Dvorak); Romance (Schumann); Le cygne (Saint-Saëns). **9.0,** Symphony Concert, relayed from **Besançon.** Conductor: Gaston Poulet. Soloists: Suzanne Balguerie (Songs) and Jeanne Ledoux (Pianoforte). Overture, Patrie (Bizet); Songs: L'apprenti sorcier (Dukas); Concerto for Orchestra and Pianoforte (Schumann); Prelude to Tristan and Isolda (Wagner); Aria, The Death of Isolda (Wagner); The Ride of the Valkyries (Wagner). In the interval, Talk and Press Review. **10.45,** Dance Music from the Savoy. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres, 60 kW.; and Freiburg, 527 kc s, 570 metres.—**1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0 to 2.15,** Musical Programme arranged by the Post Office. **3.10,** Song Recital by Liesel Olmesdahl: Songs (Koch): (a) Mein Schatz hat einen Garten, (b) O lieb, so lang du lieben kannst, (c) Wegewark, (d) Mädele guck raus; Songs (Rücklos): (a) Blumengruss, (b) Es sprach der Mond, (c) Vergissmeinnicht; Songs (Hasse): (a) Morgenlied, (b) Es wollt ein Mädchen Wasser holen, (c) Freude, holde Freude, (d) Wenn der jüngste Tag will werden. **3.30 to 4.30** (from **Mannheim**), Programme for Children. **5.0,** See **Munich.** **5.45,** Time, Weather, and Agricultural Notes. **6.0,** Das Hebelmädli—a Radio Report of an Old Folk Custom, relayed from **Hausen.** **6.25,** Talk: Hunting and the Preservation of Wild Life. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Heilsberg.** **8.0,** War Stories. **8.20,** Brahms Concert, relayed from Mannheim Castle; The Kergl Quartet, and Soloists: Otto Voss (Pianoforte) and Gussa Heiken (Soprano): String Quintet in F; Songs: (a) Wir wandelten, (b) Bei dir sind meine Gedanken, (c) Es liebt sich so lieblich im Lenze, (d) Das Mädchen spricht; Pianoforte Quintet in F Minor. **9.30,** Swabian Programme by August Lämmle, Gustav Wirsching, and Margarete Kramer (Folk Songs to the Lute). **10.15,** Time, News, Weather, and Programme Announcements. **10.30,** Dance Music, conducted by Harry Rosch, with Käte Mann (Soprano). **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire. **7.30 p.m.,** Songs from Sound Films. **7.45,** Accordion Music. **8.0,** Music by a Viennese Orchestra. **8.15,** Songs from Operettas. **8.30,** Instrumental Solos. **8.45,** Opéra-Comique Songs. **9.0,** Concert by La Toulousaine Society, conducted by M. Palette. Light Music in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Dance Music. **11.15,** Choral Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Military Band Concert: Jungle Drums (Ketelbey); Hungarian Rhapsody No. 2 (Liszt); Selection from Faust (Gounod); Fantasia, The Battle (Eckersberg); Serenade (Heykens); Marche lorraine (Ganne). **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Au Bal Musette. **12.15,** Tangos. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW.—**5.0 to 6.0 p.m.,** Concert: Soloists: Elena Colotti (Pianoforte) and Merie Decorti (Soprano); Pianoforte Solos: (a) Liebestraum (Liszt), (b) Nocturne (Scriabin), (c) Ballad in A Flat (Chopin); Soprano Solos: (a) Song (Rubinstein), (b) Paranzelle (Persico), (c) Estrellita (Ponce), (d) Aria from Le donne curiose (Wolf-Ferrari); Pianoforte Solos: (a) Dance (Debussy), (b) Vibrazione de onde (Orefice), (c) Ballad, No. 2 (Liszt); Soprano Solos: (a) Aria from Edmea (Catalani), (b) Aria from La Zingara (Donizetti). **6.35** 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.**—**5.0 to 6.0 p.m.,** Song Recital. **6.35,** Giornale Radio, Agricultural and Dopolvoro Notes. **7.0,** Time, Tourist Report and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records (contd.). **8.0,** Announcements, Giornale Radio and Weather. **8.15,** Medical Talk. **8.30,** Comedy in Three Acts, followed by Orchestral Concert. **11.0,** Giornale Radio. **11.5 to 11.30 (Florence),** Dance Music Relay.

VATICAN CITY

15,120 kc s, 19.84 metres (Morning) and **5,969 kc s, 50.25 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; 15 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.** **6.35 p.m.** Talk by Otokar Troidl. **7.0,** Concert of Light Music by the Emil Baier Orchestra. **7.30,** Time, Weather and Programme Announcements. **7.35,** Concert (contd.). **8.0,** Cologne and the Rhineland Concert by the Vienna German Male Voice Choir, with Introductory Talk. **8.40,** Dramatic Programme by Wilhelm Klitsch (Speaker), with the Vienna Symphony Orchestra. Part I—Das Hexenlied (Ernst von Wildenbruch), with Music by Max von Schillings. Part II—Das Hochzeitslied (Goethe), with Music by C. Schneider. **9.40,** News and Weather. **9.55,** Concert by the Vienna Chamber Orchestra, conducted by Rudolf Pehm: Overture, Euryanthe (Weber); Sieben Deutsche (Anton Koschitz); First Suite from Peer Gynt (Grieg); Three Spanish Dances (Moszkowsky); Military March (Schubert); Wienerwald-Blumen (Rudolf Pehm); Overture, The Merry Wives of Windsor (Nicolai); Meditation (Bach-Gounod); Minuet (Boccherini); Potpourri of Johann Strauss Operetta Music (Schlögel); Waltz, An der schönen grünen Marenta (Komzak); Polka, Sangers Liebchen (Eduard Strauss-Pehm).

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.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **1.20,** Weather Report. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.30,** Talk for Boy Scouts. **3.35,** Programme for Children. **4.0,** Light Music on Gramophone Records. **4.40,** Talk. **5.0,** Programme for Music Teachers. **5.30,** Light Music on Gramophone Records. **5.40,** Talk: Co-operation of Manual and Brain Workers. **5.55,** Programme Announcements. **6.0,** Second Concert of Songs and Pianoforte Music by the Polish Candidates for the Second International Competition, at Vienna. In the interval, News. **7.0,** Miscellaneous Announcements. **7.20,** Answers to Agricultural Correspondence. **7.30,** Poetry Recital, with Pianoforte Accompaniment. **7.45,** Radio Journal. **8.0,** Programme for the Romanian National Festival, Romanian National Anthem, Polish National Anthem, Addresses, and Romanian Music. **9.0,** Sports Notes. **9.5,** Radio Journal. **9.10,** Pianoforte Recital by Z. Drzewiecky: Fantasia in D Minor (Mozart); Chaconne (Bach-Busoni); Six Variations (Lessel); Nachstück (Schumann); Scherzo (Mendelssohn-Bartholdy); Two Waltzes: (a) in E, (b) in A flat (Brahms); Cavatine boutle (Drabe-Scheil); Mazurkas Nos. 1 and 3 (Maciciewsky); El Vito (Manuel-Infante). **10.0,** Topical Talk. **10.15,** Dance Music on Gramophone Records. **10.40,** Talk in English: The Protection of Minorities according to the Decrees of the League of Nations. **10.55,** News, Weather, Report, and Police Notes. **11.0,** Dance Music from the Café Gaza.

ZURICH.—See **Schweizerischer Landessender.**

ATHLONE

725 kc/s, 413 metres; 60 kW.: and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.40,** News and Dublin Cattle Market Report. **7.0,** French Lesson. **7.15,** Literary and Dramatic Talk. **7.30,** Time Signal. **7.31,** The Station Orchestra. **8.0,** Soprano Solos by Mary Burke Collins. **8.10,** Pianoforte Solos by Kathleen Geraghty. **8.25,** Soprano Solos by Mary Burke Collins. **8.35,** Harp Solos by Annie Fagan. **8.50,** Tenor Solos by James Cowhie. **9.5,** The Station Orchestra. **9.30,** Gaelic Song Recital by Tadhg MacFirbhisigh. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1); 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations and Educational Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News Bulletin. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Station Orchestra. **10.20,** Dance Music by the Demon's Jazz Band. **11.0,** El Rayo—Comedy in Three Acts (Seca and Nunez). **12 Midnight** (in an interval), 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 Report, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.35** (approx.), Military Band Concert, conducted by Salvatore Rubino: Overture, Nabusso (Verdi); Intermezzo from Cavalleria rusticana (Mascagni); Concert Overture, Le carnaval romain (Berlioz); Selection from Gloria (Cilea); Suite, Scene calabresi (De Nardis); March No. 4, Op. 76 (Schumann). In the interval, Amusement Guide. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Gramophone Concert: Entry March from Tannhäuser (Wagner); Ballet Music from Sylvia (Delibes); Wedding March from A Midsummer Night's Dream (Mendelssohn); Entr'acte and Ballet Music from Rosamunde (Schubert); Coronation March from The Prophet (Meyerbeer); Ballet Music from Undine (Lortzing); Hungarian March (Berlioz). After the Concert, Second Weather for Farmers. **12.55 p.m.,** Time Signal. **1.45,** News Bulletin. **2.0,** Popular Music on Gramophone Records. **2.45,** Programme for Children. **3.0,** Talk for Women. **3.30,** Weather and Exchange. **3.45,** Reading (Georg Rendl). **4.30,** Concert from **Berlin (Witzleben). 5.0,** Talk on Carl Hauptmann on the 75th Anniversary of his Birth. **5.35,** String Trio in A Minor, Op. 77b (Reger). **6.0,** A Poem. **6.5,** Song Recital by Gotthold Ditter. Songs (Schubert): (a) Der Atlas, (b) Der Doppelgänger, (c) Die Stadt; Songs (Loewe): (a) Archibald Douglas, (b) Heinrich der Vogler. **6.30,** Agricultural Talk. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations: Literature and Songs of the Modern Generation. **8.0,** Das Schweinemetzgerbachten—Comedy (August Hinrichs). **9.15,** Dance Music from **Heilsberg. 10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade, relayed from **Langenberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kcs/, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by Josef Reer-Balay and his Orchestra. Overture, The Daughter of the Regiment (Donizetti); Ballet Music from Czar and Carpenter (Lortzing); Oriental Suite, A Thousand and One Nights (Bortkiewicz); Slav Dances (Dvorak); Waltz, Neu-Wien (Joh. Strauss). **5.30,** Reading. **6.0,** Book Review. **6.10,** Talk: Youth and the State. **6.30,** Talk on Pomerania. **6.40,** The Witzleben Station informs its Listeners . . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Announcement. **8.10,** Max Reger Memorial Programme (Died May 11th, 1916). The Station Orchestra, conducted by Eugen Jochum. Memorial Address by Prof. Fritz Stein. Symphonic Prologue to a Tragedy, Op. 108. **9.0,** Talk, with Gramophone Illustrations: The Art of Elocution. **9.35,** Ballet Suite, Op. 130 (Reger), relayed from the Singakademie. Conductor: Dr. Gustav Havemann. **10.0,** Weather, News, and Sports Notes. **10.15** (approx.), Dance Music, relayed from the Café Berlin. **12 Midnight,** 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,** Talk on Bullfighting. **7.55,** Lottery Results and Charades. **8.0,** Talk on Wine. **8.15,** News. **8.30,** La Plus Faible—Comedy in Three Acts (Marcel Prevost).

THURSDAY

MAY THE ELEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Act 2 of "Tristan und Isolde" (Wagner), from the Royal Opera House, Covent Garden.
LONDON REGIONAL	Variety programme.
MIDLAND REGIONAL	Recent Impressions, Chicago and Across America, by Mr. E. Littler.
NORTH REGIONAL	Folk songs of the North—Northumberland.
WEST REGIONAL	Choral programme.
SCOTTISH REGIONAL	"Our Father," a Scottish play by D. C. Thomson.
BELFAST	"Memories," orchestral concert.

ABROAD

BERLIN (Witzleben)	8.10 p.m. Max Reger musical programme.
BRUSSELS (No. 1)	9 p.m. Offenbach concert.
HILVERSUM	8.45 p.m. Concert from Amsterdam.
RADIO PARIS	8 p.m. Symphony concert, conducted by Eugène Bigot.
ROME	8.45 p.m. Music by Salvatori Auteri Manzocchi.
STRASBOURG	8.30 p.m. Operetta: "Monsieur Beaucaire," by Messager.
STUTTGART	9.20 p.m. Concert of Slav music.
VIENNA	8.30 p.m. Opera: "Sicilian Vespers." by Verdi.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.25 p.m.,** Tchaikovsky Concert by the Station Orchestra, conducted by F. Dyk; Soloist: Sylvia Maendzinska-Halmosová (Pianoforte): Overture, Hamlet; Concerto in B Minor, Op. 23, for Pianoforte and Orchestra. **8.20,** See **Brno. 9.0 to 11.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 10 kW., and **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.50 a.m.,** Concert by the Silesian Philharmonic Orchestra, conducted by Hermann Behr. **1.10 p.m.,** Weather Forecast. **1.15,** Concert (contd.): Overture, Das Nachtlager in Granada (Kreutzer); Hofballtänze (Lanner); Polka, Bitteschön (Jos. Strauss); March from Boccaccio (Suppé). **1.45,** Time, Weather, News and Exchange. **2.5,** Wagner Gramophone Concert: Arias from: (a) The Mastersingers, (b) The Dusk of the Gods; Senta's Ballad from The Flying Dutchman; Ein Albumblatt; Kaiser-Marsch. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Tourist Talk: The Beauties of Silesia. **3.50,** Book Review. **4.10,** Pianoforte Recital by Annemarie Boxhammer and Wally Schmidt: Sonata for Two Pianofortes (Huber); Symphonic Variations (Krouke); Four Waltzes (Brahms). **4.40,** Programme for Children. **4.55,** Concert by the Station Orchestra, conducted by Bruno Janz: Overture, Gipsy Love (Lehar); Peasant Suite (Allbont); Intermezzo from Funiculi Funicula (de Ceceo); Waltz, Dame in braun (Robrecht); Vibraphone Solo, Liebesserenade (Löhr); Minuet, Sylvia (Hagemann); March Potpourri, Als wir marschierten (Schmidt-Hagen). In an interval at **5.35** (approx.), Agricultural Prices. **5.45,** Programme for Children. **6.0,** Talk: The Healing Power of Light. **6.15,** Programme to be announced. **6.30,** Talk: A Nation's Ability to Defend Itself. **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Station Orchestra, conducted by Franz Marszalek: Variations and Rondo on a Song from the Silesian Isergebirge (Zielowsky); Small Suite for Flute and Pianoforte (Krouke); Waltzes on Themes of Jos. Strauss and Jos. Lanner, for Violin, 'Cello and Pianoforte (Schütt); Concertino for Clarinet (Weber); Radio Suite for Small Orchestra (Voelkel). **9.0,** Announcements. **9.10,** Max Reger Memorial Concert, relayed from the Salvatorkirche. Bruno Jagielski (Tenor), Franz Schätzer (Violin) and Gotthold Richter (Organ). Aria for Violin and Organ; Songs; Chaconne in G Minor, Op. 117, No. 4, for Violin; Songs; Fantasia and Fugue, Op. 46, on the name BACH for Organ. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Reading. **10.50** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by B. Bakala. **5.10,** News for Young People. **5.20,** See **Prague. 5.50,** Review of Periodicals. **6.0,** Literary Review. **6.15,** See **Prague. 6.25,** German Transmission: News and a Radio Play. **7.0,** See **Prague. 7.25,** Popular Orchestral Concert. **8.5,** See **Prague. 8.20,** Moravian Folk Songs. **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: Overture, Morning, Noon and Night (Suppé); Blumengeister (von Blon); Melody from Tell me tonight (Spoliansky); Selection from The Gold Diggers of Broadway (Burke); Aubade from Le Roi d'Ys (Lalo); To the Guitar (Nölck); Selection from Les Dragons de Villars (Maillart); Madiana (Almaby); Barn Dance (Lutz); Troika; In a Persian Market (Ketelbey); Air from Cavalleric Rusticana (Mascagni); Overture, The Bohemian Girl (Balfe). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Paul Leemans: Strauss March (Mezzacapo); Ballet Music from Isoline (Messager); Serenade (Leoncavallo); Selection from Rip van Winkle (Planquette); Waltz (Novno); The Song of Songs (Moya); Selection from Trois jeunes filles nues (Moretti). **5.0,** Concert by the Station Symphony Orchestra, conducted by M. Meulemans: La danza (Rossini) Spanish Dance (Granados); Persian Dance (Guiraud); Kind, du kannst tanzen (Lehar) Danze piemontesi (Sinigaglia). **5.30,** Literary Programme for Young People. **6.0,** Talk: Teeth as the cause of Illness. **6.15,** Gramophone Records: (a) Fantasia in F Minor (Chopin). (b) Le Cygne (Saint-Saëns). **6.30,** Concert by the Small Station Orchestra, conducted by Paul Leemans: March (Wesly); Waltz (Kálmán); Spanish Caprice (Malvezzi). Selection from Hansel and Gretel (Humperdinck); Grandmama (Lange); Potpourri of Hungarian Melodies (Padouk). **7.15,** Review for Workers. **7.30,** Wireless Notes. **8.0,** Concert by the Station Orchestra, conducted by C. Walpot; Soloist, Mme. G. Lairac (Songs): Overture, Light Cavalry (Suppé); Verdi Potpourri (arr. Weninger); Songs: (a) Lindenbaum (Schubert), (b) Clair de lune (Fauré), (c) Berceuse (Gretchaninov), (d) Mainacht (Brahms); Waltz, Wienerblut (Joh. Strauss). **8.45,** Talk: The League of Nations. **9.0,** Offenbach Concert by the Station Symphony Orchestra, conducted by M. Meulemans: Overture, The Grand Duchess of Gerolstein; Selection from La belle Hélène; Barcarolle from The Tales of Hoffmann; Overture, The Drum-Major's Daughter. Gramophone Records: Airs from (a) La Périchole, (b) Les Brigands; Selection from La Vie parisienne; Selection from Madame Favart; Overture, Orpheus in the Underworld. **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records.

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 P. Leemans: Overture, The Black Domino (Auber); Suite, At the Circus (Armandola); Si vous l'aviez compris (Denza); Dance of the Hours from La Gioconda (Ponchielli); Violin Solo; Tango (Albeniz-Kreisler); Selection from Mirella (Gounod); Waltz, Liebling, wie wär's? (Erwin); Two Airs from the Film, Die Slacht von Badermünde (Gilbert). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Neptune's March (Ivory); The Gingerbread House (Ivory); Harlequin (Lalo); Four Airs from Hansel and Gretel (Humperdinck-Fried); Le dernier sommeil de la vierge (Massenet); Minuet No. 1 (Paderevsky); Serenade (Schubert); Gnomenreigen (Liszt); Serenade (Moskowsky); Overture, Alessandro Stradella (Flotow). **5.0,** Concert by the Station Orchestra, conducted by C. Walpot: Summer Day (Coates); Waltz Potpourri (Robrecht); Suppé Potpourri (Morena). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by Paul Leemans. Soloist: H. Wigy (Violin). March of Youth (Kricka); Romantic Suite (Armandola); Serenade (Moszkowsky); Selection from Aida (Verdi); Violin Solo: Ballad (de Boeck); Selection from Die Puppenfee (Bayer). **7.15,** Talk on Folklore. **7.20,** Talk on the Forthcoming Peter Benoit Celebrations. **7.30,** Talk for Housewives. **8.0,** Concert by the Station Symphony Orchestra, conducted by A. Meulemans: Overture, Prince Igor (Borodin); Czech Dances (Kodaly); Carneval de Paris (Svendsen); Light Music on Gramophone Records; Waltzes (Brahms); Slav Dances (Dvorak). **8.45,** Talk on Rheumatism. **9.0,** Concert by the Station Orchestra, conducted by C. Walpot. Overture, Pique Dame (Suppé); Caucasian Suite (Ivanov); Gramophone Records: (a) Erinnerungen (Krüger). (b) Guitar Solo: Variations on a Popular Theme (Krotkov); Fortissimo (Kálmán); Waltz from The Count of Luxembourg (Lehar); Three Pieces (Fletcher). **10.0,** Le Journal Parlé. **10.10,** Popular Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Light Music and Romanian Music, by the Dinico Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Light Music on Gramophone Records. **8.0,** Violin Recital by C. Bobesco; Nel cor piu non mi sento (Paganini); Introduction and Rondo Capriccioso (Saint-Saëns); Scherzo-Tarantella (Wieniawsky). **8.30,** Talk. **8.45,** Pianoforte Recital by Mme. Madeleine Cocorasco. **9.15,** 'Cello Recital by J. Thaler: Andante from the Concerto in D (Mozart); Melody (Percy Grainger); Minuet (Brahms); Souvenir-Adagio (Thaler); Dance (Thaler).

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres** from **8.0 p.m. to 12 Midnight. 5.30 p.m.,** Variety Music on Gramophone Records. **6.0,** English Lesson. **6.30,** Josef Doczy Memorial Programme—Song Recital by Margarete Bodán and Josef Cselenyi, accompanied by a Cigány Band. **7.25,** Talk. **8.0,** Harp Recital by Julius Revere: La melancoli (Godefroid); Song (Hasselmans); Gitana (Hasselmans); Fantasia (Saint-Saëns); Waltz in A Flat (Brahms); Waltz (Durand). **8.30,** Morning, Noon, and Night—Play in Three Acts (Nicodemi). **10.30,** News Bulletin. **10.45** (approx.), Cigány Music. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Maja Baerentzen (Songs); Coronation March from The Maid of Orleans (Söderman); Intermezzo and Dance from The King (Halvorsen); Selection from Barbe bleue (Offenbach); Pièce en forme de Habanera (Ravel); Ballet Music from Copélia (Delibes); Seven Songs; Overture, Banditenstreiche (Suppé); Ronde française (Boëlmann); Sicilienne (Chansson); Selection from Tiefland (d'Albert); Gavotte-Musette from the Suite, Aus Holbergs Zeit (Grieg); Homage March from Sigurd Jorsalfar (Grieg). **5.0,** Programme for Boys. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk on Swedish Continuation Schools. **6.20,** English Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time. **7.30,** Talk on Social Reform. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Per Knudsen (Songs). Slav Dance in E Minor (Dvorak); Spanish Dances (Granados); Romanian Fantasia (Dimitriescu); Five Folk Songs; Latvian Folk

Songs (Withol); English Folk Melody, Cherry Ripe (Grainger); Russian Dance (Tchaikovsky). 9.0, Talk. 9.30, Selection from The Barber of Seville (Rossini) on Gramophone Records. 9.45, Reading. 10.5, News. 10.20, String Quartet, Op. 17 (Delois). 10.50, Dance Music by the Richard Johansen Band, relayed from the Lodberg Restaurant. In an interval at 12 **Midnight**, Time and Chimes from the Town Hall. 12.30 **a.m. (Friday)**, Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Variety Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Programme for Children. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, T. St. A. Ronald, and B. McNabb. **5.30,** Octet and Vocal Concert for Worthing and Littlehampton Listeners: Spring Song (Mendelssohn); Hungarian Dance in D (Brahms); Hungarian Dance in A Minor (Brahms); Songs: (a) Because (d'Hardelot), (b) The Second Minuet (Besly); Toréador et Andalouse (Rubinstein); Ave Maria (Schubert); Romance (Rubinstein); Song, The Sweetest Flower that blows (Hawley); Valse Bluette (Nevin); The Butterfly (Bendix); Narcissus (Nevin). **6.15,** Concert for Brighton and Hove Listeners: When the Lilac blooms again (Rotter); Rocked in the Cradle of the Deep (Knight); Old Music Hall Memories; Blue Pacific Moonlight; Happy Days and Lonely Nights (Fisher); One Night Alone with you; Fall in Love with me; My Sunshine is you (Stolz); Out of Nowhere; One Alone (Romberg); Goodnight Sweetheart (Noble). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** The Listeners' Hour and News. **8.30,** Concert relayed from the Town Hall, Rouen. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Æolians: When the Guards are on Parade; Ten Cents a Dance; The Queen was in the Parlour; Mickey Mouse; Smile, darn ya, smile; Pardon me; What's keeping my Prince Charming; Two Heads in the Moonlight; The same as we used to do; Jolly good Company; Le Chemin de Paradis; We're all good Pals at last; When you were the Blossom of Buttercup Lane; If you're really and truly in Love; The Hour of Parting. **11.0,** Organ Recital: Selection, Illegal; Paradise; The Wooden Soldier and the China Doll; Sing Brothers; Bells across the Meadows; There's something about a Soldier; Serenade; Butterflies in the Rain. **11.30,** Celebrity Concert on Gramophone Records: Auf Wiedersehen, my Dear, by Layton and Johnstone; Hand me down my Walking Cane, by Boswell Sisters; Rolling down to Rio (German); Another Day's Broadcasting, by Clapham and Dwyer; That Man of my Dreams, by Sophie Tucker; Marta, by the Street Singer; Bugle Call Rag, by the Mills Brothers. **12 Midnight,** Club Concert for Bude and Tintagel Listeners: Spring Song (Mendelssohn); In Sleepy Hollow (Robinson); With you (Berlin); Autumn (Chaminade); Melody (Dvorák); Waiting at the End of the Road (Berlin); You along o' me (Sanderson); Waltz, Sphärenklänge (Jos. Strauss); Boots (McCall); The Smuggler's Song (Mortimer); Cornet Solo, I hear you calling me (Marshall); The Gay Highway (Drummond); Ballet Music from Sylvia (Delibes). **1.0 a.m. (Friday),** Accordion Solos: Perdita (Cuvelier); La Java de Doudonne (Padilla); Tango de Paques (Cuvelier); The Skaters' Waltz (Waldteufel); Petit Jean (Cuvelier); La Tourterelle (Damaré); Triumph of Eros (Cuvelier); Restless Fingers (Cuvelier). **1.30,** Vocal Trios: Laughing down the Lane; Bubbling over with Love; I'll always be true; Orchestra, High Society Blues; Blondy; Laughing at the Rain; If I had a Girl like you. **2.0,** Dance Music by the Æolians: Till tomorrow; My Romance; Pu-leeze, Mr. Hemmingway; Pal of my Dreams; Let's all dance the Polka; Three's a Crowd; Marching along together; Sweethearts for ever; You're my Everything; I guess I'll have to change my Plan; Ooh! that kiss; I'm forgetting myself; Let's put out the Lights; I wonder how the Old Folks are To-night. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres.**—**6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Georg Schumann Concert by the Radio Orchestra, conducted by the Composer: Overture, Lebensfreude, Variations and Gigue on a Theme of Handel. **8.45,** Concert by the Radio Orchestra, conducted by Reinhold Merten: Overture, Rübezahl (Flotow); Music to A Winter's Tale (Humperdinck); Prelude to Die Abreise (d'Albert); Norwegian Rhapsody No. 1 (Svendsen); Introduction to Act III of Zietensche Husaren (Scholz); Hungarian Dances Nos. 17-21 (Brahms). **9.45,** The Nut Brown Maid—Old English Ballad, by H. F. Christians and Lotte Arndt. **10.15,** Time, News, Weather and Sports Notes. **10.40,** Horst Wessel—Radio Play (Ewers and Beyer).

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENGA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.,** Hamburg, Lübeck and Bremen—Report from the Senates and Citizens' Councils of the Hanseatic Free Cities. **6.0,** Carl Hauptmann Programme for his Seventy-fifth Birthday. Appreciation by Dr. Max Sidow. Reading from his Works, followed by a Scene from Die lange Jule. **6.45,** Frankfurt Exchange. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Max Reger Concert, by the Station Choir and the Gesterkamp Trio. Soloists: Grimm-Herr (Soprano) and Gerhard Gregor (Organ). Song for Eight Voices, Der Mensch lebt und besteht nur eine kleine Zeit; Prologue; Movements from a Trio, Op. 77b, for Violin, Viola and 'Cello; Songs, Op. 97: (a) Das Dorf, (b) Wiegenlied, (c) Ein Drängen ist in meinem Herzen, (d) Der beschiedene Schäfer; Fantasia and Fugue on the name of B A C H for Organ; Choral Cantata, Meinen Jesum lass ich nicht, for Violin, Viola, Soprano, Choir and Organ. **9.0,** Notker, der Deutsche—Historical Radio Play (Herbert Wilk). **10.0,** Time, Weather, Announcements, Sports Notes and Police Report. **10.20,** Topical Talk. **10.30** (from **Hanover**), Orchestral Concert, conducted by Otto Ebel von Sosen. March, In Wind und Wetter (Urbach); Ländliches Hochzeitsfest (Czibulka); Mädels und Burschen (Clemus); Im Tiroler Dörfchen (Schmeling); Waltz, Was der Wald erzählt (Zimmer); Schmetterlingsreigen (Schmalstich); Kirmeswalzer (Ailbout); Fünf Uhr Tee im Froschteich (Ailbout); Im Schwarzwald geht ein Mühlen rad (Rust); Intermezzo, Pfannkuchens Geburtstag (Linck); Potpourri, Jetzt wird's gemütlich (Leuschner); Einsteigen in die letzte Pferdebahn (Raasch); Lumpen-Marsch (Bernards).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the interval at **1.20,** News. **2.30 to 3.0,** Interval. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Programme for Young People. **4.0** (from **Danzig**), Talk: Animals in Popular Belief. **4.30,** Concert by the Königsberg Opera House Orchestra, conducted by Erich Börschel: Overture, La Dame blanche (Boieldieu); Selection from Die Puppenfee (Bayer); Nibelungen-Marsch (Sonntag); Selection from The Gipsy Baron (Joh. Strauss); Overture, Flotte Bursche (Suppé); Waltz, Wine, Women and Song (Joh. Strauss); Slav Dance No. 8 (Dvorák); Serenade (Moszkovsky); Selection from The Gipsy Princess (Kálmán); Waltz, Estudiantina (Waldteufel). **6.15,** Agricultural Prices. **6.20,** Talk on Germany's one-time Colony, East Africa. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and the Glatzel Band. **9.45,** News Bulletin. **9.50,** English Lesson for Beginners. **10.15,** News and Sports Notes. **10.25** (approx.), Concert of Opera Music on Gramophone Records.

HILVERSUM

295.1 metres; 20 kW (7 kW up to **4.40 p.m.**).—Programme of the Algemeene Vareeniging Radio Omroep (A.V.R.O.).—**11.10 a.m.,** Light Music on Gramophone Records. **11.40** Talk for Women. **12.10 p.m.,** Song and Pianoforte Recital. **12.40,** Time Signal. **12.41,** Concert of Light Music by Kovacs Lajos and his Orchestra, with Songs by Bob Scholte: Gramophone Records in the intervals. **2.40,** Popular Music on Gramophone Records. **3.10,** Pianoforte Recital by M. Solomons: Three Waltzes (Beethoven); Scherzo in B Flat Minor (Chopin); Waltz, Op. 34, No. 4 (Moszkowsky). **3.40,** Talk for Women. **4.25,** Variety Music on Gramophone Records. **4.40,** Programme for Hospitals. **5.10,** Song and Pianoforte Recital. **5.40,** Programme for Children. **6.10,** Concert by the Station Orchestra, conducted by Nico Treep: Jagdabenteuer (Schrammel); Overture, The Well of Love (Balfe); Selection from Madame Butterfly (Puccini); Waltz, Mia Cara (Bucalossi); Ballet des parfums (Popy); The Sacred Hour (Ketelbey); Chaplinade (Fischer); A.V.R.O. March (Treep). **7.10,** Sports Talk. **7.40,** Concert (contd.), Ballet Music from Faust (Gounod); Splendour and Victory (Finck). **8.10,** Talk: Holland. **8.40,** Time Signal. **8.41,** News Bulletin. **8.45,** Concert by the Concertgebouw Orchestra and a Children's Choir, relayed from the Concertgebouw, **Amsterdam. 9.55,** Schumann Song Recital by Lotte Leonard: Widmung; Jamand; Der Sandmann; Der arme Peter. **10.10,** A Radio Play. **10.30,** Concert by the Station Orchestra, conducted by Nico Treep. Soloist: Lotte Leonard (Songs); Overture in Italian Style (Schubert); Der Hirt auf dem Felsen (Schubert); Mendelssohn Potpourri (Urbach); Overture, Pique Dame (Suppé); Waltz, Hereinspaziert (Ziehrer); Reverie (d'Ambrosio); Gallop (Lumbye). **11.40,** News. **11.50,** Light Music on Gramophone Records. **12.40 a.m. (Friday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40 a.m. to 2.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.40,** Popular Music on Gramophone Records. **12.10 p.m.,** Religious Address. **12.40,** Police Notes. **12.55,** Concert by the K.R.O. Orchestra, conducted by M. van 't Woud: March, Auf treue Kameradschaft (Blankenburg); Overture, Gri Gri (Lincke); Modern Ballet Suite (Armandola); Selection from A Life for the Czar (Glinka-Fetras); Ronde d'amour (Chammade); Der Tausendkünstler (Blankenburg); Gramophone Records: Overture, Der Waffenschmied (Lortzing); Selection from Der Rosenkavalier (R. Strauss); Irish Melody (Grainger); Selection from Herodiade (Massenet); March, Potpourri. **2.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **2.40,** Lesson in Handicrafts. **3.40,** Talk for Housewives. **4.10 to 4.40,** Interval. **4.40,** Bible Reading and Sacred Music. **5.40,** Song Recital by Mlle. Sietske Bolten (Contralto). **6.25,** Lesson in Handicrafts for Children. **6.55,** Talk. **7.25,** Dressmaking Lesson. **7.40,** Police Notes. **7.55,** Popular Music on Gramophone Records. **8.10,** Press Review. **8.40,** Organ and 'Cello Recital by J. de Graaf and M. Gerard Haft: Prelude in E Sharp (Bach); 'Cello and Organ: (a) Adagio cantabile (Tartini), (b) Air from the Suite in D (Bach); Sonata (Arne); Two Pieces (Johnson); Concerto in D (Handel); Prière (Saint-Saëns); Elevation (Ronchini); Elegy (Rabey). **9.40,** Talk. **10.10,** Light Music on Gramophone Records. **11.10,** News. **11.20,** Popular Music on Gramophone Records. **12.10 a.m. (Friday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News Bulletin and Financial Notes. **8.10,** Talk on Science. **8.30,** Popular Concert. **9.0,** News Bulletin. **9.15,** Radio Concert. **12 Midnight to 1.0 a.m. (Friday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Violin Recital: None but the weary Heart (Tchaikovsky); Le Balcon (St. Denis); Souvenir (Drdla); Serenata (Toselli); Serenade (Schubert); Estudiantina (Waldteufel); Dolores (Waldteufel); Standchen (Heykins). **12.30 a.m. (Friday),** Modern Rhythm: Stevedore Stomp; Misty Morning; The Dicty Glide; Saratoga Swing; I'm so in love with you; Kazoo; Shout'em Aunt Tillie; Get together. **12.57 a.m.,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, relayed from **Münich. 12.50 p.m.,** Weather, Time and Announcements. **1.0,** Concert, conducted by Eysoldt. Soloist: Elly Tillmanns (Soprano). March, Heil Potsdam (Teike); Overture, Der Wildschütz (Lortzing); Songs (Mozart): (a) Das Veilchen, (b) Sehnsucht, nach dem Frühling, (c) Liebesbotschaft, (d) An die Nachtigall; Waltz in C, Op. 17 (Spies); Liszt Potpourri (Urbach); Suite, Erinnerung an Cairo (Lautenschläger); Albumblatt (Michell); Serenata a Toscanini (Murzilli); The Rustle of Spring (Sinding); Potpourri, Von Wien durch die Welt (Bruby). In an interval at **2.0** (approx.), News. **2.30,** Sponsored Programme with Gramophone Records. **3.0,** Programme for Children. **3.30,** Economic Notes and Time Signal. **3.50,** Educational Talk. **4.20,** Notes on the Broadcasts for Schools. **4.30,** Concert by the Station Orchestra, conducted by Buschkötter. Soloist: Adelheid Holz (Soprano). Concerto (Vivaldi); Cleopatra's Aria from Julius Cæsar (Händel); Aria from Amadigi (Händel); Overture and Finale from the Ballet Prometheus (Beethoven); Achsa's Aria from Joshua (Händel); Alceste's Aria from Alceste (Gluck); Symphony in D, No. 96 (Haydn). **5.50,** Programme of Readings for Carl Hauptmann's Seventy-Fifth Birthday. **6.20,** French Conversation Lesson. **6.45,** Weather, Time, Economic Report and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Announcements. **8.5,** Reading from Das Märchen vom deutschen Herzen (Hermann Stehr). **8.30,** Concert, conducted by Wolf. Overtures to: (a) Die Irrfahrt ins Glück (Suppé), (b) Der Bettelstudent (Millöcker), (c) Lysistrata (Lincke), (d) The Gipsy Baron (Joh. Strauss). **9.0,** Love's Joys and Griefs—Variety Programme in Westphalian Dialect, by the Westphalian Choir and a Peasant Orchestra. **10.5,** News, Educational Announcements and Sports Notes. **10.30,** Serenade, conducted by Wolf. **12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW., and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Concert from **Breslau. 1.0 p.m.,** News, Weather and Time Signal. **1.15 p.m.,** Gramophone Concert of Light Music: Swedish Peasant Waltzes (Westling); Potpourri of Student Songs (Gerhard Winkler); March, Freiheitsjubel (Blankenburg); Two Pieces (Moar); Intermezzo, Pierrot und Pierrette (Hubert Husch); Rococo Minuet (Josef Leiss); Ländler (Kalbacher); Gamsjäger-Marsch (Louis Stanberg); Potpourri of Old Operetta Music. Exchange Quotations after the Concert. **2.0,** Film Review. **2.15,** Radio Report of the Agricultural Show at Erfurt. **2.40,** Sonata in A, Op. 100, No. 2 (Brahms), played by Adolf Busch and Rudolf Leskin on Gramophone Records. **3.0,** Hobbies for Young People. **3.35,** Exchange Quotations. **4.0,** Concert by the Wireless Orchestra, conducted by Willy Steffen: Solicitude from the Florilegium I (Georg Muffat); Prelude to the Third Act of Der Prinz wider Willen (Lohse); Pictures from the East, Op. 18 (Unger); Twelve Contratänze (Beethoven); Serenade for Wind Instruments (Richard Strauss); Norwegian Dances (Raebel); Intermezzo in G (Schaub); Overture, Der Vampyr (Marschner); Florentine March (Fucik). In the intervals from **4.45 to 5.0,** Reading (Gerhard Schäke); Talk on Political Geography. **5.50,** Weather, Time and Economic Notes. **6.0,** Talk on Taxation. **6.15,** Reading. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Schmalkald. Part I—A Radio Play of Local History (Dr. Hermann Barge). Part II—Jubilee Concert by the Schmalkalder Liedertafel with Military Band Music: Festlicher Hymnus (Siegl); Lass die Helden in deiner Seele nicht sterben (Nössler); Bakenntnis (Heinrichs); Der stille Hof (Siegel); Abendlich schon rauscht der Wald (Stürmer); Der säumige Landsknecht (Uhlig). **9.10,** News. **9.20,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber: Overture, Der Wildschütz (Lortzing); Suite for String Orchestra (Wickenhauser); Ballet-Fantasia (Paepke); Rhapsody in G (Lacombe); Waltz, Seid umschlungen Millionen (Joh. Strauss). In the interval at **9.50,** Reading: The First German Flag in America. **10.30,** News and Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Italian Lesson. **7.30,** The Letter Box. **8.0,** Relay from the Opera House. **9.30,** Time and News. **11.0** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Concert by Mme. Vallier-Delcour (Songs) and the Lyons Instrumental Trio: Trio (Gasper-Gassado); Songs: Liederkreis (Schumann); Trios: (a) Waltz (Brahms), (b) Allegretto and Allegro molto (Tchérepnin), (c) Golliwog's Cake Walk (Debussy); Madrigals; Trio (Berthet). After the Concert, News.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Programme for Children. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, Political Review, and Talks: (a) on Astronomy, (b) on Theo Fleischman (by his Translator). **10.45** (approx.), The Midnight Sun—Play in Two Acts (Theo Fleischman). **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.30 p.m.,** German Transmission: Talks: (a) A Large City and its Dangers for Young People; (b) Adalbert Stifter as a Painter. **7.0,** See

Prague. 7.25, See **Brno.** 8.5, Reading. 8.20, See **Brno.** 9.0 to 11.0, 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.**—4.30 p.m., Concert, conducted by Willy Ehrmann: Overture, Marinarella (Fucik); Waltz, Die Romantiker (Lanner); Selection from The Pearl Fishers (Bizet); Minuet (Boccherino); Loin du bal (Gillet); Selection from Die Puppenfee (Bayer); Die kleinen Soldaten (Marks); Gailthaler Jägermarsch (Koschat). 5.35 (from **Nürnberg**). Talk: Work in a Coal Mine. 5.55, Agricultural Talk. 6.15, Time, Weather, and Agricultural Notes. 6.30 (from **Nürnberg**), Concert by the Nürnberg Mandoline and Tambourin Society. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.5, S'Nullerl—Musical Play in Five Acts (Binzenz Peetl). 9.35, Trio Concert: Pianoforte Trio in C, Op. 87 (Brahms); Pianoforte Trio, Op. 28 (Gabler). 10.20, Time, Weather, News, and Sports Notes. 10.45, Report on the Six Days' Race.

NAPLES.—See **Rome.**

NOTODDEN. See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.0 p.m., Popular Music on Gramophone Records. 6.0, French Lesson. 6.30, Divine Service. 7.0, Announcements, Weather, and News. 7.30, Instrumental Solos. 8.0, Time Signal. 8.1, Agricultural Talk. 8.50, Sacred Concert, relayed from the Trondheim Cathedral. 9.38, Announcements, Weather, and News. 10.0, Topical Talk. 10.15, Talk.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Agricultural Notes and Giornale Radio. 8.20, Popular Music on Gramophone Records. In the interval at 8.30, Time Signal and Announcements. 8.45, Concert of Operetta Music by Lehár, Gilbert, Pietri, Kálmán, Lombardo and Ranzato. 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 Review. 7.0, News. 7.15, Weather Report. 7.25, Le Journal Parlé. 8.30, Gramophone Concert. Overture, and Two Arias from Le Roi d'Ys (Lalo); Spanish Symphony (Lalo); La tête au hameau (Gillet); La toupie (Gillet); L'Angelus de la mer (Gonblier); Les Rameaux (Fauré); Two Monologues; Potpourri of Viennese Waltzes (Robrecht); Mazurka (Doppler); The Dancer of Seville (Gramov); Two Military Marches (Mougeot); (a) Le Téméraire, (b) Le Tram. 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Programme for Children. 7.30, Light Music on Gramophone Records. 8.0, Talk for Farmers. 8.15, Interval. 8.30, Variety Programme. 9.0, Interval. 9.15, Schumann Recital by Raoul Kozalski (Pianoforte) and Jean Witkowski (Cello): Carnaval; Stücke im Volkston; Fantasiestücke. 10.20, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Johann Strauss Operetta Potpourri (Schlosser) on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Protestant Address. 12.30 p.m., Concert for Children: Album for the Young (Schumann); Selection from Dolly (Fauré). 1.0, Exchange, News and Weather. 1.5, Recital on Two Pianofortes by Aline Van Barentzen and Janine Weill: Three Waltzes (Chabrier); Suite breve (Aubert); The Blue Danube (Joh. Strauss). 1.30, Exchange. 1.35, Concert of Modern Operetta Music: Selection from The Pink Lady (Carvil); Monolulu, from Elle est à vous (Yvain); Ouagadougou, from Kadubec Selection (Szulc). 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Gramophone Records. Overture and Passepied from La Basoche (Messager); Song from The Drum Major's Daughter (Offenbach); Pas ça, from Madame l'Archiduc (Offenbach). 6.45, Legal Talk: The Question of the Nationality of Married Women. 7.0, Talk: French Poetry before 1870—Henri de Regnier. 7.20, Orchestral Concert. Phlis (de Sévérac); Fête Florentine (Mignan); Chanson rêvée (Pesse); French March (Ganne). 7.45, Commercial Prices, News and Review of the German Press. 8.0, Symphony Concert, conducted by Eugène Bigot. Soloist: Léon Kartum (Pianoforte). Prelude and Fugue (Bach-Hartmann); Concerto in E Flat for Pianoforte (Mozart); Orchestral Suite from Shylock (Fauré); Pastorale d'été (Honegger); Symphony (Lazzari). In the interval at 8.30, News and Weather; at 8.40, Review by Christophe, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA). 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.** 7.30 p.m., Health Talk. 7.35, KDKA Home Forum. 7.55, Care of the Garden, by Alfred C. Hottes. 8.0, Betty and Bob, from **New York.** 9.15, A Classic—all Request Programme. 8.30, Radio Sky Pilots. 8.45, State Federation of Pennsylvania Women—(Subject to be announced). 9.0, Teaberry Baseball Scores. 9.5, Business News. 9.15, Programme to be announced. 9.30, Weather and Market Reports. 9.45, Programme to be announced. 10.0, Teaberry Baseball Scores. 10.5, Programme to be announced. 10.15, Dick Daring, from **New York.** 10.30, Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Programme to be announced. 11.15, Time and Weather. 11.17, Teaberry Sport Review. 11.22, Press News Review. 11.29, Temperature Report. 11.30, Vick's Song Weavers. 11.35, Riggs and Moke. 11.45, Today's News, by Lowell Thomas, from **New York.** 12 Midnight, Pepsodent Amos 'n Andy, from **New York.** 12.15 a.m. (Friday), V and P Programme. 12.30, Programme to be announced. 12.45 to 3.15, **New York** Relay. 12.45, Merle Thorpe Talks. 1.0, Captain Diamond's Adventures. 1.30, Time and Rin Tin Tin Thrillers. 1.45, Thurston, the Magician. 2.0, Death Valley Days. 2.30, Wayne King's Orchestra, with Lady Esther. 3.0, Dr. Curtis Howe Springer.

PORSGRUND. See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW. 4.10 p.m., See **Brno.** 5.10, Talk on Economics. 5.20, Programme for Children. 5.50, Variety Music on Gramophone Records. 6.5, Agricultural Report. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Agricultural Talk. 7.0, Chimes. 7.1, News Bulletin. 7.10, English Lesson. 7.25, See **Brno.** 8.5, Talk. 8.20, See **Brno.** 9.0, Time Signal. 9.1, Concert of Romantic Czech Music, conducted by V. Blazek. Overture, Bretislav and Jitka (Vilem Ambros); Symphony in E Flat The Hunting Symphony (Kittl). 10.0, Time Signal. 10.1, News Bulletin. 10.15, Organ and Pianoforte Recital from the Beranek Cinema. Rhapsody in Blue (Gershwin); Waltz, La plus que lente (Debussy); Serenade (Rachmaninov); Tango, Rosita (Tichy); Beloved (Sanders); Melody (Fletcher); If I had you (Conelly). 11.0 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Geneva, 395 kc/s, 760 metres.**—6.35 p.m. (from **Lausanne**). Italian Lesson. 7.0 (from **Geneva**). Weather and News. 7.20 (from **Lausanne**). Answers to Correspondence. 7.30 (from **Geneva**). Talk: Graphology. 8.0 (from **Lausanne**). Pianoforte Recital by Yvonne Gamboni: Chaconne (Handel); Sonata in B Minor (Scarlatti); Sonata in D (Scarlatti); Horizon (Sterlin-Vallon); Etude in A Flat (Blanchet); Idylle (Chabrier); Scherzo Waltz (Chabrier). 8.30 (from **Lausanne**). L'autre fils Comedy in Three Acts (Decourcelle). 10.5, News and Weather. 10.15 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW. 9.30 p.m., Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes and News Bulletin. 10.30, Reading. 11.0, Concert by the Station Quartet, with Violin Solos by Georg Takács. After the Concert, Popular Music on Gramophone Records.

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.**—1.0 p.m., Humorous Talk. 1.5 to 2.15, Concert of Variety Music. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30 to 6.30, Soloists Concert. Margherita Cossi (Soprano), Nilde Pignatelli (Violin), and Germano Arnaldi (Pianoforte). Violin Solos: (a) Andante in E Flat (Mulé), (b) Allegretto (Borchertini-Kreisler); Soprano Solos: (a) Aria from William Tell (Rossini), (b) Serenata indiana (Castelnuovo-Tedesco); Syncopations for Pianoforte; Soprano Solos: (a) Salii sul pesco con la scala d'oro (Zandonai-Melenis), (b) Giorno per giorno (Alfano), (c) Al mondo ci vuol sorte (Del Valle de Paz); Violin Solos: (a) Andante con moto (Cesavola), (b) Presto (Clementi-Principe). 6.40 (Naples), Shipping and Sports Notes. 6.50, Agricultural and Dopolavoro Notes. 7.20, Giornale Radio and Gramophone Records of Light Music. 8.0, Time and Announcements. 8.15, Gramophone Records of Light Music. 8.30, Giornale Radio and Sports Notes. 8.45, Concert of Music by Salvatori Antoni Manzocchi: Intermezzo from the Third Act of Stella; Aria from Dolores; Soprano Solo from La donna di Prévannes; Selection from Sevcio Torelli; Talk on Literature and Art. 10.0 (approx.). Concert of Light Music, with the Collaboration of Lydia Johnson. 10.55, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.**—11.45 p.m., Stock Reports. 12 Midnight to 2.0 a.m. (Friday), **New York** Relay. 12.0, Fleischmann Hour. 1.0, Captain Henry's Show Boat. 2.0, Lucky Strike Hour, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—6.30 p.m. (from **Basle**), A Discussion on Modern Photography. 7.0 (from **Basle**), Time, Weather, and Announcements for Workers. 7.15 (from **Basle**). Italian Lesson. 8.0 (from **Basle**), Brahms Concert, relayed from the Conservatoire. 9.30, Weather and News. 9.40 (approx.), Concert by the Station Orchestra. 10.15 (approx.), Close Down.

SOTTENS. See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—5.5 p.m. (from **Göteborg**), Divine Service. 5.30, Programme for Children. 5.45, Popular Music on Gramophone Records. 6.45, Elementary English Lesson, relayed from **Jönkoping, 1,490 kc/s, 201.3 metres.** 7.30, Talk. 8.0, Concert of Light Music by the Station Orchestra, conducted by Hjalmar Meissner; Soloist: Olaf Neilsen (Violin): Invitation to the Dance (Weber); Minuet (Boccherini); Musette (Gluck); Waltz (Gungl); Polka, Bitte schön (Joh. Strauss); Galop, Champagne (Lumbye); Spanish Dance (Moszkovsky); Hungarian Dance (Moszkovsky); Violin Solo, Serenade from Les Millions d'Arlequin (Drigo); Tango from Die Teufels Reiter (Kálmán); Foxtrot, The King's Horses (Gay-Graham). In the interval, Talk: From Gavotte and Minuet to Foxtrot and Tango. 9.15, Radio Report of a visit with the Microphone to a Rubber Factory, relayed from **Malmö, 1,301 kc/s, 231 metres.** 9.45, Weather and News. 10.0, Sacred Concert of Music by Bach, relayed from St. Jacob's Church; Conductor: Set Svanholm. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Variety Music on Gramophone Records. 12 Noon, Orchestral Concert conducted by Maurice de Villers. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Orchestral Concert of French and Operetta Music, conducted by Maurice de Villers: Overture, Le petit Faust (Hervé); Selection from: (a) L'oeil crevé (Hervé), (b) Mam'zelle Nitouche (Hervé); Pieces (Offenbach): (a) Overture, La belle Hélène, (b) Selection from The Drum-Major's Daughter, (c) Selection from The Grand Duchess of Gérolstein, (d) Selection from Madame l'Archiduc. 2.0, Programme for Children. 3.0 to 4.30, Interval. 4.30, Programme for Children, relayed from **Bordeaux-Lafayette.** 6.0, Talk in German: The Renaissance and the Gothic Period. 6.15, Talk for Women. 6.30, Dance Music on Gramophone Records. 7.20 Time and News. 7.45, Gramophone Concert: Two Airs from Richard Coeur de Lion (Grétry); Air from Si j'étais roi (Adam); Du moment qu'on s'aime from Zémire et Azor (Grétry); Serenade from L'amant jaloux (Grétry); Air from Mirella (Gounod). 8.15, Press Review in German and Lottery Results. 8.30, Monsieur Beaucaire—Operetta in Three Acts (Messager). In the interval, Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—1.15 p.m., Time and News. 1.30, Opera Music on Gramophone Records. 2.0, Concert arranged by the Post Office. 2.30, Spanish Lesson. 3.0, English Lesson for Beginners. 3.30, Programme for Children. 4.30, See **Munich.** 5.45, Time, Weather, and Agricultural Notes. 6.0, Talk: The Spirit within us. 6.25, Talk on Modern Italy. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, See **Frankfurt.** 9.0, Cesar Flaischlen Memorial Programme: Introductory Talk, Songs and Recitations. 9.20, Concert of Slav Music, conducted by Ferdinand Drost: Symphony No. 6 (Tchaikovsky); Die Moldau (Smetana). 10.15, Time, News, Weather, and Programme Announcements.

SUNDSVALL. See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to fire. 7.30 p.m., Military Music. 7.45, Songs from Operettas. 8.0, Accordion Solos. 8.15, Popular Songs. 8.30, Orchestra Music. 9.0, Extracts from L'Africaine—Opera (Meyerbeer). 9.30, Viennese Music. 9.45, Concert of Light Music and Symphony Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Tangos. 11.15, Balalaika Music and Russian Songs. 11.30 to 12 Midnight, Programme in English by the I.B.C., W. Brown-Constable announcing. 11.30, Song and Dance Programme: Mona Lisa (Sullivan); Just two Hearts (Stolz); You are my Heart's Delight from The Land of Smiles (Lehár); Jeannine, I dream of Lilac Time (Shilkret); There's a Rainbow round my Shoulder (Rose); Dream a little Dream of me (Schwartz); One little Raindrop (Richman); Blues in my Heart. 11.57, I.B.C. Goodnight Melody. 12 Midnight, Weather and Announcements. 12.5 a.m. (Friday), Popular Songs. 12.15, Symphony Music. 12.30 (approx.), Close Down.

TRIESTE

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

TRONDHEIM. See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 900 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—5.10 to 6.0 p.m., Concert of Variety Music. 6.35, Giornale Radio, Agricultural, and Dopolavoro Notes. 7.0, Time, Tourist Report, and Gramophone Records of Light Music. 7.20, Giornale Radio. 7.45, Gramophone Records (contd.). 8.0, Announcements. Giornale Radio, Weather, and Gramophone Records of Popular Music. 8.50, Talk on the following Transmission. 9.0, An Opera (to be announced). In the intervals: Talk, Literary Notes, and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and 5,969 kc/s, 50.26 metres (Evening); 10 kW.—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; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,013 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.**—7.0 p.m., Concert of Light Music. 7.30, Time, Weather, and Programme Announcements. 7.35, Concert (contd.). 8.15, Topical Talk. 8.30, Sicilian Vespers—Opera in Five Acts (Verdi). In the interval at 10.0 (approx.), News. 11.0, 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., Programme Announcements. 12.10, Light Music on Gramophone Records. 12.30, Weather Report. 12.35, Sixteenth Concert for Schools relayed from the Philharmonic. The Philharmonic Orchestra, conducted by M. Mierzejewski. Soloists: Mme. Bar (Pianoforte) and W. Niemczyk (Violin). Overture, Figaro (Mozart); Scherzo and Finale of Symphony No. 1 (Beethoven); First Movement from the Violin Concerto in G (Mozart); Pianoforte Solos: Nocturne in C Minor (Chopin); Waltz in A flat (Chopin); Mazurka in A flat (Chopin); La fileuse (Moniuszko-Melcer); Ballet Music from The Countess (Moniuszko); Mazurka from Jananta (Moniuszko). 3.10, News and Economic Report. 3.25, Light Music on Gramophone Records. 3.35, Talk. 3.50, Popular Music on Gramophone Records. 4.25, French Lesson. 4.40, Talk. 5.0, Light Music on Gramophone Records. 5.40, Topical Talk. 5.55, Programme Announcements. 6.0, Light Music from the Cafe Adria. In the interval, News. 7.0, Miscellaneous Announcements. 7.20, Agricultural Notes. 7.30, Reading. 7.45, Radio Journal. 8.0, Love and Spring: Vocal and Orchestral Concert. Conductor: S. Navrot. Soloist: Mme. Konarek-Korska (Soprano). In the interval, Sports News and Radio Journal. 9.30, Programme from **Cracow, 959 kc/s (312.8 metres).** 10.15, Dance Music from **Lwów, 788 kc/s (381 metres).** 10.55, News, Weather Report and Police Notes. 11.0, Dance Music from the Café Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MAY THE TWELFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Brahms Centenary Concert, from the Queen's Hall.
LONDON REGIONAL	"Stardust and Sawdust," a play by L. Devine and T. W. Rees.
MIDLAND REGIONAL	Variety programme.
NORTH REGIONAL	Lieder and sonata recital.
SCOTTISH REGIONAL	Band concert.
BELFAST	"The Enthusiast," an Ulster comedy by L. Purcell.

ABROAD

BERLIN (Deutschland-sender)	7 p.m. "Blut und Boden," a radio sequence (relayed by other German stations).
BUDAPEST	8.20 p.m. The Concert Orchestra, conducted by F. Friedl.
HUIZEN	8.40 p.m. Concert by the Amsterdam Orchestral Society.
PALERMO	8.45 p.m. Opera: "André Chénier," by Giordano.
POSTE PARISIEN	Operetta: "Phi-Phi," by Christiné.
PRAGUE	8 p.m. Opéra-comique: "The Two Widows," by Smetana.
ROME	8.45 p.m. Symphony concert, conducted by V. Gui.
VIENNA	9 p.m. Paul Hindemith concert.
WARSAW	8.15 p.m. Symphony concert from the Philharmonic.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gardening Talk. **7.15,** Talk: Life in Sunatra. **7.30,** Time Signal. **7.31,** Baritone Solos by Frank Cowle. **7.40,** Yellow Dust—Play, by Sidney Carroll and Company. **8.10,** Baritone Solos by Frank Cowle. **8.20,** The Station Orchestra. **9.0,** Soprano Solos by Josephine Tyrrell. **9.15,** Variety Concert by the Station Orchestra with T. C. Earls and A. J. Thornton. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations and Market Prices. **10.10,** Concert by the Station Orchestra. **10.30,** Orchestral Concert. **11.15,** Concert by the Vilalta Orchestra, relayed from the Café Espanol. **12.0 Midnight,** (in an interval) 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 News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert of Operetta Music. Soloists: Franco Signorile (Tenor) and Mlle. de Santis Bruno (Soprano). Prelude and Sicilienne, from Cavalleria rusticana (Mascagni); Tenor Solo from Rigoletto (Verdi); Soprano Solo from Lorcley (Catalani); Intermezzo from I quattro rusteghi (Wolf-Ferrari); Tenor Aria from André Chénier (Giordano); Soprano Solo from La Traviata (Verdi); Selection from Act II of Fedora (Giordano); Prelude to Act I of Dejanice (Catalani); Soprano Aria from Mephistopheles (Boito); Tenor Solo from Tosca (Puccini); Selection from Tosca (Puccini); Soprano Aria from A Masked Ball (Verdi); Romance from Act III of Lodoletta (Mascagni). In the interval, Talk. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER; 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Orchestras, conducted by Alois Melnichard: Gramophone Concert: Waltz, Wiener Bonbons (Joh. Strauss); Waltz, Wiener Blut (Joh. Strauss); Waltz, Die Schönbrunner (Lanner); Waltz, Loreley Rheinklänge (Joh. Strauss, Senr.); Polonaise from Eugene Onegin (Tchaikovsky). After the Concert, Second Weather for Farmers. **12.55,** Time Signal. **1.45,** News. **2.0,** Popular Music on Gramophone Records. **3.0,** Talk for Girls: The May Bride. **3.30,** Weather and Exchange Quotations. **3.45,** Reading: Das Requiem (Friedrich Huch). **4.0,** See **Leipzig. 5.0,** Educational Talk. **5.25,** Talk: Nietzsche. **5.50,** Topical Talk. **6.0,** A Poem. **6.5,** Chamber Music: Prelude in D Minor (Ertel); Scherzo (Schauss); Adagio and Rondo for Harmonium and Pianoforte (Weber); Adagio and Rondo for Harmonium, Flute, Oboe, Viola, and 'Cello (Mozart). **6.30,** A Discussion on Spurious Works of Art. **6.50,** Weather for Farmers and Wireless Announcements. **7.0,** Transmission for all German Stations; Pomerania—a Radio Sequence. **8.0,** See **Stuttgart. 8.30,** See **Frankfurt. 9.30,** A Radio Sequence from a Berlin Newspaper Press. **10.0,** Weather, News, and Sports Notes. **10.25,** What People are talking about in America, relayed from America (on Gramophone Records). **10.45,** Weather Report for Shipping. **11.0,** See **Leipzig. 12.30 a.m. (Saturday),** Close Down.

BERLIN

WITZLEBEN; 715 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Pianoforte Recital by Johann Strauss: Four Impromptus, Op. 90 (Schubert): (a) in C Minor, (b) in E Flat, (c) in G Flat, and (d) in A Flat. **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Announcement. **8.10,** Folk Song Recital. **8.30,** Talk: Berlin Humour. **9.0,** Concert by the Station Orchestra, conducted by Dr. Heinrich Swoboda: Symphonic Rhapsody, Triumph des Lebens (Peterka); Concerto for Orchestra (Fincke); Symphonic Overture, Op. 13 (Kornauth). **10.0,** Weather, News, and Sports Notes. **10.15** (approx.), Orchestral Concert, conducted by Hermann Henrich, relayed from the Stadthalle, Magdeburg: Overture, The Caliph of Bagdad (Boieldieu); Ballgeflüster (Meyer-Helmund); Helmsman's Song, from The Flying Dutchman (Wagner); Chorus from Rienzi (Wagner); Selection from Coppélia (Delibes); Waltz, Das Leben ein Tanz (Joh. Strauss, Senr.); Rhapsody (Lalo); Millöcker Potpourri; Waltz, Trau, schau, wem (Joh. Strauss); March, Alte Kameraden (Teike) **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.30,** News. **7.40,** Light Music on Gramophone Records. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News. **8.30,** Symphony Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.5 p.m.,** Concert by the Station Orchestra, conducted by Fr. Dyk; Soloist: Emma Simandlová (Songs); Overture (Weinberger); Song: Children's Ballad, Op. 28 (Novák); Slav Rhapsody, No. 1 (Dvorák); Song: Mountain Ballad, Op. 28, No. 2 (Novák); Elegy (Suk); Waltz, Olga (Figus-Bystry); Waltz, No. 4 (Dvorák). **6.55,** Report. **7.0 to 10.15,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW., and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert. **1.45,** Time, Weather, News and Exchange. **2.5,** Brahms Gramophone Concert. Programme arranged by the Post Office. **3.10,** Agricultural Prices. **3.40,** Programme for Young People. **4.5,** Talk: Brahms as Friend and Rival of Wagner. **4.30,** Concert of Light Music by the Fritz Wollner Orchestra, relayed from the Café Vaterland. **5.30,** Agricultural Prices. **5.35,** Reading (Kurt Flemming). **6.0,** Talk: The National and Social Function of Museums and Picture Galleries. **6.25,** Programme to be announced. **6.50,** Weather for Farmers, News and Cattle Market Prices. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert of Old Breslau Dances by the Station Orchestra, conducted by Franz Marszalek. **8.20,** Announcements. **8.30,** See **Frankfurt. 9.10,** Carl Hauptmann Memorial Programme. **10.0,** Time, Weather, News, Sports Notes and Programme Announcements. **10.20,** Reading. **10.40,** Concert from **Frankfurt. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Smetana Concert by the Station Orchestra, conducted by Jan Janota: Overture, Libussa; Aria from Dalibor; Selection from The Secret; Aria from The Devil's Rock; Selection from Two Widows. **4.55,** Theatre Notes. **5.5,** See **Prague. 6.5,** Talk: Creative Art. **6.15,** Talk for Workers. **6.25,** German Transmission; News, Sports Notes, Talk, and Variety Items. **7.0** till Close Down, See **Prague. 10.15** (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 Paul Leemans; Soloist: Mme. Ramboux (Songs); Coronation March (Meyerbeer); Suite from Les Erynnies (Massenet); Songs: (a) Aimono (Rosati), (b) L'Offrande (Hahn); Selection from Rose Marie (Friml); Violin Solo: La Gitana (Kreisler); Songs: (a) Il Bacio (Tosti), (b) Les enfants et les amoureux (Flegier); Selection from Ciboulette (Hahn). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert of Serenades on Gramophone Records. **2.0,** Educational Programme. **5.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps: Extracts from A Midsummer Night's Dream (Mendelssohn); Pavane pour une Infante défunte (Ravel); Golliwog's Cake-Walk (Debussy); Divertissement (Kumps). **6.0,** Talk on Morality. **6.15,** Gramophone Concert: Prelude (Debussy); Toccata (Debussy); Theme with Variations (Tchaikovsky). **6.30,** Music by the Ugane Quartet: Le vieux château (Mireille); Le Jardinier qui boite (Mireille); Potpourri of Old French Songs (arr. Robère). **6.50,** Concert by the Small Station Orchestra, conducted by Paul Leemans: Siamesische Wachtparade (Lincke); Strauss Potpourri (Weber); Selection from The Tzarevitch (Lehar); L'enclume (van Cost); Waltz, Petite Yvonne (Sachs); La Bouquetière de Séville (Wyn and Langlois). **7.15,** Talk on Dentistry. **7.30,** Legal Talk and Literary Report. **8.0,** Béranger Song Recital by Mme. Froidebise. Mme Urban, M. Akers, M. Coppois, and M. Lambrechts; Commentary by M. Eugene Colin. **8.45,** Programme for Ex-Servicemen. **9.0,** Song Recital (contd.). **10.0,** Le Journal Parlé. **10.10,** The Listeners' Quarter of an Hour. **10.25,** Concert of Light Music by the Orchestra Bistrouille A.D.O. **11.0,** La Brabançonne.

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 Paul Leemans: March, Jägertreue (Witte); Overture, Alessandro Stradella (Flotow); Serenade (Lincke); Selection from A Kiss in Spring (Kálmán); Potpourri—Alt Wien in Lied und Tanz (Pachernegg). **12.30 p.m.,** Pianoforte Recital by Mlle. Ida Lowy; Capriccio (Scarlatti); Scherzo (Moskowsky); Perpetuum mobile (Weber); Waltz (Chopin). **12.50,** Song Recital by Ernst Busch on Gramophone Records. **1.0,** Le Journal Parlé. **1.10,** Oscar Straus Concert on Gramophone Records: Extracts from A Waltz Dream; March from Die Teresina; Waltz from The Chocolate Soldier; Waltz from Marietta; Oh, that Mitzi from An Hour with you; Waltz from Die Teresina; Song from Jenny Lind. **2.0,** Educational Programme. **5.0,** Concert by the Station Orchestra, conducted by M. André: Italian March (Rousseau); Spanish Pieces (Albeniz); Serenade (Lôr); Waltz (Gossiaux); Tempo-tempo (Dostal); In the Bay of Naples (Eilenberg); Ballet Music from The Sleeping Beauty (Tchaikovsky). **5.45,** Programme for Children. **6.30,** Extracts from The Mikado—Opera (Gilbert and Sullivan) on Gramophone Records. **6.55,** Flemish Song Recital by M. Bolleyn (Baritone). **7.15,** Talk on Gardening. **7.30,** Talk on Wireless. **8.0 to 11.30,** Programme in Commemoration of the First Socialist Broadcast for Belgium made from the Hilversum Station. **8.0,** Music by De Fliere-fluiters under the direction of Jan van de Horst. **8.25,** Children's Songs by De Roodborstjes. **8.40,** Music by De Fliere-fluiters. **9.0,** Talk. **9.5,** Talk: Five Years of Socialist Broadcasting in Belgium. **9.15,** Children's Songs by De Krekeltjes. **9.30,** Instrumental Music. **10.15,** Peer Gynt Suite (Grieg) by the Orchestra of the Workers' Radio Society (V.A.R.A.), conducted by Hugo de Groot: Soloists: Willem Van Cappellen and To van der Sluys (Songs). In the interval at **10.0,** Le Journal Parlé, followed by Light Music on Gramophone Records. **11.30** (approx.), Close Down.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Song Recital by Mme. Hélène Gorgos. Staccato-Polka (Mulder); Aria from Die Fledermaus (Joh. Strauss); The Nightingale (Alabiev). Waltz. **8.20,** Concert by the Station Orchestra: Manhattan March (Sousa); Suite Mozartiana (Tschaikovsky). **9.0,** Talk. **9.15,** Concert by the Station Orchestra. Soloists: Nistor Stavar (Horn) and T. Sibiceanu (Pianoforte): Concerto for Horn and Orchestra (Weber); Concerto in E flat for Pianoforte and Orchestra (Rio Gebhardt). **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.30 p.m. to 12 Midnight.**—**5.0 p.m.,** Song Recital by Helene Ladanyi: Panina's Aria from The Magic Flute (Mozart); Mondnacht (Schumann); Song (Saint-Saëns); Spätherbst (Tarnay); Song (Szabados); Aria from La Traviata (Verdi); Aria from A Masked Ball (Verdi); Der Schmetterling (Szabados). **5.30,** Talk. **6.0,** Concert by the Arpád Károlyi Cigány Band. **7.0,** Talk for Workers. **7.30,** Talk, with Gramophone Illustrations: Mexican Music. **8.20,** Concert by the Budapest Concert Orchestra, conducted by F. Friedl: Overture, Maritana (Wallace); Selection from Tiefland (d'Albert); Selection from Samson and Delilah (Saint-Saëns); Wedding Waltz from Pierrette's Veil (Dohnanyi); Selection from Die schöne Helene (Szabados); March Potpourri (Komzak). **9.45,** News Bulletin. **10.0** (approx.), Programme to be announced.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Carl Rydahl Instrumental Ensemble: Overture, Lucia di Lammermoor (Donizetti); Melody (Turina); Valse des fleurs (Waldteufel); Selection from Martha (Flotow); Suite (Rosenberg); Resignation (Schröder); Rapsodietta (Gade); Serenata napoletana (Sgambati); Selection from Paganini (Lehár); March, Los Banderillos (Volpatti). **1.30 to 2.10,** Interval. **2.10,** Reading. **2.30,** Concert for Children by a Children's Choir. **3.0,** Concert by the Radio Orchestra, conducted by Launy Grondahl; Soloist, Gerda von Bülow (Violin): Overture, Alessandro Stradella (Flotow); Selection from Mephistopheles (Boito); Sommersang (Petersen-Berger); Waltz, In the Moonlight (Fahrbach); Norwegian Dance (Grieg); Russian March (Ganne); Violin Solos: (a) Arioso (Handel), (b) Gavotte (Lully), (c) Adagio in E (Mozart); Poupée valsante (Poldini-Kreisler); Entry March of the Boyards (Halvorsen); Overture, Le Caïd (Thomas); Waltz (Gungl); Melody in F (Rubinstein); March (Sousa). **5.0,** Divine Service, relayed from Christiansborg Castle Church. **6.20,** Talk. **6.50,** Weather. **7.0,** News. **7.15,** Time and Sports Notes. **7.30,** Talk on the National Museum. **8.0,** Time Signal from the Town Hall. **8.1,** Programme by Per Knutzon. **8.10,** Anders Tikjob—Radio Play, after V. Ostergaard's Rosenkildes Fortaelling, with Incidental Music. **9.40,** Pianoforte Recital by Viktor Fischer: Sweet Pepper (Hans Löhr); Der Gaukler (Groitzsche); Choppstyk (Mayert). **10.0,** News. **10.15,** Danish Music by the Radio Orchestra, conducted by Launy Grondahl: Overture, Aladdin (Hornemann); Piece from the Suite, In Alhambra (Lange-Müller); Prelude to Once Upon A Time (Lange-Müller); Selection from Völund Smed (Henriques); Overture and Dance from Mascarade (Nielsen). **11.0,** Dance Music by the Kai Julian Band, relayed from the National Scala. In an interval at **12 Mid-**

night, Time Signal and Chimes from the Town Hall. **12.30 a.m. (Saturday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Light Music on Gramophone Records. **12.30 p.m.,** News. **12.45,** Concert of Light Music. **5.30 to 7.0,** Programme in English by the I.B.C., Announcers C. Danvers-Walker, T. St. A. Ronald and B. McNabb. **5.20,** Concert of Light Music for Southampton and Winchester Listeners; Vienna, Vienna (Foss); Ständchen (Heykens); Songs: (a) To Mary, (b) Maire, my Girl, (c) Beauty's Eyes; Waltz, Gold and Silver (Lehár); The Woman in the Shoe (Brown); Songs: (a) Heather Moon, (b) Passing by, (c) On a Dreamy Summer Night; Memories of Paris (Moretti); Valencia (Padilla). **6.15,** Concert of Accordion Music and Songs for Bournemouth and Weymouth Listeners: Popular Selection; C'est un petit nid (Eblinger); Songs: (a) Life (Sarony), (b) Poor Kid (Gilbert); La Javanette (Bozi); Selection from Congress Dances (Heymann); Mona Lisa (Carter); Songs: (a) Just a Dancing Sweetheart (Tobias), (b) Lily of Laguna (Stuart); Whistling Waltz (Reeves); Now you're in my arms; Regimental March of the Dorsetshire Regiment. **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **7.45,** Agricultural Notes. **8.0,** Popular Music on Gramophone Records and News. **8.30,** Concert relayed from Le Havre. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Deolians: Skin-a-ma-link the Sergeant; Sing Something Simple; My Heart is where the Mohawk flows to-night; Whistling in the Dark; Me; Maybe it's the Moon; Makin' faces at the Man in the Moon; Two hearts; It must be true; It always starts to rain; I found you; Faithfully yours; Dream a little Dream of me; Cupid's Army; Bubbling over with Love. **11.0,** Symphony Orchestra: Overture, A Midsummer Night's Dream (Mendelssohn); Morning, from the Peer Gynt Suite (Grieg); Song without Words (Tchaikovsky); The Witch's Ride, from Hansel and Gretel (Humperdinck); The Gingerbread Waltz, from Hansel and Gretel (Humperdinck); A Supper with Suppé (Morena). **11.30,** Vocal Concert: Brothers of the Empire (Helmore); The Two Grenadiers (Schumann); Waltz, Gold and Silver (Lehár); Selection from Il Trovatore (Verdi); Vulcan's Song (Gounod); Largo al factotum (Rossini); Song of the Flea (Mussorgsky); Minuet (Mozart). **12 Midnight,** Club Concert for Fowey, Saltash and Bodmin Listeners: Selection from Merrie England (German); Beware of the Maidens (Craske); Sea Songs; The Song of the Nightingale (A'Beckett); Ho, Jolly Jenkin (Sullivan); Pretty Flowers; The Musical Clock of Madame Pompadour (Noack); A Soldier's Song (Mascheroni); One More Day; Sleepy Valley (Hanley); In Sheltered Vale (Clarke); Blow the man down; Waltz from Bitter Sweet (Coward). **1.0 a.m. (Saturday),** Hawaiian Band: Hawaiian Hotel; Mantilla Moon (Gaston); Kilima; Hawaiian Love (Gaston); La Paloma (Yradier); Palikiko Blues; My Wakiki Mermaid; Aloma (Boxers). **1.30,** Vocal Duets: Pasadena Rose; Liza Lee; Hawaiian Stars are gleaming; Orchestra; Happy Interludes; That silver-haired Daddy; My Baby just cares for Me; When I was a boy from the Mountains. **2.0,** Dance Music by the Deolians: I love a Parade; Lullaby of the leaves; I do like to see a Game of Football; Underneath the Arches; Listen to the German Band; Paradise; The Clouds will soon roll by; Round the Marble Arch; Just another Dream of you; It ain't no fault of mine; They all start whistling Mary; Love me to-night; Happy go lucky you; While we danced at the Mardi Gras. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG. See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc s, 259.3 metres; 17 kW., **Cassel, 1,220 kc s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** See **Munich. 5.50,** Economic Notes. **6.0,** Talk: Hygiene in the Home. **6.25,** Legal Talk. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Talk: The Splitting up of the Atom. **8.30,** Concert by the Station Orchestra, conducted by Reinhold Merten. Soloist: Willi Wörle (Tenor). Overture, The Siege of Corinth (Rossini); Ballet Music from Aida (Verdi); Arias (Verdi) from: (a) Aïda, (b) A Masked Ball; Forest Murmurs from Siegfried (Wagner); Aria from The Valkyries (Wagner); Siegfried's Rhine Journey and Siegfried's Death from The Dusk of the Gods (Wagner); Overture, Der Bettelstudent (Millöcker); Aria from Der Bettelstudent (Millöcker); Lagunenwalzer from Eine Nacht in Venedig (Joh. Strauss); Emperor Waltz (Joh. Strauss). **10.0,** The German Almanac. **10.10,** Time, News, Weather and Sports Notes. **10.30,** Concert by the Station Orchestra, conducted by Reinhold Merten. Soloist: Gustav Lenzewski (Violin). Concerto for Violin and Orchestra (Czernik); Bilder aus dem Süden (Nicodé); Violin Concerto in D Minor, Op. 9 (Spohr); Sommertag auf dem Lande, Op. 55 (Gade). **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

Call ha (in Morse), **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.,** Hamburg, Lübeck, and Bremen—Report from the Senate and Citizens' Councils of the Hanseatic Free Cities. **6.0,** John Brinkman—a Radio Dialogue. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** A German Requiem (Brahms), relayed from the Musikhalle; The Hamburg Singakadamie Choir, and the Philharmonic Orchestra, conducted by Eugen Papst; Soloists: Jo Vincent (Soprano), Rudolf Bockelmann (Baritone), and G. Knaek (Organ). **9.30,** Recitation of Ballads by Carl Hagemann. **10.0,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** See **Berlin (Witzleben). 10.35,** Concert from **Leipzig.**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**1.0 p.m.,** Report on the East Prussian Motor Race. **1.20,** News. **1.30,** Gramophone Concert: Military March No. 4 (Schubert) Villanelle (Dell' Acqua); Donauwellen (Ivanovici); First Movement from the Violin Concerto in D, Op. 77 (Brahms); Songs (R. Strauss): (a) Nachtgesang, (b) Ruhe, meine Seele; Tiroler Echo (Stebl) By the Blue Hawaiian Waters (Ketelbey). **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Programme for Children. **4.0,** Talk for Women. **4.30,** Concert from **Leipzig. 5.30,** Reading. **5.50,** Talk: German Gymnastics Society. **6.15,** Agricultural Prices. **6.20,** Talk: The Art of Pianoforte Playing, with Mozart Illustrations—Sonata in D, Sonata in A. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 8.15,** Shakespeare and Verdi—a Musical and Literary Radio Sequence, from Falstaff and The Merry Wives of Windsor; The Station Choir and the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. **10.0,** Weather, News, and Sports Notes. **10.15,** Report on the First Day of the East Prussian Motor Race.

HILVERSUM

1,013 kc s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.) **12.40 p.m.,** Time Signal. **12.41,** Popular Music on Gramophone Records. **1.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, The Black Domino (Auber); Ballet egyptien (Luigini); Selection from Lohengrin (Wagner); Two Slav Dances (Dvorák); Gramophone Records: Waltz, Loreley Rheinklänge (Johann Strauss); Two Spanish Dances (Moszkowsky); La Serenata (Braga); Potpourri, Von Wien durch die Welt (Heuby); Orchestral Suite, Callirhoé (Chaminade); Weber Potpourri (Urbach). In the interval at **2.40,** Talk. **3.40,** Variety Music on Gramophone Records. **4.40 to 8.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Extracts from Die Fledermaus Opera (Joh. Strauss), on Gramophone Records. **5.40,** Programme for Children. **6.10,** Concert by the Platrogibas Quartet. **6.56,** Organ Solo, Prelude (Guilmant). **7.0,** Programme in Commemoration of Pitz Jelles Troelstra; The Dutch String Quartet; Soloist: J. Jong (Organ): Andante con moto from the String Quartet in E Flat (Mozart); Recitations; Organ Solo, In Memoriam (Rheinberger); Recitations; String Quartet: No. 2, Op. 59 (Beethoven). **7.20,** Concert by De Fluerelluiters, conducted by J. v.d. Horst. **8.25,** Light Music on Gramophone Records. **8.40 to 11.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **8.40,** Religious Address. **9.10,** String Quartet in C Minor, Op. 51, No. 1 (Brahms), by the Hague String Quartet. **9.40,** Talk. **10.10,** Concert. **10.40,** News Bulletin. **10.55,** Talk on Brahms. **11.25,** Gramophone Records. **11.40** till Close Down, V.A.R.A. Programme. **11.40,** Organ Recital by Johan Jong: Vanity Waltz (Wiedoeft); Tangolita (Abrahams); Song (Katscher); Piece (Ganwin); La naissance de Pierrot (Monti); Selection from The Desert Song (Romberg). **12.10 a.m. (Saturday),** Variety Music on Gramophone Records. **12.40** (approx.), Close Down.

HORBY. See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.40** till Close Down. Programme of the Christian Radio Society (N.C.R.V.). **11.40,** Two Trios for Violin, 'Cello, and Pianoforte: (a) Trio, Op. 1, No. 3 (Beethoven), (b) Trio No. 1 (Mozart). **12.40,** Police Notes. **12.55,** Popular Music on Gramophone Records. **1.10,** Concert by the Van der Horst Trio and J. v. Ginkel (Clarinet). Overture, Fra Diavolo (Auber); Seid umschlungen Millionen (Strauss); Suite from Feramors (Rubinstein); Selection from Aida (Verdi); Popular Music on Gramophone Records; Prelude to Loreley (Bruch); March of the Sirdar (Ippolitov-Ivanov); Selection from La Navarraise (Massenet); Intermezzo (Beece); Selection from The Flying Dutchman (Wagner). **2.40 to 3.10,** Interval. **3.10,** Religious Address. **3.40,** Talk for Housewives. **4.10,** Organ Recital. **5.10,** Talk for Young People: Photography. **5.40,** Pianoforte and Violin Recital by Elsa Nolthenius and J. van Helden: Sonata No. 3 in E (Bach); Sonatina in G, Op. 100 (Dvorak); Light Music on Gramophone Records; Three Pieces (Delaussy); (a) Poissons d'or, (b) Bruyères, (c) Minstrels; Spanish Dance (Granados-Thibaud); Pastorale (Ravel-Dushkin); Gipsy Caprice (Kreisler). **6.40,** Talk. **7.10,** Horticultural Talk. **7.40,** Police Notes. **7.55,** Religious News. **8.10,** Literary Talk. **8.40,** Concert by the Amsterdam Orchestral Society, conducted by F. van Diepenbeeck. March, Ernst August (Blankenburg); Overture, Banditenstreiche (Suppé); Golden Rain (Waldteufel); Frühlingserwachen (E. Bach); Frisch gesungen (Silcher); Lutzows wiede Jagd (Weber); Ave Maria (Bach-Gounod); Ballet Music from Faust (Gounod); March (Fucik). **9.40,** Talk. **10.10** Concert (contd.): Romantic Overture (Kéler-Béla); Invitation to the Waltz (Weber); Selection from The Pearl Fishers (Bizet); Air from La Gioconda (Ponchielli); Selection from La Traviata (Verdi). In the interval at **10.40,** News. **11.25,** Light Music on Gramophone Records. **12.25 a.m. (Saturday),** Close Down.

INNSBRUCK. See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News Bulletin and Financial Notes. **8.10,** Esperanto Lesson. **8.30,** Radio Concert. **9.0,** News Bulletin. **9.15,** Radio Concert (contd.) **12 Midnight to 1.0 a.m. (Saturday),** Programme in English by the I.B.C. **12 Midnight,** Recital of the Songs of Gracie Fields: Life's Desire (Hargreaves); Now that you're gone (Kahn); They all fall in love (Evans); Melodious Memories (arr. Finck); Just one more Chance (Cosloy); When we all went to the Zoo (Kester); The mocking Bird (Malvern); More Melodious Memories (arr. Finck). **12.30 a.m. (Saturday),** Concert by a Tango Band: Play, Fiddle, play (Lawrence); Rosa Mia (Guizar); To-night (Kennedy). Zigeuner (Schwabach); Good bye Argentina (Rodriguez); Farolito (Traditional); Rose Colon (Polito); La Cumparsita (Rodriguez). **12.57,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG. See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE. See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Haydn Concert: The Station Chamber Orchestra and Choir, conducted by Josef Breier; Soloists, Hansen (Soprano) and Strienz (Bass); Overture in D; Minuet and Finale from the Symphony, The Schoolmaster; Pastorale; Song, Aria from The Seasons; The Birthday Cantata; Aria with Choral Accompaniment from The Seasons; Serenade from the String Quartet in F; The Farewell Symphony. **12.50 p.m.,** Weather, Time and News. **1.0,** Concert, conducted by Wolf. In the interval at **2.0,** News. **2.30 to 3.15,** Sponsored Programme with Gramophone Records. **3.30,** Economic Notes and Time. **3.50,** Programme for Children. **4.30,** Concert: Martha Schulz Körner (Soprano), Egbert Grape (Accompanist), Julia Menz (Harpsichord), and Hermann Drews (Pianoforte): Sonata in A Minor, Op. 61, No. 2, for Pianoforte (Haas); Songs: (a) Wie wundersam (Schillings), (b) Märchen (Schillings), (c) Schlummerlied (Siegl), (d) Am Wiesenbach (Siegl), (e) Freundliche Vision (R. Strauss), (f) Morgen (R. Strauss); Harpsichord Solos (Scarlatti): (a) Sonata in A Minor, (b) Sonata in C, (c) Sonata in E; Songs: (a) Die Lerche (Humperdinck), (b) Die Schwalbe (Henschel), (c) Vogellied (Greger); Satzfolge No. 2 (Erpf). **5.50,** Talk: Swiss Towns in German Cultural Life. **6.10,** Review of German Books. **6.25,** English Conversation. **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** News. **8.5,** Concert by the Small Station Orchestra, conducted by Eysoldt: Overture, The Cunning Peasant (Dvorak); Im Garten, from Ländliche Hochzeit (Goldmark); Selection from Der Kuhreigen (Kienzl); Suite campestre (Scassola); Talk: Old German Peasant Anecdotes: Rural Suite (Ailbout); Mädels und Burschen (Clemus); Ländler (Pachernegg); Peasant Dances (Merbing); Selection from The Merry Peasant (Fall). **10.5,** News and Sports Notes. **10.25,** Serenade on Gramophone Records. **10.45,** Concert from **Frankfurt. 12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Chamber Music on Gramophone Records. First Movement from the Trio in B Flat, for Clarinet, 'Cello and Pianoforte Op. 11 (Beethoven); Air on the G String (Bach); Moment musical (Schubert); Romanze (Schumann); Scherzo from the Quartet in A Minor (Schumann); Third Movement from the Sonata in C Minor for Violin and Pianoforte, Op. 45 (Grieg); Second Movement from the String Quartet in F (Haydn); Minuet from the Quartet in E (Dittersdorf); First Movement from the Quintet in F Minor (Brahms). Exchange Quotations after the Concert. **2.0,** Notes on Art. **2.30,** Talk: The Care of Fruit Trees. **2.45,** Talk: German Gymnastics and National Education. **3.15,** Talk: The D.L.G. Exhibition and the Countrywoman. **3.35,** Exchange Quotations. **4.0 to 5.50,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloist: Prof. Robert Reitz (Violin). Overture to a Comedy by Shakespeare (Paul Scheinpflug); Violin Concerto, Op. 50 (Artur Rösel); Kaiserwalzer (Joh. Strauss); Symphonic Burlesque, Harlekinstreiche (Carl Schroeder); Von künftigem Glücke, Op. 15 (Kienzl); Overture, Des Meeres und der Liebe Wellen (Robert Fuchs). In the interval from **5.0 to 5.25** Review of Books. **5.50,** Exchange, Weather and Time Signal. **6.0,** A Tour of the German Room of the Dresden Picture Gallery. **6.30,** Songs by the Henneker-Quartet. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloist: Emil Geusseler (Bassoon). Champagner-Ouvertüre (Waldemar von Baussnern); Concerto in E Flat, for Bassoon (Adolf Mühlings); Rhapsody in B Minor, Op. 25 (W. Hartung); Reading: Vom tollen Bomberg; Four Pieces from Op. 76a (Philipp Scharwenka); Hilmar-Walzer (Max Delnert); Prelude to Die Zwillinge (Karl Weis). **9.30,** News. **9.45,** Reading: Tante Frieda (Ludwig Thoma). **10.15,** News. **10.40,** Songs by Käte Heidersbach and Marcel Wittrisch (on Gramophone Records). **11.0** (also on **Zeesen, 31.38 metres**), Chamber Music of Friedrich von Dalberg's Day. Trio Sonata in G, for Flute, Violin and Bass (Carl P. E. Bach); Songs for Soprano: (a) Der sterbende Christ und seine Seele (Friedrich von Dalberg), (b) Aria from Walder (Georg Benda); Fantasia in C Minor (Grassler); Andante with Variations from the Pianoforte Quartet, Op. 25 (Friedrich von Dalberg); Flötenmusikstücke (Haydn). **12.30 a.m. (Saturday),** Close Down.

LINZ. See **Vienna.**

LJUBLJANA

522 kc s, 574.7 metres; 7 kW. **6.0 p.m.,** Quintet Concert. **7.0,** French Lesson. **7.30,** Talk on Geology. **8.0,** Programme not yet announced, relayed from **Belgrade, 697 kc/s, 430.4 metres. 9.0,** Time and News. **9.30,** Concert relayed from the Café Zvezda. **10.30** (approx.), Close Down.

LYONS

LA DOUA, 644 kc s. 465.8 metres; 1.5 kW. —**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Concert arranged by the Vienne Aero Club, relayed from the Théâtre, Vienne. Soloists: Mme. Odette Lamotte (Soprano) and Mlle. Henriqué (Pianoforte). Addresses by the Mayor and by President of the Club. Talk by Dr. Trenel. Soprano Solos: Aria from (a) The Daughter of the Regiment (Donizetti), (b) Waltz Song from Mireille (Gounod), (c) Aria from La Traviata (Verdi); You are my Heart's Delight, from The Land of Smiles (Lehár); Pianoforte Solos: Rhapsody in E Flat (Brahms); Two Pieces (Schumann); Barcarolle, No. 2 (Faure); Variety Items. After the Concert, News.

MADRID

ARANJUEZ (EAQ), 9,860 kc s, 30.43 metres; 20 kW. **11.30 p.m.,** Light Music. **11.45,** Radio Chronicle. **12.0 Midnight,** Light Music (contd.). **12.35 a.m. (Saturday),** Answers to Correspondents. **12.40,** Spanish-American Talk. **12.45,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW. **7.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Request Gramophone Records, and Variety Items by Ramon Gomez de la Serna. **9.15,** News Bulletin and Political Review. **9.30 to 10.30,** Interval.

10.30, Chimes, Time Signal, and Political Review. 10.40 (approx.), Interviews with Artists before the Microphone. 11.0 (approx.), Melania—Musical Play (Zubizarreta), relayed from the Coliseum. 12.45 a.m. (Saturday), News Bulletin and Programme Announcements for Listeners Abroad. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—4.55 to 10.15 p.m., 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., Concert, conducted by Erich Kloss: Overture, Alessandro Stradella (Flotow); Madrigal and Minuet (Bolzoni); Selection from Manon (Massenet); Suite, Wedding Music (Jensen); Viennese Dance Melodies (Gärtner); Suite, As you like it (Zilcher); Veil Intermezzo from Mona Lisa (Schillings); Kleine Tanzszene (Kallenberg). 5.45 (from **Nürnberg**), Talk: Little Known Customs from the Germanic Period. 6.5, Folk Song Recital by Elvira Bonavia. 6.20, Time, Weather and Agricultural Notes. 6.35, Talk on Colonial Expansion. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.5, Readings from Modern German Women Poets. 8.20, Goethe Songs to the Lute by Oscar Besenfelder. 8.45, Talk on the following Transmission. 9.0, Hannibal's Journey across the Alps—Radio Sequence (Q. Engasser). 10.20, Time, Weather, News, Sports Notes and Traffic Report.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.0 p.m., Concert by the Station Orchestra, conducted by Hugo Kramm: Overture (Reissiger); Bizet Potpourri (Urbach); Gavotte-Caprice (Nortkiewicz); Elegy (Rachmaninov); Schön Rosmarin (Kreisler); Solitude (Bull); Old Porcelain (Humphries); Minuet (Bjorko); Johann Strauss Potpourri (H. Weber). 6.0, French Lesson. 6.30, Talk. 7.0, Announcements, Weather and News. 7.30, English Lesson. 8.0, Time Signal. 8.1, Sacred Concert relayed from the Trofoldighet Church. 9.0, Talk. 9.30, Foreign Agricultural Market Report. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Reading from Hiawatha. 10.45 (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Report, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 8.20, Light Music on Gramophone Records. In the interval at 8.30, Time Signal and Announcements. 8.45, André Chenier—Opera in Four Acts (Giordano). In the intervals, Talk on Music and Announcements. 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 Review. 7.0, News. 7.15, Weather Report. 7.25, Le Journal Parlé. 8.30, Musical and Literary Programme for Young People. 9.15, Concert by the Symphony Orchestra, conducted by E. Flament. Soloists: René Bas (Violin) and M. Marchesini ('Cello). Serenade (Malats); Alborada Gallega (Veiga); Jardin Sevillano (Millan); Violin Solo, Selection from Miss Deeima (Audran); 'Cello Solo, Langueur d'amour (Flament); Overture, La Dame Blanche (Boieldieu). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Sponsored Talk. 7.10, Popular Music on Gramophone Records. 7.55, Review of the Week. 8.0, Talk on Music. 8.15, Interval. 8.30, Phi-Phi—Operetta (Christiné). 10.30, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Light Music on Gramophone Records. 8.0, Press Review and Weather. 12 Noon, Jewish Talk. 12.30 p.m., Gramophone Concert: Overture, Anacreon (Cherubini); Eclat de rire from Manon Lescaut (Auber); Allegro (Dittersdorf); Selection from Le Postillon de Longjumeau (Adam); Tambourin du triomphe (Destouches-Casadesus); Symphonic Poem, Mazeppa (Liszt); Adieux à la forêt, from L'attaque du moulin (Bruneau); Violin Concerto (Bruch); Ballet Music from The Three-Cornered Hat (Falla); Berceuse (Gretchaninov); La plus que lente (Debussy); Sinfonia breve (Ingelbrecht). In the interval at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange. 3.45, Exchange and Market Prices. 4.10, Elementary English Lesson. 6.10, Agricultural Report. 6.30, Review of New Books. 6.50, Insurance Societies' Report. 7.0, Talk. 7.20, Gramophone Concert: Granada (Garcia); A Parthenay (Weckerlin); Aubade printanière (Lacombe); Myrto (Petit); Rondo (Andolfi); Serenade, Severo Torelli (Schattè); Le retour du marin (Tiersot); Le Biniou (Durand). 7.45, Commercial Prices and News. 8.0, Talk by Georges Colin: Great Romantic Actors: Mounet Sully. 8.30, News and Weather. 8.40, Gastronomic Review. 8.45, Gramophone Records: Un tout petit baiser, from Louis XIV (Pares-Van Parys); Au salon de l'auto (Bach and Laverne); Tango, Te cambiaron la pinta (Tabanillo); Where is my Baby to-night?. 9.0, Le vol nuptial (de Croisset), relayed from the Théâtre de la Michodière). 9.15 (in an interval), Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres** and **25.27 metres.**—7.30 p.m., Health Talk by Dr. Royal S. Copeland. 7.35, KDKA Home Forum. 8.0, Betty and Bob, from **New York.** 8.15, International Sunday School Lesson by Rev. S. S. Lappin. 8.30, John Dunlap (Tenor). 8.45, Morin Sisters, from **New York.** 8.55, Teaberry Baseball Scores. 9.0, Talk by Dr. Emlyn Jones. 9.10, Business News. 9.15, S.A.I. Musicale—Carnegie Tech Chapter. 9.30, Weather Report. 9.31, Market Reports. 9.45, Programme to be announced. 10.0, Teaberry Baseball Scores. 10.5, Muskingum College Music Clubs. 10.15, Dick Daring. 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Programme to be announced. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reeler. 11.29, Temperature Report. 11.30, Vick's Song Weavers. 11.35, Riggs and Moke. 11.45 to 3.0 a.m. (Saturday), **New York** Relay. 11.45, To-day's News by Lowell Thomas. 12 Midnight, Pepsodent Amos 'n' Andy. 12.15 a.m., A. and P. Programme. 12.30, Five Star Theatre—Charlie Chan. 1.0, Nestlé's Programme. 1.30, Time Signal and Adventures in Health. 1.45, Howard Thurston—the Magician. 2.0, The First Nighter. 2.30, Armour Programme. 3.0, Dr. Curtus Howe Springer.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Brno.** 4.55, Talk: Electricity in Modern Houses. 5.5, Smetana Commemoration Concert by the Ondricek Quartet: Pianoforte Trio in G Minor, Op. 15; Duet for Violin and Pianoforte. 6.5, Agricultural Talk. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Two Talks. 7.0, Chimes. 7.1, News Bulletin. 7.10, Programme in Memory of Charlotte Garrigue Masaryk. Talk, followed by String Quartet No. 2 in D Minor (Smetana). 7.50, Talk on the following Transmission. 8.0, The Two Widows—Comic Opera in Two Acts (Smetana), relayed from the National Theatre. In the intervals at 9.0 and 10.0, Time Signals. 10.30, News. 10.45 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Geneva, 395 kc/s, 760 metres.**—7.0 p.m. (from **Lausanne**), Weather and News. 7.30 (from **Geneva**), Talk: The Future of Aviation in the Stratosphere. 8.0 (from **Lausanne**), Chamber Music by the Milan Trio: Trio in E Minor (Haydn); Chamber Sonata (Corelli); Trio Sonata No. 1 (Pergolesi); Andante and Scherzo from the Trio in C Minor (Mendelssohn). 9.0 (from **Geneva**), Concert of American Negro Music, by the Orlova Choir and the Broadcasting Serenaders, conducted by J. Pasche. Soloist: Hugues Cuénod. 10.0, News and Weather. 10.15 (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.**—1.0 to 2.15 p.m., Orchestral Concert: Lasst mich deine Carmen sein (Holländer); Donna Grazia (Ravasini); Festa di maggio (Culotta); Valzer d'amore (Amadei); One more kiss (Rose); The Enchantress (Chaminade); Bacco in Toscana (Brogi); Ke-sa-ko (Chapnis); Three Roses (Strecken); Anima catalana (Cortopassi). 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30 to 6.15, Song and Pianoforte Recital. 6.40 (**Naples**), Shipping and Sports Notes. 6.50, Agricultural and Dopolavoro Notes. 7.0, Report of the International Institute of Agriculture (in Italian and English). 7.20, Giornale Radio. 7.30, Sports Notes. 8.0, Time and Announcements. 8.5, Gramophone Records of Light Music. 8.30, Talk on Ariosto. 8.45, Symphony Concert, conducted by Vittorio Gui. 10.55, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—8.0 p.m., Biblical Drama. 8.15, Moore Triangle Club, from **New York.** 8.30, Echoes of Erin, from **New York.** 8.45, Stock Reports and Police Notices. 9.0 to 11.45, Interval. 11.45, Stock Reports. 12 Midnight, Cities Service Concert, from **New York.** 12.30 a.m. (Saturday), WGY Farm Forum. 1.0 to 2.30, **New York** Relay. 1.0, Best Foods Musical Grocery Store. 1.30, Pond's Programme. 2.0, Chevrolet Programme. 2.30, Richfield Country Club, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.** 12.28 p.m., Time Signal from Neuchâtel Observatory, Weather, and News. 12.40 (from **Zürich**), Concert by the Small Station Orchestra. 1.35 (from **Zürich**), Weather and Exchange. 1.40 (approx.) to 3.30, Interval. 3.30 (from **Basle**), Concert by the Radio Quartet. 4.30 (from **Basle**), Programme for Children. 5.0 (from **Basle**), Waltzes and Descriptive Pieces on Gramophone Records. 5.30, Weather. 5.35 (approx.) to 6.30, Interval. 6.30 (from **Berne**), Programme to be announced. 7.0 (from **Berne**), Time, Weather, Market Prices, Tourist Talk, and Sports Notes. 7.15 (from **Berne**), Programme to be announced. 7.45 (from **Basle**), Talk: Switzerland and the Swiss Abroad. 9.30, Weather and News. 9.40 (approx.), Concert by the Station Orchestra. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—5.5 p.m., Folk Music, relayed from **Falun, 977 kc/s, 307 metres.** 5.30, Reading. 5.55, Popular Music on Gramophone Records. 6.55, Talk on Foreign Politics. 7.15, Weather and News. 7.30, Talk: Freiburg and Würzburg, two Centres of German Culture. 8.0, Songs to the Lute by Ewert Taube, and Recitations by Georg Funkquist. 8.30, An Evening in Sans-Souci—Radio Play. 9.45, Weather and News. 10.0, Popular Concert by a String Orchestra, with Songs by Irish Thorstenson. 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12.45 p.m., News. 1.0, Time and Exchange. 1.5, Classical Music on Gramophone Records. 2.0 to 4.45, Interval. 4.45, Literary Talk in French. 5.0, Jazz Music by the Station Orchestra, conducted by Roskam. 6.0, Concert by the Station Trio, relayed from **Lille, 1,130 kc/s (265.4 metres).** 7.0, Topical Talk in German. 7.15, Popular Music on Gramophone Records. 7.30, Time and News. 7.45, Gramophone Concert of Light Music. 8.15, Press Review in German, and Lottery Results. 8.30, Léon Moreau Concert by the Station Orchestra, conducted by Maurice de Villers. Soloists: Mme. Manjean (Songs) and M. Caron (Oboe). Symphonic Poem, Sur la mer lointaine; Song with Orchestral Accompaniment; La grotte; Two Pieces: (a) Le jour se lève (b) On danse; Humoresque; Evocations rythmiques, for Oboe and Pianoforte; Songs: (a) Le tiancé, (b) Calineric; Pastorale for Saxophone and Orchestra. In an interval at 9.30 (approx.), Press Review in French. After the Concert, Il était une bergère—One-Act Operetta (Lattes). 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—12 Noon, Popular Music on Gramophone Records. 1.15 p.m., Time, News, Weather, and Programme Announcements. 1.30, Concert from **Langenberg.** 2.0, Concert arranged by the Post Office. 2.30, Advanced English Lesson. 3.0 to 3.45, Interval. 3.45, Talk: Sunday Walks. 4.0, Folk Song Recital by Hilde Keefer-Bluthardt (Soprano) and Leo Hantz (Guitar). 4.30, See **Munich.** 5.45, Time, Weather, and Agricultural Notes. 6.0 (from **Heidelberg**), Medical Talk. 6.25, Talk: Writers and Philosophers of the Romantic Period. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Recital of Songs to the Lute. 8.30, Military Programme, Two Talks, and Marches by a Military Band. 9.0, Concert from **Frankfurt.** 10.0, Time, News, Weather, Programme Announcements, and Sports Report. 10.30, See **Frankfurt.** 12 Midnight, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmission irregular owing to fire.—7.30 p.m., Orchestral Music. 7.45, Songs from Operettas. 8.0, Accordion Solos. 8.15, Songs from Sound Films. 8.30, Saint Saëns Concert. 9.0, Fashion Review. 9.5, Concert of Songs and Military Music. 9.30, Argentine Music. 9.45, Songs from Comic Operas. 10.0, Songs from Operettas. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.30 to 12 Midnight, Programme in English by the I.B.C. W. Brown-Constable announcing. 11.30, Organ Recital. Sanctuary of the Heart (Ketelbey); Ave Marie (Bach); Four Indian Love Lyrics (Woodforde-Finden); The Storm (Shaw); Largo (Handel); In a Monastery Garden (Ketelbey). 11.57, I.B.C. Good-night Melody. 12 Midnight, Weather and Announcements. 12.5 a.m. (Saturday), Viennese Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.0 to 8.45 p.m., See **Turin.** 8.45 till Close Down, See Rome.

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.**—5.0 to 6.0 p.m., Concert of Variety Music. 6.35, Giornale Radio and Agricultural and Dopolavoro Notes. 7.0, Time and Report of the Royal Geographical Society. 7.20, Giornale Radio. 7.45, Gramophone Records (contd.). 8.0, Announcements, Giornale Radio, Weather, and Gramophone Records (contd.). 8.40 (approx.), Notes on Art. 8.45 (approx.), See **Rome.** Talk in the interval. 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; 15 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.**—5.20 p.m., Concert in C Minor—Pianoforte Recital by Paul Emerich. Prelude and Fugue in C Minor from Das Wohltemperierte, Klavier I and II (Bach); Fantasia in C Minor (Mozart); Sonata in C Minor, Op. 111 (Beethoven); Etude in C Minor, Op. 10, No. 12 (Chopin); Etude in C Minor, Op. 25, No. 12 (Chopin); March from The Loves of the Three Oranges (Prokofiev); March from the Grosse Suite (Pisk). 5.55, Talk: The Wagner Memorial in Vienna. 6.10, Tourist Report. 6.25, Talk: Gymnastics for Workers. 6.40, Sports Notes. 6.50, Talk: Carnuntum, a Roman fortified Station. 7.5, Concert of Operetta Music by the Josef Holzer Orchestra. Soloists: Maria Reining (Soprano) and Franz Zwonik (Tenor). Overture and Duet from La belle Hélène (Offenbach); Kometenwalzer from Der Kellermeister (Zeller); Tenor Aria from The Bird Fancier (Zeller); Overture, Die geschiedene Frau (Fall); Song from Die gold'ne Meisterin (Eysler); Duet from Die lustigen Nibelungen (O. Straus); Ballet Scene from Der Teufelsreiter (Kálmán); Volga Song and Duet from The Czarevitsch (Léhar); Soprano Song from Waltzes from Vienna (Strauss - Bittner - Korngold); Strauss-Millböcker-Suppé Potpourri (Ziehrer). In an interval at 7.30, Time, Weather and Programme Announcements. 8.30, Reading. 9.0, Concert by the Vienna Symphony Orchestra, conducted by Oswald Kabasta. Concerto for Viola d'amore and Orchestra (Vivaldi); Symphony in C, No. 97 (Haydn); Concert Music for Viola and Chamber Orchestra. 10.10, News, Weather and Announcements. 10.25, Traffic Report. 10.30, Dance Music by the David Mathé Band, relayed from Hübners Kursalon.

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., Programme Announcements. 12.10, Light Music on Gramophone Records. 1.20, Weather Reports. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Aviation Report and Anti-Gas Drill. 3.30, Naval and Colonial Notes. 3.35, Light Music on Gramophone Records. 4.25, Review of Periodicals. 4.40, Talk on Hygiene. 5.0, Third Concert of Songs and Pianoforte Music by the Polish Candidates for the Second International Competition at Vienna. 5.55, Programme Announcements. 6.0, Talk: May 12: Hospital Day. 6.10, Light Music from the Café Gastronomia. In the interval, News. 7.0, Miscellaneous Items. 7.20, Literary Review, from **Wilno, 533 kc/s (563 metres).** 7.30, Talk. 7.45, Radio Journal. 8.0, Talk on Music. 8.15, Symphony Concert, relayed from the Philharmonic. In the interval, Reading. 10.40, Sports Notes. 10.45, Radio Journal. 10.55, News, Aviation Weather Report and Police Notes. 11.0, Dance Music from **Cracow, 959 kc/s (312.8 metres).**

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY

MAY THE THIRTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Variety and musical comedy programmes.
LONDON REGIONAL	Military Band concert. Chamber music.
MIDLAND REGIONAL	"The Doctor's Day," a ballad comedy by W. Fitchford.
NORTH REGIONAL	Two plays: "Writing a Play," by J. R. Gregson and "Ducks and Peas," by J. Lund.
WEST REGIONAL	Police Band programme.
SCOTTISH REGIONAL	Concert by Massed School and Children's Choirs from the Usher Hall, Edinburgh.
BELFAST	Orchestral concert from the Ulster Hall.

ABROAD

LYONS-LA-DOUA	8.30 p.m. Operetta: "The Rose of Stamboul" (Fall), from Paris.
MUNICH	8 p.m. Operetta: "Where the Lark Sings," by Lehar.
PALERMO	8.45 p.m. Operetta: "Clo-Clo." by Lehar.
PITTSBURGH	1.15 a.m. (Sunday). The Boston Symphony Orchestra, from New York.
RIGA	7.5 p.m. Operetta music of the Nineteenth Century.
ROME	8.45 p.m. Opera: "Germania." by Franchetti.
SOTTENS	8 p.m. Opera: "Aida" (Verdi), from Geneva.
TURIN	8.45 p.m. Operetta: "Fior di neve." by G. Blanc (relayed from **Florence, Genoa, Milan, and Trieste**).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** Talk: Life in the Argentine. **7.30,** Time Signal. **7.31,** The Station Orchestra. **7.45,** Tenor Solos by Stephen Long. **8.0,** The Station Orchestra. **8.10,** Mezzo-Soprano Solos by Mme. Maud Hunter. **8.30,** Petit Violin de Roi—A Musical Romance. **9.45,** Sponsored Programme. **10.45,** Time Signal. News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**6.30 p.m.,** Programme for Children. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Catalan Grammar Lesson. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra: March of the Horse Guards (Gilsourt); Habanera (Cotó); Romance (Arensky); Dance from Scènes napolitaines (Massenet). **10.30,** See **Madrid (EAJ7). 12 Midnight** (in an interval), News.

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 News. **8.30,** Time Signal and Announcements. **8.35** (approx.), Il Trovatore—Opera in Four Acts (Verdi) on Gramophone Records. In the intervals, Book Review, Theatre Notes and News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW. **12 Noon,** Weather for Farmers. **12.5 p.m.,** Educational Programme: Adolf Hitler—Scenes from his Life (Eberhard Wolfgang Moeller). **12.55,** Time Signal. **1.45,** News Bulletin. **2.0,** Popular Music on Gramophone Records. **3.0,** Handwork for Children. **3.30,** Weather and Exchange. **3.45,** Reading (Menzel). **4.30,** See **Hamburg. 5.0,** Weekly Review. **5.30,** Beethoven Concert: Bruno Sänger and Alex Pietsch (Violins), H. Schumacher (Double Bass), and Herbert Zydattis (Viola): Ländliche Tänze for Two Violins and Double Bass; Duet for Viola and 'Cello. **6.0,** Poetry Reading. **6.5,** Hans Herrmann Song Recital, by Alfons Kecarius: Der Dichter spricht; Erstes Begegnen; Salomo; Kirschblüten; Alte Reiterserenade; Mahnung. **6.30,** Thoughts on Mother Day. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Dance Music, relayed from **Cologne. 9.15,** Wireless Cabaret, relayed from the Zoological Gardens. **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade, relayed from **Munich. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Wind Instrument Concert, conducted by Hermann Pape: March, Ein Manneswort (Pollack); Jubel-Ouvertüre (Weber); Waltz, Bei uns z'Haus (Strauss); Potpourri Lasst den Kopf nicht hängen (Lincke); Melody (Rivelli); Fantasia on Das treue deutsche Herz (Schreiner); Deutscher Schutztruppen-Marsch (Najork); Overture, Czar and Carpenter (Lortzing); Two Alsatian Peasant Dances (Merkling); March Potpourri, Deutschlands Erwachen (Kochmann); Paraphrase on Die Loreley (Nesvadba); Waltz, In lauschiger Nacht (Ziehrer); Die Mühle im Tal (Rhode); Prussian March (Godde). In the interval, at **5.0** (approx.), Talk: German Tennis and the Davis Cup. **6.0,** Topical Programme. **6.20,** Talk: Exemplary Lives. **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.5,** Announcement. **8.10,** Nänie (Brahms) for Mixed Choir and Orchestra, relayed from the Singakademie; The Singakademie Choir and Station Orchestra and Singakademie Choir, conducted by Prof. Georg Schumann. **8.20,** Programme from **Stuttgart. 9.0,** Ka'toffelsupp, Ka'toffelsupp—a Radio Sequence (Peter Hagen and Hans-Jürgen Nierentz). **10.0,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music, relayed from the Europa Pavillon. **12.30 a.m. (Sunday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER.—See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

985 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** Radio Journal. **7.40,** Sports Notes. **7.45,** Talk: Patent Laws. **8.0,** News, Exchange, Market Prices and Lottery Results. **8.5,** English Lesson. **8.20,** News. **8.30,** Durand et Durand—Comedy in Three Acts (Valabregue and Ordonneau).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Tichy Concert by the Station Orchestra, conducted by J. Odehnzel. **5.10,** Talk: Madame Tussaud's Exhibition in London. **5.20,** Recital of Italian Songs by Irma Weiler-Barkányi. Part I: Old Arias: Sento nel cuore (Scarlatti); Vergin tutt'amore (Durante); Caro mio ben (Giordano); Part II: Folk Songs; Part III: Modern Songs: Salve Maria (Mercadante); Prayer from Maria di Rohan (Donizetti); Ave Maria from Othello (Verdi); Nebbie (Respighi). **6.5,** See **Prague. 6.25,** Light Music on Gramophone Records. **6.35,** Talk for Housewives. **6.50,** Report. **6.55,** See **Prague. 8.25,** See **Brno. 8.55,** Programme to be announced. **10.15,** Concert by the Station Orchestra, conducted by Fr. Dyk. **11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert of Popular Music. **1.45,** Time, Weather, News, and Exchange. **2.5,** Light Music on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Film Review. **4.0,** Radio Report on the Aviation Exhibition, relayed from Gleiwitz Aerodrome. **4.15,** Book Review. **4.35,** Concert by the Station Orchestra, conducted by Bruno Janz: Overture: Die Frau Meisterin (Suppé); Ziehrer Potpourri, So schön wie's einmal war (Danbert); Serenade, Lockende Dämmerung (Lenschmer); Kabylentänze (Mory); Serenade, Heisse Liebe (Wappaus); Suite on Old Silesian Dance Themes (Wappaus); March, Jungemann (Weinhold). **5.35,** Reading (Carl Hauptmann). **5.55,** Programme to be announced. **6.20,** Concert by the Station Orchestra, conducted by Bruno Janz: Melody (Wladigerow); Romance for Violin and Orchestra (Wladigerow); Intermezzo from Si (Mascagni); Selection from Lucelotti (Künnecke). **6.50,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.10 to 10.0,** See **Stuttgart. 10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.25,** Dance Music by the Conny Franz Band, relayed from the Konzerthaus Zoo. **12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News and Elocution Lesson. **6.55,** See **Prague. 8.25,** A Radio Comedy (Peterka). **8.55,** Programme to be announced. **10.15,** See **Bratislava. 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 P. Leemans; Soloist, M. Wigy (Violin): Two Step Sohra (Demon); Overture, Les Dragons de Villars (Maillart); The Musical Snuff Box (Nicolaievsky); Selection from Véronique (Messager); Violin Solo: Zigeunerweise (Sarasate); Danse des lutins (Leemans); Waltz, For You (Burke); Selection from The Count of Luxemburg (Lehar). **1.0 p.m.,** Journal Parlé. **1.10,** Concert relayed from the Grand Hotel, Anvers; Conductor, M. André Felleman. **4.45,** Talk: The Training of Circus Animals. **5.0,** Dance Music from the St. Sauveur Palais de Danse. **6.0,** Talk: Æsthetic Education. **6.15,** Concert of Gramophone Music: Two Pieces from Le Parc d'Attractions (Blanzafort): (a) L'orgue du carrousel, (b) Polka de l'équilibriste; Nostalgia Andaluza (Martinez); Roudino on a Theme of Beethoven (Kreisler); Granada (Albeniz). **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Gil Orazù e Curiazù (Cimarosa); Valse Triste (Sibelius); Serenade (R. Strauss); Selection from Manon (Massenet); Violin Solo: Spanish Dance (Granados-Kreisler); Ballet Music from Sylvia (Delibes). **7.15,** Talk: The Art of Public Speaking in Belgium. **7.30,** Journal Parlé. **8.0,** Six Days—Play (George Charles). **9.0,** Concert by the Royale Légia, relayed from Liege. Conductor, M. Ernest Jérome: Hymne à la nuit (Rameau); Les trois capitaines (Dambois); Que n'aymez vous (Lully); Pilgrim's Chorus (Wagner); Nuit de Mai (Radoux). **9.50,** Selection from The Damask Rose (Chopin-Chutsam) on Gramophone Records. **10.0,** Journal Parlé. **10.10,** Gramophone Concert: Selection from The Windmill Man (Hollis); Serenade (Frezin); Molly on the Shore (Grainger); Mock Morris (Grainger). **10.30,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **12 Noon,** Concert relayed from the Grand Hotel, Antwerp; Conductor, André Felleman: Choir and Orchestra: Fête champetre (Zwaysen); Overture, The Magic Flute (Mozart); The Trout Quintet (Schubert); The Coffee Cantata for Soprano, Tenor and Bass (Bach). **1.0,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Paul Leemans: Overture, Raymond (Thomas); Simple aveu (Thomé); Selection from Cavalleria rusticana (Mascagni); Idylle (Razigade); Ballet Music from The Cid (Massenet); Tango (Sylvano); One Step (de Gredos). **4.45,** Book Review. **5.0,** Orchestral Concert: Overture, Maximilian Robespierre (Litolff); Russian Songs (Lado); Air from Faust (Gounod); Au bord d'une source (Liszt); Selection from Mireilla (Gounod); The Virgin of Fuji-San (Ketelbey); Air from Aida (Verdi); Selection from Cinderella (Hahn); Prayer to Our Lady (Boellmann); Melody (Sundi); Tarantelle (Popezki); Czardas (Grossmann); L'heure exquise (Hahn); Musical Comedy Potpourri (arr. Hall); Frühlingsstimmen (Joh. Strauss); The Pilgrim's Progress (Bantock). **6.15,** Talk on Joan of Arc. **6.30,** Sonata Recital by Mme. Husson-Michaux (Pianoforte) and M. Frezin ('Cello); Sonata in E Minor (Vivaldi); Sonata in F (Marcello); Song (José Servants); Dance (J. Servants). **7.0,** Concert of Gramophone Records: Prelude from La Deluge, played by Thibaud (Saint-Saëns); Si je le savais (Tchaikovsky); Spanish Dance from La Vida breve, played by Thibaud (Falla); Ronda (Granados). **7.15,** The Crisis and its effect on Agriculture in Belgium. **7.30,** Film Review. **8.0,** Concert by the Station Symphony Orchestra, conducted by Désiré Defauw; Soloists: M. Mathieu Crickboom (Violin) and M. Paul Gason (Saxophone): Preludes (Marsick); Violin Concerto (Beethoven). In the interval at **8.45,** Recitations. **9.0,** Concert (contd.): Three Pieces (Florent Schmitt): (a) Salammbo, (b) Saxophone and Orchestra, Legend, (c) La tragédie de Salomé. **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danse. **11.30,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Overture, William Tell (Rossini); Suite, Scènes alsaciennes (Massenet); Selection from Aida (Verdi); Selection from Tip Toes (Gershwin); Potpourri of Viennese Waltzes (Morena); Waltz No. 1 (Dvorak); First Movement from the Symphony No. V (Tchaikovsky); Rilky (Janacek); Violin Solo: La fille aux cheveux de lin (Debussy); March from Indigo (Joh. Strauss). In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Dramatic Programme. **9.0,** Light Music and Rumanian Music, relayed from a Restaurant. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **8.40 metres.—5.30 p.m.,** Pianoforte Recital by Eugen Zeitinger: Variations (Mozart); Nocturne (Chopin-Liszt); Melody (Chopin-Liszt); Bacchanale (Chopin-Liszt); Rhapsody No. 13 (Liszt). **6.0,** Answers to Correspondence. **6.30,** Concert by the Workers' Choral Society, conducted by Béla Rozik. **7.5,** Review of Foreign Affairs. **7.20,** Violin Recital by Eugen Hubay: Sonata in F for Violin and Pianoforte; Two Spring Love Songs (Hubay); Serenade (Hubay). **7.50,** Talk. **8.15,** Play (Géza Gárdonyi). **10.45,** News Bulletin. **11.0** (approx.), Concert by the Budapest Concert Orchestra, conducted by Wilhelm Kumor: Overture (O. Straus); Selection from Don Quixote (Garami); Ange d'amour (Waldteufel); The Old Musical Clock (Humphries); Potpourri (Géiger-Huber). **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres**; 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **3.30,** Popular Music on Gramophone Records. **3.0,** Programme for Children. **3.30,** Concert by the Louis Preil Instrumental Ensemble: Spanish March (Gyldmark); Waltz (Moe); Rogue Song (Stothart); Anelito d'amore (Leoncavallo); By the Waters of Minnetonka (Lieurance); An Indian Love Song (Lieurance); Slav Rhapsody (Friedemann); Serenade napoletana (Rivelli); Spanish Gipsy Dance (Marquina); The Old Woman in the Shoe (Brown); Ständchen No. 2 (Heykens); Pfannkuchens Geburtstag (Link); Valse Impromptu (Oldenborg-Poulsen); The Red and Blue Blues (Edwards); First Suite (Rosenberg); Ja, der Himmel über Wien (R. Fall); Nächtliche Runde (Urbach). In an interval at **4.15,** Reading. **5.40,** Exchange and Fish Market Prices. **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk: The Copenhagen of the Future. **8.0,** Time Signal from the Town Hall. **8.1,** Concert by the Radio Orchestra, conducted by Emil Reesen: Marche lorraine (Gaune); Waltz, Siesta (Waldteufel); Mazurka (Gaune); Polka, Tourniquet (Gaune); Waltz, Le retour du printemps (Waldteufel); Mazurka, La souveraine (Waldteufel); Valse des blondes (Gaune); March, Le pèrt la victoire (Gaune). **8.45,** Talk on Hans Andersen, with Reading of Extracts from his Diary and Letters. **9.25,** Duo brillante for Two Flutes (Kuhlau). **9.45,** Humorous Songs and Recitations by Knud Heglund. **10.5,** News. **10.20,** Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, Mignon (Thomas); Ballet Music from Aida (Verdi); Selection from The Barber of Seville (Rossini); Prelude and Chorus from Carmen (Bizet); Entry of the Guests into the Wartburg, from Tannhäuser (Wagner). **11.0,** Dance Music by the Otto Lington Band, relayed from the Ritz Restaurant. In an interval, at **12 Midnight,** Time and Chimes from the Town Hall. **12.15 a.m. (Sunday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**12 Noon,** Gramophone Concert of Variety Music. **12.30 p.m.,** News. **12.45,** Concert of Variety Music. **5.30 to 7.0,** Programme in English by the I.B.C. Announcers: C. Danvers-Walker, T. St. A. Ronald, and B. McNabb. **5.30,** Request Concert for Tunbridge Wells and Isle of Thanet listeners. Selection from The Maid of the Mountains (Fraser Simpson); Butterflies in the Rain (Myers); You will Remember Vienna; The Arrow and the Song (Balfe); Sweethearts of Yesterday (arr. Hall); Selection from Congress Dances (Heymann); The English Rose (German); A Yodelling Lullaby; March of the Men of Harlech. **6.15,** Concert of Light Music for Dover and Folkestone Listeners. The Devil Dance (Petersen); Dance of the Raindrops (Reeves); Songs: (a) I never knew that Daddy had a Sweetheart (Gay), (b) I've got a Feeling (Nicholls), (c) My Granny's Lullaby (Gilbert); The Wedding of the Birds (Petersen); The Clock is playing (Blaauw); Songs: (a) Silver toned Chimes of the Angelus (Campbell), (b) Eleanor (Hanley), (c) When your Hair has turned to Silver (de Rose); Song, Medley; The Cuckoo Waltz (Jonassen). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Popular Music on Gramophone Records. **8.30,** Concert of Classical Music. **11.0** till Close Down, Programme in English by the I.B.C. **11.0,** Club Concert for Falmouth and Lizard Listeners. Nautical Moments (arr. Winter); For you alone (O'Reilly); Wind in the Willows (Ellis); The Middy (Alford); My Prayer (Squire); Selection, Hibernia; Shipmates O'Mine (Sanderson); Stonecracker John (Coates); Selection from H.M.S. Pinafore (Sullivan); In an Old-fashioned Town (Squire); Wait (d'Hardelot); On the Quarter Deck (Alford). **12 Midnight,** Variety: Raspberries; Corporal Hoskins; The Wink of the Old Glad Eye; In Sunny Seville; Horses carry Tails; Cracker Jack; Slippery Sam the Stoker; You'll Die if you Worry. **12.30 a.m. (Sunday),** Popular Songs and Pianoforte Music. Songs: (a) Let me sing and I'm Happy, (b) Violet Eyes and Cherry Lips, (c) To my Mammy; Pianoforte Duet. When the Circus comes to Town; Songs: (a) Rollin' down the River, (b) Handsome Gigolo, (c) Dancing with Tears in my Eyes; Pianoforte Solo, Whoopee Medley. **1.0,** Country Dances; Eightsome Reel; Petronella; Paul Jones; Strip the Willow; Irish Set Dance; Russian Ballet; Barn Dance; Gay Gordons. **1.30,** Vocal Duets and Orchestral Music. Shake and let's be Friends; Shout for Happiness; River, stay 'way from my Door; Orchestra, Sunnyside Up; Tears; You're the one I care For; You're driving me Crazy. **2.0,** Dance Music by the Dicolians. Looking on the Bright Side; Marta; Please don't mention It; Shadows on the Window; Just hummin' Along; Long Ago; The King was in the Counting-house; Don't tell a Soul; When the Rest of the Crowd goes Home; What makes you so Adorable; By the Fireside; Moonlight on the River; Sing, Brothers; Good-night, little Girl, Good-night. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** Concert by the Station Orchestra. Part I: Conductor: Reinhold Merten. Soloist: Ada Turana (Pianoforte). Overture, Anacreon (Cherubini); Pianoforte Concerto in C Minor, Op. 37 (Beethoven). Part II: Conductor: Walter Caspar. Old Dance Music. **5.50,** Economic Notes. **6.0,** Talk: Voluntary Workers and Population. **6.25,** Talk on Bismark. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, The Romerberg—a Play (Hans Heimpel). **8.0 to 10.15,** See **Stuttgart. 10.15,** Time, News, Weather, and Sports Notes. **10.45,** See **Munich. 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

Call ha (in Morse), **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.**—**4.30 p.m.,** Concert by the Symphony Orchestra of Unemployed, conducted by Otto Ebel von Sosen: Overture, Irrfahrt ums Glück (Suppé); Finale from Aridi (Bach); Slav Rhapsody No. 2 (Friedemann); Waltz and March from Serenade No. 2 (Volkmann); Prelude, Chorus, Ballad and Dance (Suppé); Amorettentänze (Gungl); Flirt-Gallop (Ziehrer). **5.30, Hamburg, Bremen,** and **Lübeck**—Report from the Senates and Citizens' Councils of the Hanseatic Free Cities. **6.0,** Variety Programme. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.10,** See **Stuttgart. 10.0,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Topical Talk. **10.30,** Dance Music by a Military Band.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.**—**11.30 a.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Ali Baba (Cherubini); Nachtfalterwalzer (Joh. Strauss); Intermezzo (R. Strauss); Japanisches Regentrofenlied (Marx); Selection from La cena delle beffe (Giordano); Suite, Ballett-Divertissement (Blättermann); Verlorene Liebe (Reggow); Selection from Der arme Jonathan (Millöcker); Overture, Casanova (Lincke). **1.5 p.m.,** Popular Music on Gramophone Records. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange Rates. **3.30** (from **Danzig**), Handwork for Children. **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Romeo and Juliet (Bellini); Selection from La Favorita (Donizetti); Marienwalzer (Lanner); Czardas, Czikos et Bohemienne (Bohm); Jubel-Walzer (Joh. Strauss); Selection from La Rondine (Puccini); Overture, The Bohemian Girl (Balfe); March Potpourri, Als wir maeschierten (Schmidt-Hagen). In the interval at **5.0** (approx.) (from **Danzig**), Talk on Films. **5.40,** Talk: The Army and the State. **6.5,** Programme Announcements. **6.15,** Agricultural Prices. **6.25,** Brahms Festival, relayed from the Stadtkirche, Tilsit: The Tilsit Symphony Orchestra, conducted by Herbert Wilhelmy: Paneggrie and Addresses: Motet, Es ist das Heil uns kommen her, Op. 113. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** News. **8.10,** The Hunt for Elly—a Humorous Radio Sequence (Text by Ernst Jerosch). **10.0,** News and Sports Notes. **10.20,** Dance Music from **Berlin (Witzleben).** In the interval, Report on the Second Day of the East Prussian Motor Race. **12.30 a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **5.40 p.m.**).—**12.40 p.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **12.40,** Concert by the Small V.A.R.A. Orchestra, conducted by H. de Groot. In the Intervals: Gramophone Records. **2.40,** Interval. **2.55,** Light Music on Gramophone Records. **3.30,** Talk. **3.50,** Concert by the P.A.R.A. Balalaika Orchestra conducted by I. Powarjef. **4.0,** Song Recital by L. Fuld. **4.10,** Concert by the V.A.R.A. Balalaika Orchestra (contd.). **4.20,** Song Recital (contd.). **3.40,** Talk on Music. **5.10,** Talk. **5.30,** Concert by De Notenkrakers, conducted by D. Wins. **6.20,** Literary Talk. **6.40,** Concert by De Wielewaal Children's Choir. **7.10,** Concert by the Amsterdam Chamber Orchestra, conducted by Kiekens: Overture, Barbe-bleue (Offenbach); Pestherwalzer (Lanner); The Caravan (Rey); Selection from The Merry Widow (Lehár); Overture, Tancred (Rossini); Suite from Fontainebleau (Sunkay); Dance of the Dervishes (Bendix); Selection from The Drum-major's Daughter (Offenbach). In the interval at **7.40,** Talk. **8.38,** S.O.S. Messages. **8.40,** Variety Programme by the V.A.R.A. Orchestra, conducted by H. de Groot: De Flierefluiters, conducted by J. van de Horst; and De Notenkrakers, conducted by D. Wins. Soloists: J. Lammen (Bass), Mlle. E. Philipse (Songs), E. Busch (Songs), W. van Cappellen (Recitations), H. Wiggelaar (Violin), M. Komst (Trumpet), J. Huy (Saxophone) and C. Steyn (Accordion). In the intervals at **9.55,** News, and at **10.10,** Gramophone Records. **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**12.55 p.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **12.55 p.m.,** Concert by the K.R.O. Sextet. March, Proficiat (de Jong); Manchurian Sketches (Glan); Waltz, Roses from the South (Strauss); Hungaria (Leopold); Spring Song (Mendelssohn); Light Music on Gramophone Records; In der Heinzelmännchens Bar (Rosen); Selection from Rosamund (Schubert); Star of Eve, from Tannhäuser (Wagner); Waltz, Over the Waves (Rosas); Serenade (Becce); Finale. **2.25 to 2.40,** Interval. **2.40,** Programme for Young People. **3.10,** Programme for Children. **4.40,** Light Music on Gramophone Records. **4.50,** Talk. **5.10,** Concert by the K.R.O. Orchestra, conducted by M. van 't Woud. Overture, The Mikado (Sullivan); Selection from De Fremersberg (Koenemann); Old Folks at Home (Busch); My Old Kentucky Home (Busch); Gitana (Bucalossi); Russian Melodies (Ilinski). **5.55,** Recitations. **6.10,** Concert by the K.R.O. Orchestra (contd.). Four Pieces (Bizet): (a) Overture, Patrie, (b) Suite No. 2, from L'Arlésienne, (c) Selection from Carmen, (d) Overture, Djamileh. **7.0,** Press Review. **7.20,** Concert by the K.R.O. Orchestra (contd.). Marche joyeuse (Pierey); Waltz, Tesoro mio (Becucci); Selection from Les Cloches de Corneville (Planquette); Liberty March (Sousa). **7.40,** Police Notes. **7.55,** Talk. **8.15,** Light Music on Gramophone Records. **8.25,** Sports. **8.40,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. **9.10,** News. **9.15,** Recitations. **9.30,** Concert by the K.R.O. Boys (contd.). **10.10,** Programme for Catholic Scouts. **10.55,** Concert by the K.R.O. Boys (contd.). In the interval at **11.10,** News. **11.40,** Popular Music on Gramophone Records. **12.40 a.m. (Sunday),** Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News Bulletin, Financial Notes and Racing Results. **8.10,** Literary Talk. **8.30,** Concert of Light Music on Gramophone Records. **9.0,** News. **9.15,** Gramophone Concert (contd.). **12 Midnight to 1.0 a.m. (Sunday),** Programme in English by the I.B.C. **12 Midnight,** Variety Concert. Overture, Jerome Kern Potpourri (arr. Gibbons); Songs: (a) Bunkey-doodle-I-do (Sarony), (b) Riding on a Camel (Wright); Accordion Band: (a) Mona Lisa (Sullivan), (b) Whistling Waltz (Evans); Trios: (a) When the Bloom is on the Sage (Vincent), (b) Sleepy Rio Grande (Robison); Intermezzo, Music Hall Favourites; Songs: (a) Snuggled on your Shoulder (Lombardo), (b) When we're alone (Jason); Xylophone Solo: The Skaters' Waltz (Waldteufel); Quartet: Way down yonder in the Cornfield (Traditional); Song: Caller Herrin' (Traditional); Finale, Spanish March (Franco). **12.57 a.m. (Sunday),** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Talk. **6.40,** Violin Recital by Fritz Kihl. **7.5,** Talk. **7.30,** Concert of Sacred Music relayed from **Viipuri, 1,031 kc/s, 291 metres. 8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert by the Station Orchestra, conducted by Josef Breuer: Overture, Preciosa (Weber); Ballet Music from Rienzi (Wagner); Polonaise in E, No. 2 (Liszt); Selection from Othello (Verdi); Overture, Eine Nacht in Venedig (Joh. Strauss); Waltz, O schöner Mai (Joh Strauss); March, Unter dem Siegesbanner (v. Blon). **12.50 p.m.,** Weather, Time and News. **1.0,** Concert, conducted by Wolf: March, Deutsch der Rhein (Pesch); Die Schönen von Valencia (Morena); Overture, Die Felsenmühle (Reissiger); Arias from Der liebe Augustin (Fall): (a) Sei mein Kamerad, (b) Und der Himmel hängt voller Geigen; Prelude, Chorus and Dance from Das Pensionat (Suppé); Petite Suite No. 2 (Micheli); Prelude (Kark); Potpourri, Mousseux (Waldteufel). In the interval at **2.0,** News. **2.30 to 3.0,** Interval. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **3.50,** Talk: The Caves in Westphalia. **4.10,** English Reading. **4.35,** A Children's Cantata, relayed from **Soest. 5.0 to 5.30,** Concert, conducted by Wolf; Soloist: Otto Wetzel (Pianoforte). **5.45,** Talk for the Housewife. **6.5,** The World on Gramophone Records; Gottschee. **6.25,** Reading. **6.50,** Weather, Time, Economic Notes and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** News. **8.5,** The German Forest—Literary and Musical Radio Sequence (Hans Lorenz Lenzen). **10.5,** News and Sports Notes. **10.30,** Serenade on Gramophone Records. **10.45,** Serenade from **Munich. 12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12 Noon,** Weather and Time. **12.5 p.m.** (approx.), Gramophone Concert of Romantic Opera Music. **1.0,** News, Weather, and Time Signal. **1.15,** Gramophone Concert of Operetta Music: Overture, Der Opernball (Heuberger); Two Songs: (a) Aria from Die Fledermaus (Joh. Strauss), (b) Song from Gipsy Love (Lehár); Selection from Der Obersteiger (Zeller); Two Duets: (a) Duet from The Gipsy Baron (Joh. Strauss), (b) Duet from Der Rastelbinder (Lehár); Overture, The Mikado (Sullivan); Two Songs: (a) Song from Boccaccio (Suppé), (b) Song from Der Bettelstudent (Millöcker); Overture, A Night in Venice (Joh. Strauss). **1.50,** Wireless Notes and Exchange Quotations. **2.0,** Gramophone Concert: Selection from Lieslott (Künneke); Hungarian Rhapsody (Liszt); Radetzky-Marsch (Joh. Strauss); Hoch-und Deutschmeister-Marsch (Ertl). **2.30,** Wireless Talk. **2.40,** Programme for Children. **3.25,** Review of Books. **3.45,** Exchange Quotations. **4.0,** Legal Talk. **4.30,** Concert from **Berlin (Witzleben).** In the interval from **5.0 to 5.15,** Talk on Music. **6.0,** German Lesson for Germans. **6.20,** A Modern Dictionary. **6.30,** Talk: Luther's Room in the Wartburg. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.10,** See **Stuttgart. 10.30,** Radio Report of the D.H.V. Meeting in Zwickau. **10.45,** News, followed by Concert of Light Music by the Endé Orchestra. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 p.m.,** Quintet Concert. **6.0,** Talk on Ethnology. **6.30,** English Lesson. **7.0,** Programme for Workers. **7.30,** Talk on Philosophy. **8.0,** Concert by the Ljubljana Choir. **8.45,** Concert of Light Music. **9.30,** Time and News. **10.0,** Quintet Concert. **11.0** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** The Rose of Stamboul—Operetta (Fall), relayed from **Paris (Ecole Superieure, 671 kc/s, 447.1 metres.** After the Relay, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**7.0 to 9.0 p.m.,** Programme for Listeners in the Canary Islands, Guinea, and Europe. **7.0,** Concert: Two Step, Cielo Andaluz (Marquina); Selection from Maruxa (Vives); Hungarian Rhapsody No. 2 (Liszt); Potpourri of Andalusian Songs and Dances; La Busdogna; Selection from Rose Marie (Friml). **8.15,** Talk. **8.30,** Light Music. **9.0 to 11.30,** Interval. **11.30** See **Madrid** (EAJ7). In the interval, Radio Journal. **1.0 a.m. (Sunday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Medical Talk, and Request Gramophone Records. **9.15,** News Bulletin. **9.30 to 10.0,** Linguaphone English Lesson. **10.30,** Chimes and Time Signal. **10.35** (approx.), A Musical Comedy. **12.45 a.m. (Sunday),** News. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Concert by the Ostravian Tramways' Brass Band. **6.55,** See **Prague. 8.25,** See **Brno. 8.55 to 10.15,** Programme to be announced. **10.15,** See **Bratislava. 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.**—**5.5 p.m.,** Concert by the Alois Detzer Orchestra. Homage March from Sigurd Jorsalfar (Grieg). Prelude to Act III of Kunihild (Kistler). Selection from I Pagliacci (Leoncavallo). Waltz, Improvisationen (Gungl). Three Hindu Dances (Saalisi). Intermezzo, Lotosblume (Lincke). March Potpourri Auf geht's beim Schichtl (Detzer). **6.15,** Programme for Young People. **6.45,** Wireless Talk. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Where the Lark Sings—Operetta in Three Acts (Lehár). **10.20,** Time, Weather, News, and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447 1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.30 p.m.,** Popular Music on Gramophone Records. **5.15,** Programme for Children. **6.15,** On the Hardanger Fiddle and Song Recital of Norwegian Music. **6.45,** Talk on Economics. **7.0,** Announcements, Weather, and News. **7.30,** Talk: Alcohol and Crime. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. March (Blankenburg). Caucasian Suites, Nos. 1 and 2 (Ippolitov-Ivanov). Melody (Heydersahl). Elegy (Borch). Caprice viennois (Kreisler). Poem (Drdla). Carmencita (Ancell). Love Song (Sarmartini-Elman). Potpourri of Norwegian Melodies (Birknes). Frühlingsstimmen (Joh. Strauss). American Fantasia (Tobani). Wedding March (Wergeland). **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Songs and the Week's Review. **10.45,** Dance Music on Gramophone Records. **12 midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Report, Agricultural Notes and Giornale Radio. **8.20,** Sports Notes. **8.25,** Light Music on Gramophone Records. In the interval at **8.30,** Time Signal and News. **8.45,** Clo-Clo—

Operetta in Three Acts (Lehár). In the intervals, Book Review and Announcements. After the Operetta, 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.**, Illustrated Talk on Music. **7.0**, News. **7.15**, Weather Report. **7.25**, Le Journal parlé. **8.30**, Joan of Arc—Historical Play, with Music by the Station Orchestra. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé and Foreign Press Review. **7.5**, Popular Music on Gramophone Records. **7.30**, Answers to Correspondence. **7.35**, Gramophone Concert (contd.). **8.0**, Review of the Week. **8.15**, Interval. **8.30**, Concert of Music by M. C. Rousseau, played by the Composer. **9.0**, Interval. **9.10**, Dance Music by the Sonora-Radio Orchestra. **11.0**, Dance Music on Gramophone Records. **12 Midnight**, Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Light Music on Gramophone Records. **8.0**, Press Review and Weather. **12 Noon**, Concert by the Radio Paris Orchestra: Hungarian Serenade (Joncières-Roche); Mazurka from Tarass Boulba (Rousseau); Légende creole (Chapelier); Gipsy Czardas (Michiels); Napoli (Mezzacappo); Cigale et Magali (Casadesus); Donauweibchen (Joh. Strauss); In the Harbour of Port Said (Armandola); Selection from The Princess in the Golden Slippers (Rust); Mexican Serenade, Lisonja (Armandola); Thé dansant chez la Poupée (Rosen); Mendelssohn Fantasia (Foulds); Dans la sierra (Chillemont); Gipsy Festival (Heykens); Norvegienne (Nerini); Tarantella appassionnata (Nollety). In the interval at **1.0**, Exchange, News and Weather, and at **1.30**, Exchange. **2.0**, Exchange. **3.0**, Programme for Children. **3.45**, Exchange and Market Prices. **6.10**, Agricultural Talk. **6.30**, Dance Music by the Radio Paris Orchestra: A Bungalow, a Piccolo and you; I Idolise my Baby's Eyes; Murcia; Siempre; Nana, Song of my Heart; La Java des amours; Autumn Waltz; Dites-moi ma mère; Piece (Coates). **7.0**, Talk. **7.20**, Light Music by the Radio Paris Orchestra: El clavel (Zulueta); Leonora Waltz (Danielf); Ay, que calor (Silesu); Myrella (Berniaux); Song (Gershwin); El Nino (Silesu); Dengo, Dengo (Farias); Melody (Woltani); Ping Pong (Bozi). **7.45**, Commercial Prices, News, and Review of the Latin Press. **8.0**, La Roquette—Variety Programme arranged by Francis Carco. **8.30**, News and Weather. **8.40**, Review by Dorin. **8.45**, Le Conservatoire des Petits Poulbots—Sketch (Poulbot and Vasseur), by Poulbot and Billoquet. In the interval at **9.15**, Press Review and News. **10.0**, Light Music on Gramophone Records.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.**, Radio Debuts. **8.0**, Radio Troubadors, from **New York**. **8.30**, Wealth of Harmony, from **New York**. **9.0**, Teaberry Baseball Scores. **9.5**, Dance Masters, from **New York**. **9.30**, Concert Favourites, from **New York**. **9.55**, Teaberry Baseball Scores. **10.0**, The United States Government in Pittsburgh—Safety Measures for Water Navigation by H. Layfield. **10.15**, Hotel Sherman Orchestra, from **New York**. **10.30**, Behind the Law—Tales of the Pennsylvania State Police. **10.45**, Little Orphan Annie, from **New York**. **11.0**, Hotel Lexington Orchestra, from **New York**. **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22** Press News Reeler. **11.29**, Temperature Report. **11.30**, A Recreo by Bill and Alex of the Downtown Y.M.C.A. **11.45**, Jack Pettis and his Orchestra. **11.59**, Time Signal. **12 Midnight**, American Tax Payers' League, from **New York**. **12.15 a.m. (Sunday)**, The Townsend Murder Mystery, from **New York**. **12.30**, Atkinson String Ensemble. **12.45**, Homey and Old Fashioned Quartet. **1.0**, Programme to be announced. **1.15**, The Boston Symphony Orchestra, from **New York**. **3.0**, Gilbert and Sullivan Gems, from **New York**.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.**, See **Bratislava**. **5.10**, Talk on Economics. **5.20**, Czech Lesson for Germans and German Lesson for Czechs. **5.50**, Variety Music on Gramophone Records. **6.5**, Agricultural Talk. **6.15**, Talk for Workers: Workers in Czech Poetry. **6.25**, News in German. **6.30**, German Transmission: Musical Programme for Young People. **6.55**, News Bulletin. **7.5**, Talk on the Czech Language. **7.20**, Programme of Literature and Music dedicated to Mothers. **8.0**, Ten Songs, Op. 15 (Suk). **8.25**, Talk. **8.30**, Programme to be announced. **10.15**, See **Bratislava**. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.: **Geneva, 395 kc/s, 760 metres.**—**6.30 p.m.** (from **Geneva**), Review of New Books. **7.0** (from **Geneva**), Weather and News. **7.30** (from **Geneva**), Film Review. **8.0** (from **Geneva**), Aida—Opera in Four Acts (Verdi). **11.45** (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.**—**1.0 to 2.15 p.m.**, Orchestral Concert: Queridam mia (Ricciardi); Serenata (Petrelli); Impressione russa (Ferraris); Melody (Holländer); La leggenda delle ciliege (Penna); A Villa d'Este (Malvezzi); Melody (Stransky); Twilight (Fondrain); Fantoccini (Dolmesteck); Signora (Costaguta). **4.30**, Children's Radio Review. **4.45**, Report of the Royal Geographical Society and Giornale Radio. **5.5**, Exchange and Announcements. **5.15**, Reading. **5.30 to 6.15**, Organ Recital, relayed from the Reale Conservatorio San Pietro a Maiella, Naples; Fantasia and Fugue in G Minor (Bach); Prayer and Choral in A Minor (César Franck); Prelude and Fugue in C Minor (Bach); Toccata and Fugue in C (Bach); Two Pieces (Bossi): (a) Pezzo eroico, (b) Studio sinfonico. **6.40 (Naples)**, Shipping and Sports Notes. **6.50**, Agricultural and Dopolavoro Notes. **7.10**, Lesson in Morse. **7.20**, Giornale Radio. **8.0**, Time, Announcements, and Gramophone Records of Light Music. **8.30**, Giornale Radio and Sports Notes. **8.45**, Germania—Opera in Four Acts (Franchetti). In the intervals: Talk and Science Review. Giornale Radio after the Opera.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.**—**11.45 p.m.**, Stock Reports. **12 Midnight to 3.0 a.m. (Sunday)**, **New York** Relay. **12 Midnight**, Kaltenmeyer's Kindergarten. **12.30 a.m.**, The Economic World To-day. **1.0**, Band of Famous Brands. **1.15**, Zora Layman and her Debonairs. **1.30**, Neighbours—Sketch. **2.0**, B. A. Rolfe and his Terraplane Orchestra. **3.0**, Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12.28 p.m.**, Time Signal from Neuchâtel Observatory, Weather and News. **12.40** (from **Berne**), Popular Music on Gramophone Records. **1.35** (from **Berne**), Weather and Exchange. **1.45** (from **Zürich**), The Listeners' Quarter of an Hour. **2.0** (from **Zürich**), Talk on Fridtjof Nansen, the Explorer. **2.30** (from **Zürich**), Popular Music on Gramophone Records. **3.0** (from **Zürich**), Talk: The Treatment of Tuberculosis. **3.30** (from **Zurich**), Talk by Peter Vogler—Gamekeeper. **4.0** (from **Zürich**), Popular Concert. **4.40**, (from **Zürich**). Chess Lesson. **5.0** (from **Zürich**), Light Music on Gramophone Records. **5.30**, Weather Report. **5.35** (approx.). **6.30**, Interval. **6.30** (from **Basle**), Talk on Marriage. **7.0**, Chimes. **7.10**, (from **Basle**), Time, Weather, and Market Prices. **7.15** (from **Basle**), The Swiss Aviator, Alphonse Breitenbach, tells of his Adventures in India and the Himalayas. **7.45** (from **Basle**), Concert by the Milan Trio. **8.45** (from **Basle**), Reading. **9.30**, Weather and News. **9.40** (from **Basle**), Dance Music and Variety Music on Gramophone Records. **11.0** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.0 p.m.**, Orchestral Concert of Light Music. **5.5**, Programme for Children. **5.30**, Popular Music on Gramophone Records. **6.30**, The Practical Corner. **6.45** (from **Ostersund**), Cabaret Programme. **7.15**, Weather and News. **7.30**, Concert of Old Dance Music. **8.15**, Talk: The Vikings in Normandy. **8.45**, Military Band Concert, conducted by Elof Isakson: Overture, Patrie (Bizet); Norwegian Rhapsody (Svendsen); Suite (Lecocq); Blumengsflüster (Blou); Selection from Viktoria and her Hussar (Abraham); March (Kahrman). **9.45**, Weather and News. **10.0**, Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.**, Gramophone Concert of Classical Music. **12.45 p.m.**, News. **1.0**, Time and Exchange. **1.5**, Dance Music on Gramophone Records. **2.0**, Legal Talk in German. **2.15**, Light Music on Gramophone Records. **3.0**, Talk in French on Wagner. **3.15 to 4.0**, Interval. **4.0**, Orchestral Concert, conducted by Maurice de Villers: Airs (Messager); (a) Suite Junambulesque, (b) Selection from La Basoche, (c) Ballet Music from Les deux pigeons; Overture, Cigale et Magali (Casadesus); Foxtrot, Five o'clock (Ravel); Selection from Die Dreigroschenoper (Weill); Suppé Illusionen (arr. Michaelov); Rhapsody in Blue (Gershwin); Fantasia of Negro Spirituals (Foulds). **6.0**, Talk in French on Railway Improvements. **6.15**, French Elocution Lessons. **6.30**, Light Music on Gramophone Records. **7.15**, Agricultural Talk. **7.30**, Time and News. **7.45**, Gramophone Concert: Selection from Paganini (Lehár); Lehariana (Geiger); Waltz Potpourri (Robrecht); Selection from Rose-Marie (Friml). **8.15**, Press Review in German and Lottery Results. **8.30**, Variety Concert. Part I: Folk Songs by a Madrigal Choir; Part II: French Orchestral Music, conducted by Maurice de Villers. Soloist: Tiberty (Songs). Overture, Masaniello (Auber); Ballet Music, Bolero and Tarantella from Masaniello (Auber); Opening Aria from La dame blanche (Boieldieu); Overture, Jean de Paris (Boieldieu); Air from La dame blanche (Boieldieu); Selection from Le postillon de Longjumeau (Adam). In an interval at **9.30** (approx.), Press Review in French. **10.30**, Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.: and **Freiburg, 527 kc/s, 570 metres.**—**12.20 p.m.**, Max Kratz sings Songs to the Lute on Gramophone Records. **12.40**, Gramophone Concert of Marches: Erster Stahlhelm-Bundesmarsch (Blume); Stahlhelm-Bundesmarsch No. 2 (Seifert); Treu die alten (Schrobitz); Jung (Bornstedt); Stahlhelm-Marsch No. 2 (Reinbath); Franz Seldte (Blume). **1.0**, Folk Music on Gramophone Records. **1.30**, Concert from **Langenberg**. **2.30**, Time, News, Weather, and Programme Announcements. **2.45**, Readings. **3.10**, Concert by a Balalaika Orchestra. **3.30**, Programme for Children. **4.30**, See **Frankfurt.** **5.50**, Time and Sports Report. **6.0**, Talk. **6.20**, Adolf Hölzel Programme on the Eightieth Anniversary of his Birth; Talk by Prof. Hans Hildebrandt; Address by Adolf Hölzel. **6.50**, Time and News. **7.0**, Transmission for all German Stations, relayed from **Frankfurt.** **8.0** (from **Mannheim**), Palatinate Dialect Programme. **8.10**, Military Band Concert, relayed from **Donaueschingen:** Grossherzog Friedrich Marsch (Hefele); Waltz, Aus dem Hochwald (Kaulich); Potpourri, Folk Music of the Black Forest (Husadel); Old Bernese March (Schmeling); Potpourri of Swiss Folk Songs (Hänser); Alpenjäger-Marsch No. 9. **9.0**, Wenn wir uns wiedersehen—a Musical Folk Play (Hanns Albrecht von Wechmar). **10.15**, Time, News, Weather, and Programme Announcements. **10.45**, See **Munich.** **12 Midnight**, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**7.30 p.m.**, Music by a Viennese Orchestra. **8.0**, Arias from Operas. **8.15**, Accordion Solos. **8.30**, Balalaika Music and Russian Songs. **8.45**, Instrumental Music. **9.0**, Extracts from The Mastersingers—Opera (Wagner), followed by Military Music and Songs from Comic Operas. **10.0**, Songs from Sound Films. **10.15**, North African News. **10.30**, Concert for Listeners in Morocco. **11.0**, Request Concert. **11.30 to 12 Midnight**, Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30**, Musical Comedy Programme. Selection from The Gipsy Princess (Kálmán); Waltz, Kunstler leben (Joh. Strauss); Waltz, The Blue Danube (Johann Strauss); Selection from The Countess Maritza (Kálmán); Selections from Casanova (Lincke); Selection from Floradora (Stuart). **11.57**, I.B.C. Goodnight Melody. **12 Midnight**, Weather and Announcements. **12.5 a.m. (Sunday)**, Operetta Music. **12.15**, Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.35** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**6.35 p.m.**, Giornale Radio and Agricultural and Dopolavoro Notes. **7.0**, Time, Tourist Report and Gramophone Records of Light Music. **7.20**, Giornale Radio. **7.45**, Gramophone Records (contd.). **8.0**, Announcements, Giornale Radio, Weather and Popular Music on Gramophone Records. **8.30**, Talk: Events and Problems. **8.45**, Fior di nove—Operetta in Three Acts (Giuseppe Blanc). In the intervals, Review of Books, Announcements and Giornale Radio. After the Operetta, Dance Music from **Florence.**

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 Different Languages. **8.0 to 8.15 p.m.**, Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 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, 254.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**5.35 p.m.**, May is Here—Concert by the Viennese Male Voice Quartet and the Karl Eisele Orchestra. Soloist: Maria Gerhart (Soprano). Unter der lachenden Sonne (Eisele); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Rustle of Spring (Sinding); Spring Serenade (Lacombe); Wanderlied (Hlinak); Quartet: Ich lieg so gern im grünen Gras (Martin); Waltz, O schöner Mai (Joh. Strauss); Frühling ist es wieder (Engel-Berger); Ja, der Himmel über Wien (R. Fall); Selection from Frühlingsluft (Jos. Strauss-Reiterer); Waltz, Wien im Frühling (Pehm); Bienenhaus-marsch (Schneider). **6.50**, Talk: Moods. **7.20**, The Maxim. **7.25**, Time, Weather, Sports Notes and Programme Announcements. **7.35**, Harpsichord Recital by Alice Ehlers: English Suite in A Minor (Bach); Fugue (Pachelbel); Toccata in G (Bach); Le coucou (Daquin); Le rappel des oiseaux (Rameau); The Hunt (Canpioni). **8.15**, Mutter von Berg—Play in Three Acts (Lula Vollmer). **9.40**, News, Weather and Announcements. **9.55**, Concert by the Gantnerberger Orchestra: Overture, Eine Nacht in Venedig (Joh. Strauss); Waltz, Ein Walzer aus Wien (German); Ziehrer Potpourri, So schön wie's einmal war (Dauber); Polka, Stadtparkfreuden (Lilienau); Song, Traumersehnte süsse Frau (Loewe-Jascha); Spanish Serenade (Welser); Waltz, St. Hubertus (Gangberger); Potpourri, Wien bei Nacht (Komzak).

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.**, Programme Announcements. **12.10**, Light Music on Gramophone Records. **1.10**, Weather Report. **1.15**, Programme for Schools from **Lwow, 778 kc/s, 381 metres.** **3.10**, News and Economic Report. **3.25**, Answers to questions on military affairs. **3.35**, Programme for Children. **4.0**, Light Music on Gramophone Records. **4.40**, Talk: A Journey to Lisbon. **5.0**, Programme for Invalids. **5.35**, News. **5.40**, Topical Talk. **5.55**, Programme Announcements. **6.0**, Divine Service, relayed from the Chapel of the Virgin at Czenstochowa. **7.0**, Miscellaneous Items. **7.20**, Talk on Gardening. **7.30**, Topical Talk. **7.45**, Radio Journal. **8.0**, Orchestral Concert of Light Music, conducted by St. Nawrot. Soloist: M. Fogg (Songs): Overture, Pique Dame (Suppé); Waltz, Kunstlerleben (Joh. Strauss); Songs; Suite (Fletcher); Narcissus (Nevin); English Waltz (Wichler); Songs; Selection from The Gipsy Princess (Kálmán); Two Pieces (Leoncavello); Waltz, Gold and Silver (Lehár); Algerian Scene (Ketelbey); Soirée solennelle à Havane (Filipucci); Marche des Journalistes (Wronski). In the Interval, Sports Notes and Radio Journal. **10.5**, Chopin Recital by Nicolai Orloff. **10.40**, Talk. **10.55**, Weather Report and Police Notes. **11.0**, Dance Music from the Bodega Dance Hall. In the Interval at **11.30**, News items for the Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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Colonial and Foreign Agents:
UNITED STATES—The International News Co., 131, Varick Street, New York. FRANCE—W. H. Smith & Son, 248, Rue Rivoli, Paris; Hachette et Cie., Rue Réaumur, Paris.
BELGIUM—W. H. Smith and Son, 71-75, Boulevard Adolphe Max, Brussels. INDIA—A. H. Wheeler & Co., Bombay, Allahabad and Calcutta. SOUTH AFRICA—Central News Agency, Ltd.
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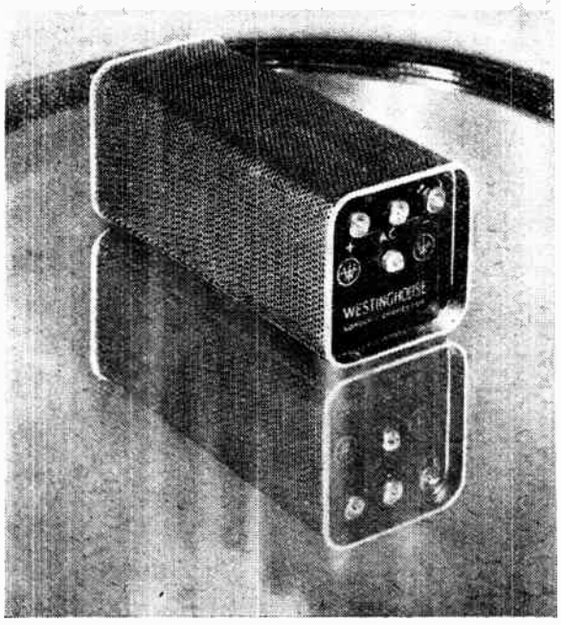

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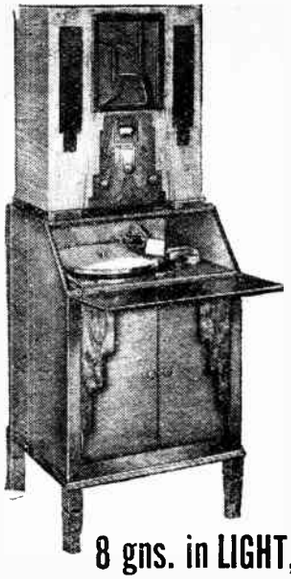

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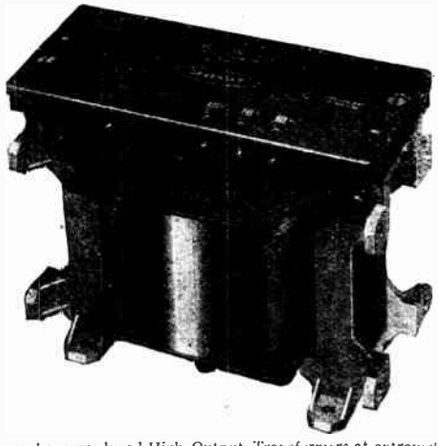

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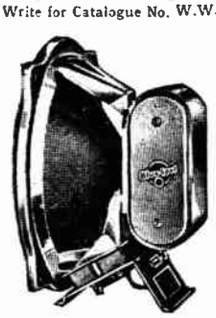

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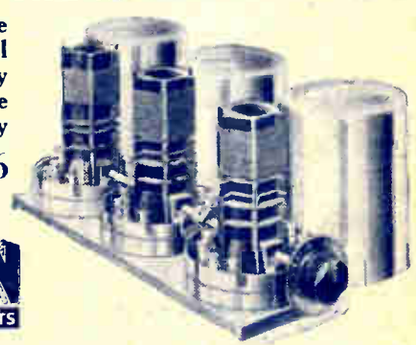

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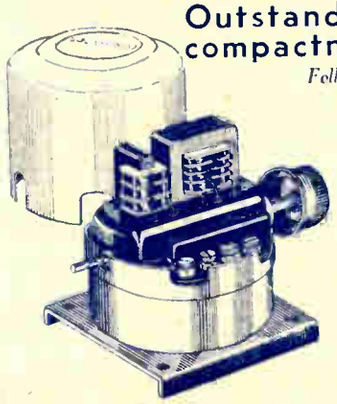

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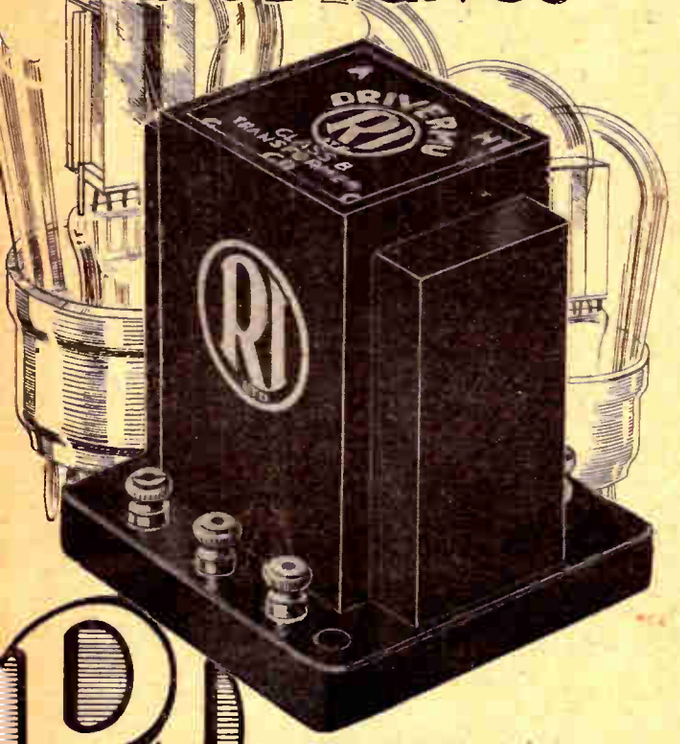

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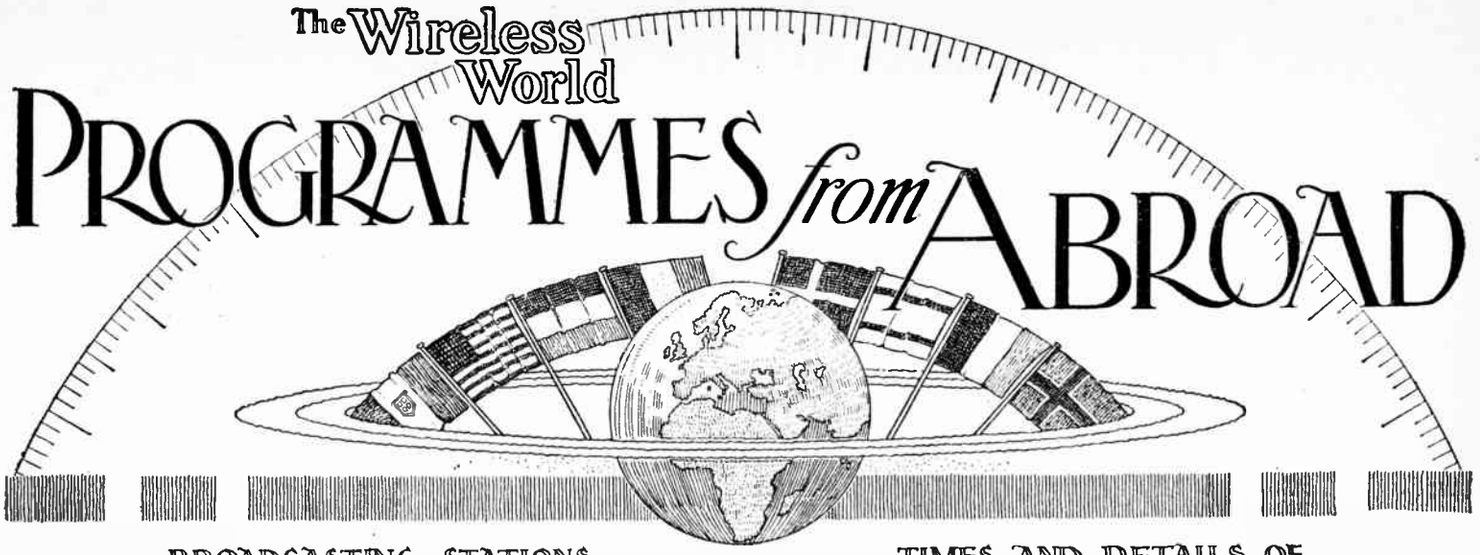

BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw I (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	0.7	Hamar (Norway). (*Relays Oslo*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	

Metres.	Kc.	kW.	Station.	Tuning Positions.
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, 1RO. (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonic du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
365.8	821	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
309.9	968	50	West Regional (*Reception Tests 11.10—11.50 a.m.*)	
312.8	959	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD

(In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
287.3	1022	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.25	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (Sweden)	
201.3	1490	0.25	Hälsingborg (Sweden)	
195	1530	0.2	Karlskrona (Sweden)	

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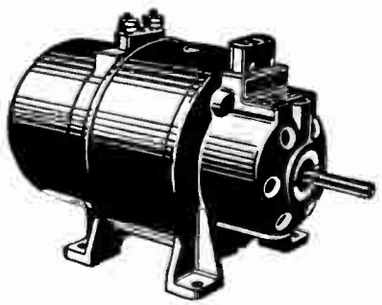

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ROTAX LIMITED, RADIO DEPT. 1, WILLESDEN, LONDON, N.W.10.

FOREIGN SUNDAY PROGRAMMES

MAY THE FOURTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Welsh service from Lampeter. Service from St. Martin-in-the-Fields.
LONDON REGIONAL	"Much Ado About Nothing," by Shakespeare.
MIDLAND REGIONAL	Orchestral concert.
WEST REGIONAL	Chopin pianoforte recital.
	Service from Soar Welsh Independent Church, Lampeter.

ABROAD

BERLIN (Deutschland-sender)	8 p.m. Popular concert.
BRUSSELS (No. 2)	8 p.m. The Station Symphony Orchestra, conducted by A. Meulemans.
BUDAPEST	5 p.m. The Concert Orchestra, conducted by N. Zsolt.
COPENHAGEN	10.25 p.m. Concert of Italian music by the Radio Orchestra.
HAMBURG	8 p.m. Symphony concert by Unemployed Musicians and the Hanover Teachers' Choral Society (relayed from **Hanover**).
HEILSBERG	8.30 p.m. Concert of German operatic music.
HILVERSUM	9.40 p.m. Song recital by Richard Tauber.
HUIZEN	8.55 p.m. Johann Strauss concert.
LANGENBERG	8 p.m. The Station Orchestra, conducted by Buschkötter.
STOCKHOLM	5.30 p.m. Schubert and Brahms song recital.
TOULOUSE	10.30 p.m. Programme in English by the I.B.C.
TURIN	9 p.m. Opera: "Falstaff" (Verdi), from the Politeama Fiorentino (relayed by **Florence, Genoa, Milan, Rome, and Trieste**).
WARSAW	9.25 p.m. The Station Orchestra, conducted by J. Ozminski.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—8.30 p.m.,** Time Signal. **8.31,** J. J. O'Reilly's Instrumental Trio. **8.50,** Poor Old Sam—A Pastoral Farce in One Act (F. M. Howard), by The Mysties. **9.20,** Pipe and Fiddle Duets, by S. MacAonghusa and F. O'Higgins. **9.35,** Mezzo-Soprano Solos by Gertrude Mortimer. **9.50,** Lecture Recital by Carl Hardebeck. **10.20,** Instrumental Trio Music. **10.45,** Pipe and Fiddle Duets. **11.0,** Time Signal, News, Weather Report and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**12 Noon,** Chimes from the Cathedral and Weather Forecast. **12.15 p.m.,** Concert by the Municipal Band, conducted by J. Lamote de Grignon, relayed from the Palacio de Bellas Artes. **2.0,** Light Music on Gramophone Records. In the interval at **2.30,** Theatre Notes. **3.0,** Film Review and Sextet Concert. **4.0,** Programme for Hospitals and other Benevolent Institutions, with Gramophone Records. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk in Catalan. **7.0,** Concert by the Station Orchestra. **7.30,** Song Recital by Pepita Paulet. **8.0,** Concert by the Station Orchestra. Soloist: Ricardo Fusté (Baritone). Prelude (Casademont). Baritone Solos: (a) Song (Hahn), (b) The Two Grenadiers (Wagner). Andante cantabile (Tchaikovsky); Dance from Henry VIII (German). Baritone Solos: (a) Aria from The Seasons (Haydn), (b) Brindis (Moya). Polonaise (Dvorák). **9.0,** Dance Music relayed from Hollywood Bar. **10.0,** An Opera on Gramophone Records. **11.45,** Chess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 p.m.,** Agricultural Talk. **11.5,** Sacred Music relayed from the Church of St. Dominic. **11.30,** Bible Reading. **1.0 p.m.,** Giornale Radio. **1.10 to 2.15,** Popular Music on Gramophone Records. In the intervals at **1.55,** Weather, and at **2.0,** Time and Announcements. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Sports Notes and Giornale Radio. **8.30,** Time and Announcements. **8.35** (approx.), Concert of Operetta Music and Songs. **10.30,** Variety Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12.5 p.m.,** Concert from **Hamburg.** In the interval at **12.55,** Time Signal. **2.0,** Demonstration of the Large Families Association, relayed from the Kriegervereinshaus. Programme of Addresses and Music. **3.0,** Talk: Germans who fought in the War in a Flight from the Cape to the Suez Canal. **3.30,** Concert from **Heilsberg. 4.30,** Talk: The Maypole and Maypole Dances. **5.0,** Concert from **Breslau. 6.0,** Historia Sacra—a Radio Report from Old Parish Registers of the Mark District. **6.40,** Flute Recital: Sonata in F (J. C. Bach); Suite, Op. 160 (Gustav Lazarus); Fête (Franz Pilowski). **7.0,** Transmission for all German Stations. Programme dedicated to German Mothers. **8.0,** Popular Concert, conducted by Richard Richter, José Eibenschütz, Horst Platen and Adolf Seeker, relayed from the Musikhalle, **Hamburg.** Soloists: Helene Gahl, Erna Kroll-Lange, Eva Schlee, Erwin Bolt, Herbert Ernst Groh and Bernhard Jackschtat (Songs). Leonora Overture No. 3 (Beethoven); Quartet from Fidelio (Beethoven); Overture, Oberon (Weber); Aria: Roll on thou mighty Ocean, roll, from Oberon (Weber); Quintet from The Mastersingers (Wagner); Overture, Tannhäuser (Wagner); Overture, William Tell (Rossini); Duet: Love is the Light of the Soul, from Rigoletto (Verdi); Prelude to Hansel and Gretel (Humperdinck); Divine Aida, from Aida (Verdi); Second Hungarian Rhapsody (Liszt). **10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Berlin (Witzleben). 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW. —**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12.5 p.m.,** Concert from **Hamburg. 12.55,** Portrait of a Mother (Joseph Wittig). **1.5 to 2.0,** Concert from **Hamburg** (contd.). **3.0,** Between Town and Country—a Survey of a Model Garden City (arr. Gustav Bellin). **3.30,** Portrait of a Mother (Heinrich Lersch). **3.40,** Orchestral Concert, conducted by Eugen Sonntag. **5.0,** Portrait of a Mother (Agnes Miegel). **5.10,** Concert (contd.). **6.0,** Portrait of a Mother (Hans Friedrich Blunck). **6.10,** Mothers and Sons—a Radio Sequence (G. Randolf-Schmalnauer). **6.50,** Portrait of a Mother (Josef Magnus Wehner). **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** See **Munich. 9.0,** Announcements. **9.5,** Concert by the Berlin Wireless Orchestra, conducted by Etti Zimmer. Die Flöte von Sans-Souci—Suite for Chamber Orchestra, Op. 88 (Paul Graener); Little Norwegian Suite for Chamber Orchestra (Gerhard Schjeldrup); Little Suite for String Orchestra, Op. 55 (Richard Trunk); Finale on Two Themes by Johann Strauss from the Serenade in D, No. 5 (Robert Fuchs). **10.0,** Weather, News, and Sports Notes, followed by Concert of Light Music and Dance Music. Soloist: Johannes Maximilian (Baritone). **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.—**11.0 a.m.,** Concert by the Lumir Choral Society of Vienna. **12 Noon,** See **Prague. 12.5,** See **Moravská-Ostrava. 1.30,** See **Prague. 1.45,** Talk for Farmers. **2.15 to 2.20,** Hydrographical Report. **3.30,** See **Prague. 5.30,** Programme from **Kezmarok,** relayed from **Kosice, 1,022 kc/s (293 metres). 7.0,** See **Prague. 9.0,** See **Brno. 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.—11.10 a.m.,** See **Heilsberg. 1.0 p.m.,** Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Prade. **2.30,** News. **2.40,** Reading: Mathilde Wrede, the Prisoners' Guardian Angel (L. M. Sieg). **3.10,** Talk: Adolf Dressler, a Silesian Landscape Painter. **3.30,** Programme for Children. **4.0,** Radio Report from the Gross-Wartenberg Youth Hostel. **4.30,** Concert by the Silesian Symphony Orchestra, conducted by G. E. Rischka: Overture, Zampa (Hérold); Selection from Das Nachtlager in Granada (Kreutzer); Overture, The Merry Wives of Windsor (Nicolai); Notturno (Reinecke); Madrigal-Gavotte (Bronstet); Moorish Intermezzo, Zairah (Woehlert); Viennese Waltz (Grammann); Polka, Plappermäulchen (Jos. Strauss); Reiter-Marsch (F. Schubert). **6.0,** Talk: The Beauties of Silesia—The Castle of Fürstenstein. **6.30,** Talk and Readings: Josef Mühlberger, a German Author of the Sudetic Mountains. **7.0,** Sports Results. **7.30,** Weather for Farmers. **7.35,** Talk: The Danube and its People. **8.0,** Concert of German Music, by the Station Orchestra, conducted by Ernst Prade, the Station Choir, and Soloists. In an interval at **9.0,** News. **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**5.30 p.m.,** Musical Programme. **6.0,** German Transmission: Concert by the Grigar Schrammel Quartet. **7.0,** See **Prague. 9.0,** Military Band Concert. **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 Mickey's Club Jazz Attraction. **1.0, p.m.,** Le Journal Parlé. **1.10,** Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **1.30,** Sur le trimard—Sketch (André Blandin). **1.40,** Concert (contd.). **5.0,** Concert by the Station Symphony Orchestra, conducted by A. Meulemans. **5.30,** Football Results. **6.0,** Popular Music on Gramophone Records. **6.30,** Violin Recital of Music by Eugene Ysaye for the Second Anniversary of his Death. Sonata in A Minor, Op. 27; Berceuse, Op. 20; Divertissement, Op. 24. **7.0,** Gramophone Records. Bourrée fantasque (Chabrier); Pax vobiscum (Johnson). **7.15,** Religious Address. **7.30,** Talk on Music. **8.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloists: M. Bisantz (Baritone) and M. Durand (Tenor). March, Granada (José Garcia); The Skater's Waltz (Waldteufel); Overture, L'Oncle Mathurin (Weyts). Baritone Solos: (a) Legend (Scassola), (b) Ne cueillez pas les fleurs (Ackermans), (c) Sérénade d'amour (Jean Pâques). Tarentelle napolitains (Desormes). Tenor Solos: The Student passes by (Ibanez). **8.45,** Allo! Danton Police—One-Act Play (Piccard). **9.0,** Concert (contd.). Potpourri of Military Songs (Salabert); Down South (Myddleton). Baritone Solos: (a) Tango, Senorita (Demaret), (b) Serenade, Caprice d' amour (de Vos), (c) Waltz, Ton amour (Langlois). Military Waltz, La Hussarde (Gaune); Selection from Rose Marie (Friml). Tenor Solos: Galop, Feu d'artifice (Denaele). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: Selection from Mignon (Thomas); Spring at the Mill (Zimmer); Waltz Suite from The Count of Luxembourg (Lehár). **10.30,** Concert by the Alexys Orchestra, relayed from l'Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**11.0 a.m.,** Concert of Variety Music, by the Small Station Orchestra, conducted by P. Leemans. **12 Noon,** Concert of Light Music relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot. **5.30,** Sports Results. **6.0,** Gramophone Concert of Light Music. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Russlan and Ludmilla (Glinka); Liebestraum (Liszt); Aria from Dinorah (Meyerbeer); Selection from Le Grand Mogol (Audran). Violin Solo: Mazurka (Zarzicky); Potpourri, Sashinka (Ralt). **7.15,** Religious Address. **7.30,** Le Journal Parlé. **8.0,** Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloists: Niels Hansen (Tenor) and Raskin (Violin). Overture, Hansel and Gretel (Humperdinck); Violin Concerto (Glazunov); La Danaz (Rossini). Fantasia No. 3 (Brunelt); Invitation to the Dance (Weber). Songs: (a) Aria from Sigurd (Reyer), (b) Aria from La Tosca (Puccini). Slav Dance (Dvorák); Hungarian Dance (Brahms); Russian Dance (Tchaikovsky); Four Danish Songs; Spanish Fantasia (Gevaert). In an interval at **8.45,** Three Songs to the Lute, by Henri 't Sas. **10.0,** Le Journal Parlé. **10.10,** Concert relayed from the Grand Hotel, Antwerp.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**4.0 p.m.,** Programme for Peasants. **5.0,** Light Music and Romanian Music by the Marco Orchestra. In an interval at **6.0,** Radio Journal. **7.0,** Talks and Review. **8.0,** The Secret Marriage—Opera in Two Acts (Cimarosa). In the intervals, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.0 p.m. to 12 Midnight.—8.45 a.m.,** News Bulletin. **9.10,** Report on the Budapest International Fair. **10.0,** Divine Service from the Cathedral, **Pecs. 11.15,** Evangelical Service. **12.15 p.m.,** News. **12.30,** Report on the Budapest International Fair. **2.0,** Inauguration of the Pecs Relay Station. **3.0,** Agricultural Report. **3.30,** Report on the Budapest International Fair. **4.50,** Weather Report. **5.0,** Concert by the Budapest Concert Orchestra, conducted by Nandor Zsolt. **6.20,** Talk: Mothers' Day. **6.50,** Concert by the Sandor Vidak Cigány Band. **7.50,** Sports Notes. **8.0,** Bunter Abend. **9.5,** Franz Liszt—Radio Play in Three Scenes (Halasz and Kristof). **10.25,** News Bulletin. **10.45** (approx.), Concert by the Laszlo Bondy Orchestra and the Sandor Farkas Cigány Band, relayed from the Café Bodo; Soloist: Georg Soltky. **11.10,** Concert by the Sandor Farkas Cigány Band, from the Café Bodo. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. —**12 Noon,** Town Hall Chimes. **12.2 p.m.,** Concert by Louis Preils' Instrumental Ensemble. **1.30,** Talk in English: The Grand Tour of England. **1.50,** Reading in German. **2.10,** Talk in French: Spring Impressions. **2.30,** Programme for Children. **3.0,** Concert by the Radio Orchestra, conducted by Emil Reesen; Soloist: Ellen Methling (Songs). Also relayed by **Skamleback (31.51 metres). 5.0,** Divine Service from Christiansborg Castle Church. **6.20,** Talk. **6.50,** Weather and News. **7.15,** Time Signal. **7.30,** Talk: Relations between Denmark and England. **8.0,** Town Hall Chimes. **8.2,** Niels W. Gade Concert, by the Radio Orchestra, conducted by Lanny Gröndahl: Overture, Nachklänge aus Ossian (Gade); Two Melodies from Et Folkesagn (Gade); Five Songs; First Movement from the Fourth Symphony in B flat; Andantino con moto, from the Novelletten for Strings; Concert Overture, Nordisk Saeterrejse. **9.15,** Mors Dag—A Radio Play in One Act (Harriet Vendelhaven). **9.45,** Negro Spirituals by the Merry Singers, with Introductory Talk: I've got Shoes; Deep River; The Gospel Train; Listen to the Lambs; I want to be ready; Oh, Peter, go ring den Bells. **10.15,** News. **10.25,** Concert of Italian Music by the Radio Orchestra, conducted by Lanny Gröndahl: Overture, Norma (Bellini); Intermezzo from Cavalleria rusticana (Mascagni); Piedmontese Dance (Sinigaglia); Finale from the Second Act of Aida (Verdi). **11.0,** Dance Music from the Ritz 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.—**4.0 p.m. to 8.0,** Programme in English by the I.B.C. C. Danvers-Walker and B. McNab announcing. **4.0,** Programme for Children. **4.30,** Children's Club Concert. **5.0,** Songs and Orchestral Music; Under Heaven's Blue (Payan); Songs: (a) My Darling (Heymann), (b) Deep Water (Brian); Duets: (a) Leave the Pretty Girls alone (Robinson), (b) 'Way down in

MAY 14th **SUNDAY** *continued*

Georgia (Traditional); Songs: (a) How deep is the Ocean? (Berlin), (b) Roamin' through the Roses (O'Flynn); By the Sleepy Lagoon (Coates). **5.30,** Light Orchestral Music: Les Sirènes (Waldteufel); Cœur brisé (Gillet); Mon rêve (Waldteufel); Violin Solos: (a) Spanish Dance (Falla), (b) Ballet Music from Rosamund (Schubert); Minuet No. 1 (Paderevsky); The Dance of the Tea Dolls (Smith-Hugen); The Butterfly (Nevin). **6.0,** Club Concert for Guildford Listeners: Waltz, Acclamations (Waldteufel); The Gay Highway (Drummond); Message from the Lord Bishop of Guildford; The Clock and the Dresden Figures (Ketelbey); Passing by (Purcell); Softly as in a Morning Sunrise (Romberg); Fairy on the Clock (Myers); Garden of Happiness (Haydn Wood); Rose in the Bud (Forster); Quartet: Polka Serenade; Love in Cloverland (Peter); On a Dreamy Summer Night (Krome); Mattinata; Selection from The Yeomen of the Guard (Sullivan). **7.0,** Military Band Concert: Scottish Patrol (Williams); Valse triste (Sibelius); Carry on (Dundas); Review of the Troops; General Mulcahy March (Brase); Wood Nymphs (Coates); The Standard of St. George (Alford). **7.30,** Orchestral and Vocal Concert: Waltz, Tales from the Vienna Woods (Joh. Strauss); Songs: (a) Little Grey Home in the West (Löhr), (b) Roses of Picardy (Haydn Wood); Vienna, Vienna; Songs: (a) The Last Rose of Summer (Moore), (b) Take a pair of Sparkling Eyes, from The Gondoliers (Sullivan), (c) The English Rose (German); Frühlingsstimmen (Strauss). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C. **9.0,** Light Music: What did I get in return? It's no use, I'm in Love; I'm one of the Lads of Valencia; Let me give my happiness to you; Hot Feet; Three Wishes; Mad Moments; The Village Band. **9.30,** Concert of Light Music: Octet, Valse Bluette (Drigo); Tenor Solo, The English Rose, from Merrie England (German); Contralto Solo, Angus MacDonald (Weatherley); 'Cello Solo, The Nightingale and the Rose (Rimsky-Korsakov); Octet, Hungarian Dance in D (Brahms); Song, Street of Dreams (Lewis); Tenor Solo, Down Vauxhall Way (Oliver); Octet, Narcissus (Nevin). **10.0,** Songs: I'm playing with Fire (Berlin); Brother, can you spare a Dime? (Harburg); A Ghost of a Chance (Washington); Pianoforte Solo, Everyone says I love you; Her name is Mary (Sievier); You're still my Sweetheart (Yellen); Just an Echo in the Valley (Woods); Pianoforte Solo, Butterflies in the Rain (Reaves and Myers). **10.30,** Popular Melodies: Selection from Lilac Time (Schubert-Berté; Yes, Mr. Brown: Three Wishes; What have you got to lose? Sweetheart; Isn't it romantic? My Heart's to let; When you're falling in love. **11.0,** Orchestral Music and Songs: Wine, Woman, and Song (Joh. Strauss); Songs: (a) A Bachelor Gay (Tate), (b) Live for to-day (Fraser-Simson); Love Everlasting (Friml); Artists' life (Strauss); Songs: (a) If I were King (Coslow), (b) Marika (Collins); Air de Ballet (Herbert). **11.30,** Violin Recital of Traditional Airs; March of the Cameron Men; Mary Morison; Lord Lovat's lament; Orchestra: Selection, The Thistle; John Anderson; The logie o' Buchan; Lea Rigs. **12 Midnight,** Club Concert for Guildford Listeners: Waltz, Acclamations (Waldteufel); The Gay Highway (Drummond); Message from the Lord Bishop of Guildford; The Clock and the Dresden Figures (Ketelbey); Passing by (Purcell); Softly as in a Morning Sunrise (Romberg); Fairy on the Clock (Myers); Garden of Happiness (Haydn Wood); Rose in the Bud (Forster); Quartet: Polka Serenade; Love in Cloverland (Peter); On a Dreamy Summer Night (Krome); Mattinata; Selection from The Yeomen of the Guard (Sullivan). **1.0 a.m. (Monday),** Variety Music; Forty Fousand Frushes; Over the Hills! Handsome Gigolo; Toothache; Polly; The Shepherd Boy; Save the Last Dance for me. **1.30,** Songs: Goodbye to all that; Make the best of it; It happened in Monterey; Pianoforte Solo, Popular Medley; I need a good kind of Man; Treasure; Song of the Dawn; Pianoforte Solo, More Popular Tunes. **2.0,** Dance Music by the Ibeolians: The London Fire Brigade; Three's a Crowd; A Bedtime Story; Sweethearts forever; Let's all sing like the Birdies sing; Pu-leeze Mr. Beamingway; My romance; I guess I'll have to change my Plan; Till Tomorrow; How deep is the Ocean? Marching along together; Just because you're you; Let's all dance the Polka; You'll always be the same sweetheart. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Unveiling of a Memorial, relayed from **Ems**; Speech by General von Horn. **1.0 p.m.,** Concert by a Nazi Band, relayed from the Ronneburg at Büdingen. **2.30,** Agricultural Notes. **2.40,** Agricultural Talks. **3.30,** See **Stuttgart. 4.30,** Military Band Concert, relayed from **London. 5.30,** Germans Abroad—Concert by the Station Choir and Soloists, with Talks. **6.20.** A Discussion on Carl Hauptmann by his Wife and Julius Maria Becker. **6.50,** Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Recital of Folk Songs and Alpine Melodies by Anton Maria Topitz (Tenor). **8.30,** Concert of Operetta Music by the Station Orchestra, conducted by Reinhold Merten. **10.30,** Time, News, Weather, and Sports Notes. **11.0,** Concert from **Langenberg. 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

Call ha (in Morse). **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon** (from **Hanover**), Orchestral Concert, conducted by Richard Grille. In the interval at **12.55,** Time Signal and Weather Report. **2.0** (from **Hanover**), Programme for Young Hitlerites: Homage to German Mothers. **3.30** (from **Bremen**), Sixteen Folk Songs by Hermann Zilcher, The Double Quartet of the Bremen Cathedral Choir and Richard Liesche (Pianoforte). **4.30** (from **Hanover**), Talk: Hohe Geiss: the Highest Point in the Harz Mountains. **5.30** (from **Hanover**), Concert by a Reichswehr Band, relayed from Hohe Geiss. **6.45,** Concert of the Less-known Compositions of Flotow. The Schwerkia String Quartet and Soloists, Gertrud Grimm-Herr (Songs), and Erich Schenk (Pianoforte). Introductory Talk by Dr. Erich Schenk. Three Songs: (a) Fahr wohl, (b) Zum Scheiden, (c) Grüss dich Gott; String Quartet in C. **7.30,** Talk by Carl Anderlik: Excursions in a Rowing Boat. **7.40,** Sports Notes. **7.55,** Weather Report. **8.0** (from **Hanover**), Concert to Celebrate the Liberation of Lower Saxony. A Symphony Orchestra of Unemployed Musicians and the Hanover Teachers' Choral Society. Ouvertüre über Lützows wilde, verwegene Jagd. (Weber); Songs for Choir (Weber): (a) Vater, ich rufe dich, (b) Das Volk steht auf, der Sturm bricht los, (c) Du Schwert an meiner Linken; Overture, Das befreite Deutschland (Spohr); Wir trauern um den braven Helden (Spohr); Heimkehr der Krieger from the Fourth Symphony (Spohr); Choir: (a) Wir wollen deutsch und einig sein (Marschner), (b) Der Schwur des Vater Rhein (Methfessel); A German Overture (Beck). **10.0,** Time Signal, Weather Report, News, Sports Notes and Police Review. **10.20,** A Review of Political, Cultural and Artistic Events in the Hanseatic Towns, Hamburg, Bremen and Lübeck. **10.35,** Concert from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig 662 kc/s, 453.2 metres.—11.10 a.m.,** Demonstration of the German Scientific Research Society, relayed from the University, Königsberg; Address by the President, Dr. F. Schmitt-Ott; Address by Prof. Dr. Sauerbruch: Possibilities and Limits of Surgery; Address by Prof. Dr. Sandberger: Joseph Haydn; Extracts from a Newly-Discovered Symphony in D Minor by Haydn, by the Königsberg Opera House Orchestra. **1.0,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz. **2.0,** Talk on Chess. **2.30,** Programme for Young People: Scenes from Wallenstein's Camp (Schiller). **3.0,** Mothers' Day. Programme: Music and Dialogues. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken; Sports Notes in the Interval. **5.30,** Talk: East Prussian Romanticism in Painting—in connection with the Exhibition: The Romantic Era and the Present Day in East Prussia. **6.0,** A Radio Sequence from German Writings in Celebration of Mothers' Day. **6.30,** Pianoforte Recital. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** See **Munich. 8.30,** From Lortzing to Humperdinck—Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetzky. Soloists: Elizabeth Hallstein (Soprano), Josef Poerner (Tenor), and Carl Meinl (Bass). **10.0,** News and Sports Notes, followed by Programme from **Berlin (Witzleben).** In the interval: Gramophone Report on the Spring Gymnastics Display at Insterburg. **12.0 Midnight** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**9.10 to 11.10 a.m.,** Programme of the Workers' Radio Society (V.A.R.A.). **9.10,** Horticultural Talk. **9.40,** Organ Recital. **9.55,** Address. **10.20,** Concert (contd.). **10.40 to 11.10,** Interval. **11.10,** Divine Service by the Liberal Protestant Radio Society (V.P.R.O.). **12.40 to 5.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.40,** Talk: The Picture of the Week. **1.10,** Concert by the Wireless Orchestra, conducted by Nico Treep. In the interval, Light Music on Gramophone Records. **2.40,** Weekly Book Talk. **3.10,** I Pagliacci—Opera (Leoncavallo) on Gramophone Records. **4.25,** Running Commentary on the International Hockey Match, Holland v. Germany, relayed from the Olympic Stadium, Amsterdam. **5.10,** Gramophone Records of Light Music, followed by Sports Notes. **5.40 to 8.40,** Programme of the V.A.R.A. **5.40,** Programme for Children. **6.25,** Concert by a Children's Choir. **6.55,** Orchestral Concert of Light Music. **7.30,** The Adventures of Wakker and Tropenduit. **7.50,** Song and Organ Recital, with Address. **8.40** till Close Down, Programme of the A.V.R.O. **8.40,** Time and News. **8.50,** Concert by the Wireless Orchestra, conducted by Nico Treep; Soloist, Maurits v.d. Berg (Violin): Overture, Maritana (Wallace); Violin Concerto in G Minor (Bruch). **9.40,** Song Recital by Richard Tauber (Tenor); Three Songs (Schubert): (a) Ständchen, (b) Der Doppelgänger, (c) Ungeduld; Three Songs (Richard Strauss): (a) Allerseelen, (b) Traum durch die Dämmerung, (c) Heimliche Aufforderung. **9.55,** Concert by the Wireless Orchestra, conducted by Nico Treep. **10.20,** Song Recital by Richard Tauber (contd.): Sei mir gegrüsst du holdes Venetia, from Eine Nacht in Venedig (Joh. Strauss); Song from The Czarevitch (Lehár): Sah' ein Knab' ein Röslein steh'n, from Friederike (Lehár); Glück hat als Gast nie lange Rast, from Zigeunerliebe (Lehár). **10.40,** Gramophone Records of Popular Music. **10.50,** Concert of Light Music by Kovacs Lajos and his Orchestra; Songs by Bob Scholte. **11.50,** Gramophone Records of Popular Music. **12.40 a.m. (Monday),** Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**9.10 a.m.,** Religious Programme of the Christian Radio Society (N.C.R.V.). **10.10 to 5.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **10.10,** Gramophone Records of Light Music. **10.40,** High Mass from Oldenzaal. **11.55,** Gramophone Records of Variety Music. **12.40,** Talk. **12.55,** Concert by the K.R.O. Boys. **1.40,** Talk. **2.5,** Concert (contd.). **2.50,** Literary Talk. **3.10,** Concert by the Dutch Chamber Music Society and the Con Amore Quartet: Clarinet Quintet in D, Op. 115 (Brahms); Songs (a) Abendfrieden am Rhein (Neumann), (b) Justorum animae (Pütz), (c) Still (Ayslinger), (d) Starry Night (Storch); Gramophone Records of Variety Music: Sextet in B, Op. 18 (Brahms); Songs: (a) Schlafglöckchen (Esch), (b) Ein Häuschen lehnt am Berge (Kämpf), (c) Vale Carissima (Kann), (d) Christmas Carol (Diamont). **4.55,** Programme for Hospitals. **5.40 to 8.25,** Programme of the N.C.R.V. **5.40,** Sacred Music for Choir and Organ. **6.30,** Divine Service from a Church in Amsterdam. **8.25** till Close Down, Programme of the K.R.O. **8.25,** Talk. **8.50,** Football Report. **8.55,** Johann Strauss Concert by the K.R.O. Orchestra, conducted by M. Külin; Soloist, Mme. Ankie van Wickevort Crommelin (Soprano): Overture, A Carnival in Rome; Waltz, Frühlingsstimmen; Nordseebilder; Tales from the Vienna Woods; Aus der Heimat; Annen-Polka; Dorfschwalben aus Oesterreich. **9.40,** News. **9.45,** Songs from Die Fledermaus (Joh. Strauss). **10.5,** Concert (contd.): Overture, Die Fledermaus; Selection from Jabuka; Selection from Aschenbrödel: Selection from The Gipsy Baron; Donauweibchen; Bauern-Polka; Tritsch-Tratsch. News after the Programme. **11.20,** Choral Epilogue. **11.40** (approx.). Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide and Radio Concert. **8.45,** News. **9.0,** An Evening with Papa Yan. **10.30** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **10.30,** Celebrity Concert of Gramophone Records: On a Little Balcony in Spain, by Layton and Johnston; Breakfast Time, by Billy Caryll and Hilda Mundy; Polichinelle, by Fritz Kreisler; Mighty lak' a Rose, by Turner Layton; Merry-go-round, by Peter Dawson; Ben Bolt, by Florence Austral; Seekin', by Paul Robeson; Dance of the Marionettes, by Fritz Kreisler. **11.0,** Light Orchestral Music: Die Spieluhr der Pompadour (Noack); Speak to me of Love (Lenoir); The Song of the Nightingale (Ailbout); Granny's Photo Album (Greer); Waltz, Tales from the Vienna Woods (Strauss); Pierrette's Wedding (Jordan); The Skaters' Waltz (Waldteufel); Angero (Franco). **11.27,** I.B.C. Goodnight Melody. **11.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12.5 p.m.,** Programme from **Heilsberg. 1.0,** Concert conducted by Eysoldt. **2.30,** Reading in Dialect. **3.0,** Agricultural Talk. **3.30,** Programme in Celebration of the Fourth Centenary of the Reformation in Soest: Addresses and Sacred Music. **4.30,** Orchestral Concert, conducted by Wolf. In the interval from **5.0 to 5.25,** Radio Report on the Rochus Club International Tennis Tournament, relayed from **Düsseldorf. 6.0,** Talk: Towns of the Rhineland and Westphalia—Detmold. **6.30,** The Great King—Play in One Act (Heinrich von Stein). **7.0,** Programme from **Berlin (Deutschlandsender). 8.0,** Sports Notes. **8.15,** Concert by the Station Orchestra, conducted by Buschkötter; Soloist: Anton Schoenmaker (Violin); Spring Overture (Goetz); Concerto for Violin (Mozart); Siegfried Idyll (Wagner). **9.0,** Concert of Folk Music, relayed from **Munich. 9.30,** Concert (contd.): Suite from Der Rosenkavalier (R. Strauss); Overture, The Flying Dutchman (Wagner). **10.20,** News, Announcements and Sports Notes. **10.40,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW; and **Dresden, 941 kc/s, 319 metres.—11.30 a.m.,** Transmission for all German Stations. Wir danken Dir, Herr—Cantata (Bach); The Municipal Orchestra, the Choir of St. Thomas' Church and Soloists. **12 Noon,** Concert by the Station Orchestra, conducted by Hilmar Weber. Soloist: Adrian Rappoldi (Violin). **2.0 p.m.,** Weather Forecast and Time Signal. **2.5,** Programme Announcements. **2.25,** Talk for Farmers. **2.40,** Programme for Children; Mothers' Day. **3.25,** Report on the Lückendorf Mountain Race. **4.30,** See **Hamburg. 5.30,** The Student's Return—Comedy (Niebergall). **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.0,** See **Munich. 9.0,** Topical Talk. **9.15,** Concert by the Station Orchestra, conducted by Hilmar Weber. Soloist: Martin Hümisch (Tenor); Overture, Das tapfere Schneiderlein (Hanel); German Suite (Gersch); Selection from La Traviata (Verdi); Waltz, Loreley-Rheinklänge (Strauss); Songs from Schön ist die Welt (Lehar); Overture, Gipsy Love (Lehar). **10.25,** News. **10.30** (approx.), Dance Music Relay. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Madrid Municipal Band, conducted by M. Villa, relayed from the Retiro. **3.0,** Chimes, Time Signal. Theatre Notes and Concert of Popular Music. **5.0 to 8.0,** Interval. **8.0,** Chimes, Radio Journal, and Dance Music. **9.30 to 10.30,** Interval. **10.30,** Chimes from the Cathedral and Time Signal. **10.35** (approx.). Pianoforte Recital by Teresa Alonso Parada, Baritone Solos by José Anserri, Guitar Solos by Luis Garcia, and Flamenco Songs by Niño de la Peña. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**12.5 p.m.,** Military Band Concert of Popular Music. Conductor: F. Michalek. **1.30 to 2.15,** See **Prague. 3.30,** See **Prague. 6.0,** German Transmission: One-Act Operetta (Stolz). **7.0,** See **Prague. 9.0,** See **Brno. 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 **Kaiserlautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Orchestral Concert, conducted by Karl List; Soloist: Franz Ortner (Double Bass). **1.5 p.m.,** Time Signal, Weather Report, and Programme Announcements. **1.15,** German Song Recital by Julia Prost (Soprano) and Sandro Vitoschy (Tenor). **1.35,** Gramophone Concert of Music by Bizet, Bruckner, Mozart, Reznicek, Rossini, Schubert, Joh. Strauss, and Verdi. **2.30,** Talk. **2.50,** 'Cello Recital by Folkmar Längin. **3.15,** Concert by Adolf Denkl's Zither Orchestra. **3.50,** Commentary on Bavarian Race Meetings. **4.5,** Programme for Children. **4.25,** Orchestral Concert. **5.35,** Talk: Folk Law of the Amper District. **6.0,** Maytime—Musical and Literary Programme. **6.50,** Weather Report and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Folk Music from the Chiem District, relayed from Siegsdorf. **9.30,** Reading: Mutter ohne Tod (Hanns Johst). **9.55,** Harpsichord Recital: Three Preludes (Cabezon); Fugue in Four Parts (Franco-

baldi); Toccato (Rosci). **10.20,** Time Signal, Weather Report, News, and Sports Notes. **11.0,** Serenade, conducted by Erich Kloss.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 622 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.**—**10.50 a.m.,** Chimes. **11.0,** Divine Service, relayed from the Garrison Church. **5.0 p.m.,** Concert, relayed from the Continental Hotel. **6.0,** Talk. **6.30,** Agricultural Talk. **7.0,** Parliamentary Notes. **7.30,** Choral Concert. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm. Part 1: Overture, Meeresstille und glückliche Fahrt (Mendelssohn); Symphony No. 1 in B Flat (Schumann); Part II: Extracts from The Tales of Hoffmann—Opera (Offenbach), with an Introductory Talk. Soloists: Mme. Schjelderup (Soprano), and Mme. Trae Jersin (Contralto). **9.40,** Weather and News. **10.0,** Topical Talk. **10.45,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**1 p.m. to 2.0,** Concert of Light Music. In the interval at **1.30,** Time, Announcements, and Weather. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Dopolavoro Announcements and Giornale Radio. **8.20,** Sports Notes. **8.25,** Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Symphony Concert, conducted by A. La Rosa Parido; Soloist: V. Mannino (Pianoforte): Suite in D Minor (Bach); Scarlattiana (Casella); Talk: Young Poets of Palermo; Three Interludes from Figlia di Jorio (Rossi); Pavane pour une Infante défunte (Ravel); Suite (Prokoliev). **10.0** (approx.). Light Music on Gramophone Records. **10.55,** News Bulletin.

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 and Announcements. **1.15,** Weather Report. **1.30,** Concert by the Jean Ibos Orchestra and M. Duverne (Xylophone). **6.45,** Le Journal Parlé. **7.55,** Programme for Children. **8.25,** News. **8.30,** Gramophone Concert; Part I: Music by Adam and Thomas; Part II: Popular Music. **10.0** (approx.). Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **10.5 a.m.,** Sponsored Concerts. **11.40,** Popular Music on Gramophone Records. **12 Noon,** Interval. **12.15 p.m.,** Sponsored Concert. **12.45,** Sponsored Talk. **12.50,** Half-an-Hour of Fantasy by Paul Weill. In an interval at **1.0,** Racing Results. **1.30,** Sponsored Programme. **2.0 to 3.0,** No transmission. **3.0,** Racing Results. **3.10** (approx.) **to 6.45,** Interval. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Musical-Saw Solos by Jean Laffitte; Siciliana (Pergolesi); Where my Caravan has rested (Lohr); Little Grey Home in the West (Lohr); Si vous Paviez compris (Denza). **7.30,** Catholic Review. **8.0 to 8.15,** Popular Music on Gramophone Records. **8.30,** Light Music on Gramophone Records. **9.0,** Interval. **9.15,** L'Attentat—a Radio Play (F. François). **9.45,** Concert of Light Music. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather Forecast. **8.30,** Physical Culture. **12 Noon,** Religious Address. **12.20 p.m.,** Sacred Music; Prelude in E Flat (Saint-Saëns); Kyrie (Palestrina); Andante and Allegro (P. E. Bach). **12.30,** Bilboquet. **12.45,** Press Review, News, and Weather. **1.0,** Gramophone Concert. **2.0 to 2.30,** Programme in English by the I.B.C., Mr. T. St. A. Ronald announcing: Light Music; Signature Tune; Young and Healthy; What would'ja like for Breakfast? Street of Dreams; My Wishing Song; You're an old Smoothie; And so I married the Girl; The Girl in the little Green Hat; Signature Tune. **2.30,** Light Music on Gramophone Records. **3.0** (approx.), Running Commentary on the Final of the French Football Championship, relayed from the Colombes Stadium. **5.0 to 7.0,** Programme in English by the I.B.C. **5.0,** Tea-Time Variety Hour, Mr. S. H. C. Williams announcing. **6.0,** Light Music, Mr. T. St. A. Ronald announcing: Grand March (Finck); Lily of Laguna (Leslie Stuart); Selection from Waltzes from Vienna (Strauss); Daisy Bell (Daere); Selection from White Horse Inn (Stolz-Benatzky). **6.30,** Popular Melodies, Mr. T. St. A. Ronald announcing: Signature Tune; Farewell to Arms; Going, going, gone; Ronald Frankau; A little Café in Vienna; Ronald Frankau; Tony's Wife; Signature Tune. **7.0,** Popular Concert. **8.0,** Radio Paris Circus. **8.30,** News, Sport Notes and Weather. **8.45,** Music Hall Programme: Soloists: Liane Mérant, M. Cardi, and Mlle. M. Berger. In the interval at **9.15,** Press Review and News.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**10.0 a.m.,** Mass in D, Op. 86 (Dvorák), by the Prague Society for Sacred Music and the Station Orchestra, conducted by Vladimir Nemec; Soloists: M. Mestekova, M. Nemcova, J. Mestek, and L. Uhlir; Professor B. Wiedermann at the Organ. **11.0,** See **Bratislava. 12 Noon,** Chimes. **12.5 p.m.,** See **Moravská-Ostrava. 1.30,** Agricultural Report. **1.45,** Agricultural Programme. **2.15 to 2.25,** Social Report. **3.30,** Report on the Motor Racing, relayed from the Sokol Stadium, Strahov. **5.0,** Popular Music on Gramophone Records. **5.30,** Talk: An Expedition to a Primeval Forest in Brazil. **5.45,** Variety Music on Gramophone Records. **6.0,** German Transmission: Popular Programme, arranged by Dr. Dominik Schansberger. **7.0,** Czecho-slovakian Mothers' Programme: Recitations and Concert by the Station Orchestra, conducted by Otakar Jeremias; Soloist: Jarmila Peniekova-Rochova (Songs). **7.50,** Talk on the following Transmission. **8.0,** Act I of The Parisienne—Operetta (Benes), relayed from the Operetta Theatre. **9.0,** Time Signal. **9.1,** See **Brno. 10.0,** Time Signal. **10.1,** News Bulletin. **10.20,** Popular Czech Songs. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—**9.55 a.m.,** (from **Geneva**), Chimes. **10.0,** Protestant Service. **11.0** (from **Geneva**), Light Music on Gramophone Records. **12.30 p.m.,** News and Weather Forecast. **12.40** (from **Geneva**), Popular Music on Gramophone Records. **2.0 to 3.0,** Interval. **3.0** (from **Geneva**), Report or Concert. **7.30** (from **Geneva**), Sports Notes, News, and Announcements. **8.0** (from **Geneva**), Le Bourgeois gentilhomme Comedy Ballet (Molière-Lully). **9.0,** Concert by the Station Orchestra. **9.40** (from **Geneva**), Tronillard et Cie—Humorous Sketch. **9.50,** News and Weather. **10.0,** Concert by the Station Orchestra (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.**—**12.30 p.m.,** Concert of Variety Music. **1.30 to 2.30,** Orchestral Concert. **3.45** (**Naples**), Programme for Children, Weather and Sports Notes. **4.0,** Orchestral Concert. **4.45,** Sports Notes. **5.0 to 6.15,** Orchestral Concert. Sports Notes in the interval. **7.30,** Football Report, Dopolavoro Notes and News. **8.0,** Time and Announcements. **8.5,** Recital of Duets by Maria Teresa Barboni (Soprano) and Gino del Signore (Tenor). **8.30,** Sports Notes. **8.40,** Talk on Art. **9.0,** Falstaff—Opera in Three Acts (Verdi). In the interval, Reading. After the Opera, News and Giornale Radio.

SALZBURG.—See **Vienna.**

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**10.0 a.m.** (from **Berne**), Catholic Service. **10.45** (from **Berne**), Concert. **11.30** (from **Berne**), Swiss Reading **12 Noon** (from **Zürich**), Concert by the Swiss Radio Orchestra. **12.28 p.m.,** Time and Weather. **12.30,** News Bulletin. **12.40** (from **Zürich**), Concert by the Swiss Radio Orchestra. **1.30** (from **Berne**), Agricultural Programme. **2.0,** Agricultural Talk. **2.30 to 5.0,** Interval. **5.0** (from **Berne**), Popular Music on Gramophone Records. **5.50** (from **Berne**), Concert by the Berne Mandoline Orchestra. **6.30** (from **Berne**), Talk in English: Bernese Customs and Traditions. **7.0** (from **Berne**), Time and Sports Notes. **7.5** (from **Berne**), Concert. **8.0** (from **Berne**), Talk. **8.30** (from **Berne**), 'Cello Recital by Mrs. Rauch-Godot. **9.0,** News Bulletin. **9.10** (from **Berne**), Programme to be announced. **10.15** (from **Berne**), Sports Notes. **10.20** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Bodon, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**11.0 a.m.,** Divine Service Relay. **12.45 p.m.,** Weather and Ice Report. **2.0** (from **Sundsvall**), Orchestral Concert, conducted by John Hult. **3.0,** Talk

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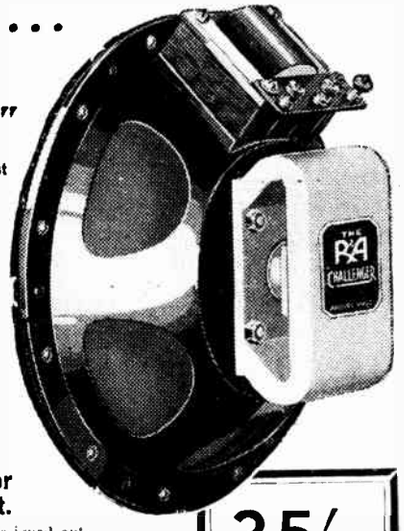

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in Norwegian. 3.20, Programme for Children. 4.0, Popular Music on Gramophone Records. 5.5, Reading. 5.35, Schubert and Brahms Song Recital by Knut Olof Strandberg. Songs (Brahms): (a) Wie bist Du, meine Königin, (b) Muss es eine Trennung geben, (c) Ständchen; Songs (Schubert): (a) Die Krähe, (b) Jüngling an der Quelle, (c) Die Nebensonnen, (d) Du bist die Ruh'; Songs (Brahms): (a) Gang zum Liebchen, (b) Feldeinsamkeit, (c) Tambourliedchen. 6.0, Evensong, relayed from **Lulea.** 7.15, Weather and News. 7.30, Professor Bernhardi—Comedy in Five Acts (Arthur Schnitzler), translated by Gustaf Linden. 9.10, Concert by the Station Orchestra. 9.45, Weather and News. 10.0, Concert by the Station Orchestra. Soloist: Greta Torpadie-Bratt (Songs); London Symphony, No. 2 in D (Haydn); Shéhérazade—Three Songs (Ravel); Overture, Euryanthe (Weber). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—9.30 a.m., Protestant Service, relayed from the Reformed Church. 10.30, Orchestral Concert of Popular Music, conducted by Maurice de Villers. 11.30, Catholic Service. 12 Noon, Variety Music on Gramophone Records. 12.45 p.m., News. 1.0, Time Signal. 1.1, Light Music on Gramophone Records. 2.0, Dance Music on Gramophone Records. 3.30, Interval. 4.0, Gramophone Concert of Variety Music. 5.15, Protestant Service, relayed from St. Paul's Church. 6.15, Sports Notes. 6.30, Talk: Infant Mortality, Its Cause and Cure. 6.45, Orchestral Concert, conducted by Roskam. 7.30, Time, News and Sports Notes. 7.45, Waltz Music on Gramophone Records. 8.15, Press Review in German and Lottery Results. 8.30, Dramatic Programme. Bagarre nocturne—Radio Sketch (E. Bismuth); Le Vagabond—One-Act Sketch in Free Verse (Gaston Baudoin); Angoisse—Radio Drama in Three Pictures (Robert Caillas); L'Escenade des Phénomènes—One Act Sketch (Bach and Laverne) after Bertal Maubon. In the interval, Press Review in French. 10.30, Dance Music from the Savoy. 12 Midnight (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—11.30 a.m., Transmission for all German Stations, relayed from **Leipzig.** 12.5 p.m., Talk, relayed from Ulm; Technical Evolution of Wireless. 12.35, Marienlieder, sung by the Drei Madrigals, relayed from the Ufa Palast. 1.5, Topical Talk. 1.20, From the Neckar to the Isar—Gramophone Concert. 2.0, Pianoforte Recital by Max Ladewig: German Dances; Contredances; Ecossaises. 2.30, Gramophone Concert of Dances of All Nations. 3.0 (from **Freiburg**), Concert of Folk Songs. 3.30, Mother Day Programme for Children. 4.30, Concert by the Wireless Military Band, conducted by B. Walton O'Donnell, relayed from **London.** 5.30 (from **Freiburg**), Music from the Archives of the Prince of Fürstenberg's Library at Donaueschingen; The Freiburg Chamber Orchestra and Soloists: Symphony in C (Canabich); Concerto for Violin and Orchestra (Lindpaintner); Festival Overture (Kaliwoda); Das Lob des Tabakrauchens (Reisiger); Overture, Alpenhütte (Kreutzer). 6.45, Sports Notes. 7.0, Accordion Recital by Franz Köppl. 7.25, Whitsunday, 1933—Swabian Programme of Literature and Music. 8.0, See **Munich.** 9.30, Concert from **Frankfurt.** 10.30, Time, News, Weather, Programme Announcements, and Sports Notes. 11.0, Programme from **Langenberg.** 12 Midnight, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to Fire.—6.30 to 7.0 p.m., Programme in English by the I.B.C., W. Brown-Constable announcing. 6.30, Henly Concert of Popular Music: Selection from Congress Dances; My Heart to let; Freddy the Freshman; Puss, puss, puss; I'm playing with Fire; Someone to care for; Can't do without Love; Round about Sundown. 7.0, Military Music. 7.15, News, Racing Results, and Market Prices. 7.30, Sound Film Songs. 7.45, Argentine Music. 8.0, Bal Musette. 8.15, Operetta Music. 8.30, Songs from Opéra-Comique. 8.45, Hunting Horn Solos. 9.0, Extracts from Congress Dances (Heymann). In the interval, Symphony Music. 10.0, Popular Songs and Humorous Scenes. 10.15, North African News. 10.30 to 12 Midnight, Programme in English by the I.B.C. 10.30, Variety Half-Hour; Happy Days are here again; Kathleen Mavourneen; On with the Show; Girls of the Old Brigade; Killarney; The Old Contemptibles' Reunion; Time, Gentlemen, Please. 11.0, Light Orchestral Music: Souvenirs classiques; Selection from A Waltz Dream (O. Straus); My Heart sings a Broken Melody; Minuet from Berenice (Handel); Titania; Ma Curly-headed Babby (Clutsam); You are my Heart's Delight, from The Land of Smiles (Lehár). 11.27, I.B.C. Goodnight Melody. 11.30, Opéra-Comique Music. 11.45, Viennese Music. 12 Midnight, Weather and Announcements. 12.5 a.m. (Monday), Accordion Solos. 12.15, Vocal Tangos. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—9.40 a.m., See **Turin.** 9.55, Mass from the Cathedral of San Giusto. 11.0, Religious Address. 11.20 to 11.40, Agricultural Talk. 12.30 p.m. (approx.) 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.**—9.40 a.m., Giornale radio. 9.55, See **Trieste.** 10.35 (from **Florence**), Agricultural Report. 10.40, Agricultural Report. 11.0, Mass from the Church of the Annunciation, Florence. 12 Noon, Bible Reading. 12.30, Variety Concert. In the interval at 1.0, Time, Announcements and Report on a Cycling Race. 1.30 to 2.30, Orchestral Concert, conducted by Ugo Tansini. 4.0, Variety Concert. Sports Notes in the interval. 6.15, Giornale Radio and Sports Notes. 6.30 to 7.0, Interval. 7.0, Time and Announcements. 7.10, Popular Music on Gramophone Records. 8.0, Announcements, Giornale radio and Sports Notes. 8.20, Variety Music on Gramophone Records. 8.50, Talk on the following Transmission. 9.0, Falstaff Opera in Three Acts (Verdi), relayed from the Politeama Fiorentino. In the intervals, Talk and Theatre Notes. Giornale radio after the Programme.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Gras, 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.**—10.15 a.m., Recital of Songs by Contemporary Austrian Composers, by Wanda Achsel (Soprano). 10.45, Radio Report from the Rennstrecke. 11.10, Talk: The Evolution of the Austrian Traffic System. 11.40, Symphony Concert by the Vienna Symphony Orchestra, conducted by Karl Anderieth. 12.50 to 2.15 p.m., Concert of Light Music by the Otto Wacek Orchestra. 2.40, Time and Programme Announcements. 2.45, Review of Books. 3.10, Chamber Music—Haydn's String Quartets: String Quartet in C, Op. 74, No. 1; String Quartet in B Flat (unfinished), Op. 103. 3.45, Radio Report of the Trotting Derby from the Krieau. 4.15, Concert of Light Music by the Julius Herrmann Orchestra, the Frank-Nowotny Pranz Schramm el Trio, and Soloists. 6.0, Talk: A Spring Journey to Greece. 6.30, Carl Dallago reads from his own Works. 7.0, Choral Concert of Sacred Music by the Dreizehnlinden Choral Society. 7.50, Time, Sports Notes, and Programme Announcements. 8.0, Bunter Abend: The Josef Holzer Orchestra, the Mauritius Hoffmann Accordion Quartet, the Bohème Quartet, Lizzi Holzschuh (Songs), and Hans Savageri (Pipes). 10.0, News. 10.15, Dance Music from the Grabencafé.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.57, Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Workers' Festival Programme, relayed from The Grand Theatre. 1.0, Weather. 1.5, Concert by the Warsaw Philharmonic Orchestra, conducted by J. Ozimiński. Soloist: Armand Gonteau-Biron (Pianoforte). 2.0, Talk on Fish. 2.20, Song Recital by Olga Lada. 2.40, Agricultural Talk. 3.0, Weather for Farmers. 3.5, Concert of Light Music by the Wilkosz Orchestra. 4.0, Programme for Young People. 4.25, Popular Music on Gramophone Records. 4.45, Pianoforte and Violin Recital by E. Feinstein and S. Bakman. In an interval, Announcements. 5.55, Programme Announcements. 6.0, Light Music, relayed from the Café Ziemianska. In an interval, News. 7.0, Miscellaneous Items. 7.25, Reading from The Bear (Tchekov). 8.0, Pianoforte Recital by S. Jaroszewicz. 8.30, Variety Programme, relayed from **Lwów, 788 kc/s (381 metres).** 9.15, Sports Notes. 9.25, Concert by the Station Orchestra, conducted by J. Ozimiński. Soloist: S. Adamska ('Cello). Slav Dance in G Minor (Dvorak); Overture, Fra Diavolo (Auber); Hungarian Dance (Brdla); 'Cello Solos: (a) Sonata (Sammartini), (b) Pastorale (Couperin-Cassado), (c) Serenade (Frezin); Persian Dance (Mussorgsky); Waltz, I Pagliacci (Bucalossi); Witches' Dance (MacDowell); Selection from Carmen (Bizet); 'Cello Solos: (a) Intermezzo (Granados), (b) Oriental Dance (Rachmaninoff), (c) Tarantella (Popper); Overture, Die Fledermaus (Joh. Strauss); Melody and Popular Song (Komzak); Cracovienne (Noskowsky); Ukrainian Dance (Noskowsky); Waltz from Casanova (Rozycki); Mazurka (Osmanski-Macura). 10.55, Announcements, Weather for Aviation and Police Report. 11.0, Dance Music from the Hôtel Polonia.

ZURICH.—See **Schweizerischer Landessender.**

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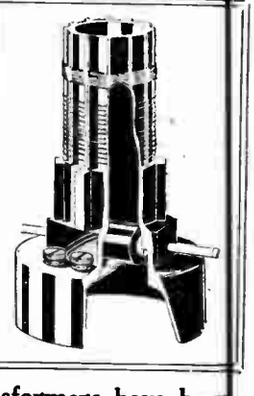

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MAY 14th **SUNDAY** *continued*

MONDAY

MAY THE FIFTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	London Music Festival concert from the Queen's Hall.
LONDON REGIONAL	Variety programme.
MIDLAND REGIONAL	Orchestral and choral programmes.
NORTH REGIONAL	"Happy the Man," a talk by L. du Garde Peach.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Band concert.
BELFAST	Orchestral concert: An Irish programme.

ABROAD

BRUSSELS (No. 2)	8 p.m. Schubert and Saint-Saëns programme by the Station Symphony Orchestra.
BUCHAREST	8 p.m. Quartet No. 2 in G (Op. 18), by Beethoven.
COPENHAGEN	9 p.m. Programme of folk music and tales from various parts of the world.
FRANKFURT	9.15 p.m. Beethoven concert.
HAMBURG	11.5 p.m. The Kiel Orchestra of Unemployed Musicians.
HILVERSUM	2.10 p.m. Concert by the Amsterdam Chamber Orchestra
RADIO PARIS	8 p.m. Operetta: "A Waltz Dream," by Oscar Strauss.
ROME	8.45 p.m. Concert of light music.
STRASBOURG	8.30 p.m. Operetta: "Frederica," by Lehar.
VIENNA	6.55 p.m. Opera: "Rienzi," by Wagner.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Talk in Gaelic. **7.15,** Talk: The Christian Reaction on Modern Philosophy. **7.30,** Time Signal. **7.31,** Light Variety Music by the Station Orchestra. **7.50,** Light and Shade in Variety. **8.10,** Massenet Selection by the Station Orchestra. **8.25,** Gounod Songs by John Lynskey (Baritone). **8.45,** Massenet Songs by Mrs. A. E. Hughes (Contralto). **9.0,** Gounod Selection by the Station Orchestra. **9.15,** Match-makers—a Play (Soumas O'Kelly), by Aoife Taaffe and Company. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **7.30,** Quintet Concert, relayed from the Café de la Rambla. **8.0,** Request Gramophone Concert. **8.20,** Sports Notes. **8.30,** Exchange Quotations and Talk in Catalan. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral. Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Humorous Review of the Week in Verse. **10.15,** Concert of Sardanas. **11.0,** Pianoforte Recital by Alejandro Vilalta. **11.30,** Concert of Italian Music by the Station Orchestra: Overture, The Italian Girl in Algiers (Rossini); Venetian Barcarolle (Leoncavallo); Intermezzo from Cavalleria rusticana (Mascagni); Serenata al vento (Mascheroni); Cradle Song, Canzone della mamma (Corti); Sagra al villaggio (Cerri). In the interval at **12 Midnight,** News. **12.30 a.m. (Tuesday),** Dance Music on Gramophone Records. **1.0 a.m. (Tuesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 to 6.30 p.m.,** Pianoforte Recital by Bianchi Dettina. **8.0,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time, Announcements and Light Music on Gramophone Records. **9.0** (approx.), Tenor Song Recital by Aureliano Pertile, followed by Chi sa il gioco non l'insegni—Comedy in One Act (F. Martini). **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Concert by the Station Orchestra. Introductory Music to Prince Maja (Krstic); Melody (Dvorák); Potpourri, auf Widerhören (Weninger); Duet (Ketelbey); Waltz from Les Millions d'Arlequin (Drigo). **7.50,** Talk on the following Transmission. **8.0,** Relay from the National Theatre (to be announced). In an interval at **9.30,** News.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert of Variety Music. **3.0,** Handwork for Women: A New Summer Dress. **3.30,** Weather and Exchange. **3.45,** Review of Books on Nietzsche. **4.0,** Gramophone Records of Popular Music. **4.30,** Concert from **Berlin (Witzleben). 5.0, Talk:** The Newspaper and the School of To-day. **5.25,** Topical Talk. **5.35,** Alfred Schattmann Song Recital by Anton Maria Topitz; Sommerglücksmusik; Unkengesang; Es naht der Herbst; Beim Abschied; Nun die Blätter welk und braun; Ein Stündlein wohl vor Tag; Abends am Seesteg; Schlagende Herzen. **6.0,** A Poem. **6.5,** Sports Talk: La Pelota. **6.30,** Music for String Orchestra; Three Bagatelles (Hugo Kahn); Serenade (Reznicek). **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations; Rothschild siegt bei Waterloo—a Radio Play (Eberhard Wolfgang Moeller); Music by Karl Knauer. **8.0,** See **Leipzig. 9.0,** Topical Talk. **9.15,** See **Frankfurt. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.30** (approx.), Serenade from **Leipzig. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concerto in D for Viola and Orchestra (Carl Stamitz). **4.50,** Richard Le Bourgeois Gentilhomme—Suite for Orchestra (Richard Strauss). **5.30,** A Child learns to speak—a Sequence on Gramophone Records, with Commentary. **6.0,** Radio Report on the Opening of the New S-Railway. **6.20,** Carl Loewe Ballads by Ewald Böhmer (Baritone). **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Announcements. **8.10,** Talk: Brahms as a Composer of Choral Music. **8.20,** Variety Programme—A One-Act Sketch and Songs to the Lute. **9.30,** Triumphlied, Op. 55 (Brahms)—for Eight-Part Choir and Orchestra, relayed from the Philharmonie. The Singakademie Choir and the Berlin Wireless Orchestra, conducted by Dr. Georg Schumann. **10.10,** Weather, News and Sports Notes, followed by Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News, Exchange and Market Prices. **7.40,** Talk: Bordeaux a Hundred Years ago. **7.55,** Lottery Results. **8.0,** Programme for Children. **8.15,** News Bulletin. **8.30,** Concert of Classical and Modern Music.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW. **4.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk. Small Symphony in G, Op. 14 (Bartovsky); Rhapsody, España (Chabrier); Dances of the Nations, Op. 143 (Maufred). **5.10,** See **Prague. 5.50,** Light Music on Gramophone Records. **6.10,** Trio in B, Op. 97 (Beethoven), by the Bratislava Trio. **6.55,** Programme for Women. **7.0,** See **Prague. 7.10,** Literary Review. **7.25,** See **Brno. 8.25,** The Organist—A Radio Sketch. **8.50,** Talk. **9.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Cleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Concert of Marches on Gramophone Records. **1.45,** Time, Weather, News, Exchange and Shipping Notes. **2.5,** Songs of May—Gramophone Concert: Potpourri of Classical Spring Melodies; Polka, Maiglöckchen (Nothelfer); Blumengeflüster (von Blon); Die Maimacht (Brahms); Cuckoo Waltz (Jonasson); May Song from Die Försterchristel (Jarno); Aubade printanière (Lacombe); Waltz, Frühlingsstimmen (Joh. Strauss); March, Mailieder (Lindemann). **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Book Review. **4.0,** Programme to be announced. **4.20,** Concert by the Small Philharmonie Orchestra, conducted by Hermann Behr. Soloist: Hans Bachmann (Baritone); Overture, Oberon (Weber); Caspar's Drinking Song, from Der Freischütz (Weber); Aria from Figaro (Mozart); Entr'acte and Ballet Music from Rosamunde (Schubert); Aria from The Barber of Seville (Rossini); Styrian Dances (Lanner); Aria from Rigoletto (Verdi); Waltz, Wiener Blut (Joh. Strauss). **5.30, Agricultural Prices. 5.35,** Talk. **5.50,** Talk: The National Problems of German Science. **6.15,** Programme to be announced. **6.50,** Weather for Farmers, News and Market Prices. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** See **Langenberg. 10.0,** Time, Weather, News, Sports Notes, Market Prices and Programme Announcements. **10.25,** Wireless Technical Talk. **10.35,** Theatre Talk. **10.50,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, French Lesson and Reading. **7.0,** See **Prague. 7.25,** A May Picnic—Variety Programme. **8.25,** Sonata for Violin and Pianoforte (Kreal), by J. Holub and B. Bakala. **8.45,** Two Radio Sketches (Kozik): (a) The First Meeting, (b) A Business Letter. **9.0,** See **Prague. 10.15** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Popular Music on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Paul Leemans. **2.0,** Educational Programme. **5.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps. **6.0,** Tourist Talk: Liège. **6.15,** Gramophone Concert: Dance from Othello (Verdi); Fantasia for Flute (Hüe); Ballad in G Minor (Brahms); Russian Melodies (Wieniawsky); Valse romantique (de Sévérac); Suite (Coats); Gavotte (Romeau); Hungarian Rhapsody No. 14 (Liszt-Doppler). **7.15,** Talk: Traffic Problems in Belgium. **7.30,** Film Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André, the Radio Vocal Quartet and M. Durand (Tenor); Burlesque Overture (Méhul); Pianoforte Solos: (a) Le coucou (Daquin), (b) La poule (Ramcau); Spanish Pieces (Albéniz and Nin); Tango (Sentis); Waltz (Dillon); Foxtrot (Tobias); Potpourri (Armandola). **8.30,** Le Passant—Play in One Act (Coppée). **8.55,** Concert by the Radio Orchestra (contd.): Melody (Gailhard); Tango (Coll); Foxtrot, Good-night Sweetheart (Noble); Waltz (Löhr); Vocal Quartet: Popular Jazz Songs (Candrix); Italian March (Rousseau). **9.30,** Illustrated Talk on Charles Conrardy—Belgian Writer. **9.45,** Concert by the Radio Orchestra (contd.): Two Step (Sentis); Potpourri (Ralph); We all go oo-ha-ha together (Harrington). **10.0,** Le Journal Parlé. **10.10,** Dance Music relayed from the St. Sauveur Palais de Danse.

BRUSSELS (No. 2)

N.I.R., 837 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Concert of Light Music by the Small Station Orchestra, conducted by P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Light Music. **2.0,** Broadcast for Schools. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: March (Sousa); Waltz (Strauss); Hallelujah (Youmans); The Clock and the Dresden Figures (Ketelbey); Melody (Clyamns); Ballet Music (Popy). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. **7.15,** Notes for Ex-Servicemen. **7.20,** Talk: An Appeal for the Unemployed. **7.30,** Talk by Pirroke Pirrewit. **8.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: Mme. Candael (Songs). Part I—Schubert Programme. Symphony in B flat. Concert Aria with Pianoforte and Clarinet Accompaniment. Overture in the Italian Style. Part II—Saint-Saens Programme: Coronation March; Ballet Music from Samson and Delilah; Songs; Symphonic Poem, Le Rouet d'Omphale; Suite, Op. 16. In the interval at **8.45,** Notes for Stamp Collectors. **10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Quartet No. 2 in G, Op. 18 (Beethoven), by the Theodoresco Quartet. **8.30,** Modern Music by MM. Ebner and Villnov (Pianoforte) and Stroici (Songs). **8.50,** Talk. **9.5,** Light Music and Roumanian Music by the Marco Orchestra, relayed from the Continental Restaurant.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW.—Also relayed on **840 metres from 8.0 p.m. to 12 Midnight. 5.30 p.m.,** Concert by the Radio Quintet. **6.10,** German Lesson. **6.40,** Concert by the Stefan Bertha Orchestra. **8.0,** Talk with Gramophone Illustrations: Franz Liszt. **8.30,** Concert of Music by Gustav Dirner and Koloman Murgacs. **9.30,** News Bulletin. **9.45,** Popular Music on Gramophone Records. **10.10,** Weather Report. **10.45,** Concert by the Lajos Kiss Cigány Band from the Hotel Gellert. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and Kalundborg, 260 kc/s, 1,153 metres; 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, relayed from the Hotel d'Angleterre. **2.0 to 3.0,** Interval. **3.0,** Danish Lyrics—Recitations from the Works of Hans Ahlmann and Knud Gamborg. **3.20,** Talk for the Housewife. **3.30,** Orchestral Concert, relayed from the Wivex Restaurant. **5.0,** Gramophone Concert of Popular Music. **5.40,** Exchange and Fish Market Prices. **5.50, Talk. 6.20,** English Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Review of Politics for the Past Month. **8.0,** Chimes from the Town Hall. **8.5,** Concert of Modern Operetta Music. The Station Orchestra, conducted by Emil Reesen. Bulgarian March from The Chocolate Soldier (O. Straus); Selection from Tip Toes (Gershwin); Two Airs from Clo-Clo (Lehár); Selection from Katinka (Friml); Shimmy from Marriage in a Circle (Künneke). **8.45,** The Hansen Family—Sketch (Jens Locher). **9.0,** Programme of Folk Music and Tales from Holland, Russia, Bohemia, the Palatinate, Germany, Czechoslovakia, South Germany, America, Flanders, the Tyrol and Carinthia. **10.15,** News. **10.30,** French Music by the Station Orchestra, conducted by Emil Reesen: Selection from the Suite, Mother Goose (Ravel); Selection from the Suite, Children's Corner (Debussy); Ballet from the Petite Suite (Debussy). **11.0** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk: Comic Influences on Human Life. **7.15,** Miscellaneous Items and News. **7.30,** See **Warsaw. 8.0,** La Sonnambula—Opera (Bellini), relayed from a Theatre. In an interval, Sports Notes and News from **Warsaw. 10.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C., T. St. A. Ronald, C. Danvers-Walker, and B. McNabb announcing. **5.30,** Vocal and Orchestral Concert for Hastings and Eastbourne Listeners: Songs: (a) Good-night, Sweetheart (Noble), (b) I'm following you (Dryer), (c) Would you like to take a Walk (Dixon); My Sunshine is you (Stolz); Last Night I dreamed of you (Kálmán); Songs: (a) Let me sing and I'm happy (Berlin), (b) Singin' in the Bathtub (Magidson), (c) To my Mammy (Berlin); Sous les toits de Paris (Moretti); Chinatown, my Chinatown (Schwartz); In the Sudan (Sebek); Wedding Bells are ringing for Sally (Sheman). **6.15,** Orchestral Music and Pianoforte Recital for Chichester and Bognor Listeners: Old Timers (arr. Griffiths); Me and the Man in the Moon (Monaco); Pianoforte Solos: (a) Dance from The Enchanter (Holbrooke), (b)

Rangoon Rice Carriers (Holbrooke); Rhapsody russe (Nussbaum); Waltz from Der Rosenkavalier (R. Strauss); Pianoforte Selection from Whoopee (Kahn); When the Lilac Blooms again (Rotter); Over the Waves (Rosas); Pianoforte Duet: Melody from Bow Bells (Sullivan); Zigeunerweisen (Borganov). 7.0, Radio Gazette. 7.20, Local News. 7.30, Gramophone Records. 7.45, Listeners' Half-hour and News. 8.30, Programme dedicated to Canx. 10.0 till Close Down. Programme in English by the I.B.C. 10.0, Dance Music by the Ibcolians. Love is the Sweetest Thing; Good Morning, Mr. Sun; I'll do my best to make you happy; The Voice in the Old Village Choir; Smile and sing your cares away; The Turning of the Tide; An Evening in Caroline; Day by Day; Where the Blue of the Night; By the Sycamore Tree; Now that you're gone; Only me knows why; Blues in my Heart; Now's the time to fall in love. 11.0, Programme of Waltzes: Frühlingsstimmen (Strauss); Acclamations (Waldteufel); Morgenblätter (Strauss); Donauwellen (Ivanovici); O Frühling wie bist du so schön (Lincke); Künstlerleben (Strauss-Potpourri (Robrecht). 11.30, Sea Shanties: At Santa Barbara; Chorus: Blow the man down; Four jolly Sailormen; The Drunken Sailor; Chorus, One More Day; Rio Grande; Chorus: A dollar and a Half a Day; Quartet: Shenandoah. 12 Midnight, Club Concert for Reigate and Dorking Listeners: Glow Worm Idyll (Lincke); Wohin (Schubert); Home (Steeden); The Hiker's Song (Longstaffe); They cut down the Old Pine Tree (Raskin); Birthday Serenade (Lincke); The Heart of the Sunset (Nicholls); The Old Inns of England (La Touche); A Merry Hunting Day (Bucalossi); Song of the Vagabonds (Friml); Sing Something Simple (Hupfeld); There's happiness over the Hill (Snyder!); Ragamuffin Romeo (Wayne); Gypsy Melody (Nicholls). 1.0 a.m. (Tuesday), Accordion Solos: Selection from Carmen (Bizet); C'est un petit nid (Eblinger); J'aime la musique (Parsons); Medley of Welsh Airs (arr. Cuvelier); La Javanette (Bozi); Les bas à pointes (Lefèbre). 1.30, Vocal Duets: A Dicky Bird told me so; I must be dreaming; Let's Dream a little longer; Accordion Solo: Lorentina; In the Lane of Sweet Dreams; Sally of my Dreams; Why? Accordion Solo: Festival March. 2.0, Dance Music by the Ibcolians: Them there Eyes; There's Something about an Old-fashioned Girl; Swingin' in a Hammock; Okay, Baby; Beware of Love; O Donna Clara; What a Perfect Night for love; My future just passed; Moonlight on the Colorado; Sous les toits de Paris; You are the Melody; Harmonica Harry; A Little Love Song; Soldier on the Shelf; The Kiss Waltz. 2.57, I.B.C. Good-night Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m.,** Talk: Writers of the National Revolution, with Readings from their Works. 6.25, English Lesson. 6.50, Time, Programme Announcements. Weather and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Concert of Classical Music by the Station Orchestra, conducted by Reinhold Merten. Soloist: Kurt Gudian (Guitar). 9.0, Programme to be announced. 9.15, Beethoven Concert. Soloist: W. Kempff (Pianoforte). Grand Overture in C. Op. 115; Pianoforte Concerto in G, Op. 56; Overture, Leonora No. 2. 10.15, Time, News, Weather and Sports Notes. 10.45, 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

Call ha (in Morse), **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. 6.40, Exchange and Weather. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, The March of the Black Duke, 1809—An Historical Play of Lower Saxony (Robert Walter). 9.0 (from **Hanover**), Songs of Lower Saxony, Concert by the Hanover Station, conducted by Otto Ebel von Sosen and the Rosenstock Choral Society. March, Gott segne Niedersachsen (Thörner-Krause); Choir: Sängerspruch Niedersachsen (Hans Heinrichs); Music of the Weser: (a) Paraphrase on Das Weserlied (Pressel-Urbach), (b) Jung-Weserlied (Ernst Pfusch); Songs of the Heath: (a) Das Heidelied (Hermann Ritzau), (b) Das Blümlein auf der Heide (Franz Abt), (c) Heidenacht (Heinrich Schrader). (d) Ueber die Heide (Albert Schenk); From the Harz to the North Sea: (a) Klänge aus dem Bodetal (Franke), (b) Glückauf, ihr Bergleut' jung und alt (Folk Song). (c) Cantabona (Max Heidorn). (d) Kapitän und Leutnant (arr. Heinrichs); Hannoverscher Königsgruss (Sommerlatt). 10.0, Time and News Bulletin. 10.20, Bach Recital for Three Cembalos. Concerto in C; Concerto in D Minor (Bach). 10.55, Topical Talk. 11.5 (from **Kiel**), Concert by the Kiel Orchestra of Unemployed Musicians, conducted by Hans Döring. Festival Overture (Kalliwoda); Prelude (Järnefelt); Dämmerstündchen (Forster); Selection from Lysistrata (Lincke); Kirmes-Ländler (Niederlitz); Descriptive Piece, In a Turkish Bazaar (Dreyer); Humoresque, Rencontre (Lindsay-Theimer); Waltz, Der Himmel voller Geigen (Ziehrer); Argonner-Marsch (Männecke).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Market Prices. 3.30, Talk: The Peasant's House in East and West Prussia. 4.0, Review of Books. 4.30, Concert by the Little Station Orchestra, conducted by Eugen Wilcken: Overture, Die beiden Husaren (Doppler); Die Spieluhr der Pompadour (Noack); Liebesromanze (Schmalstich); Fantasia on Music by Suppé (Michaelov); Waltz, Nordseebilder (Joh. Strauss); La Montagnarde (Filipucci); Memories of the Ukraine (Ferrari); Selection from The Little Dutch Girl (Kálmán); Overture, The Well of Love (Balfe); March, Germanentreue (Blankenburg). In the interval at 5.0, Talk: Memorable Days of the Week. 5.55, Talk: The German Textile Industry. 6.15, Agricultural Prices. 6.20 (from **Danzig**), Talk: A Century in the History of the Danzig School of Navigation. 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0 (from **Danzig**), Chamber Music by the Society for German Culture; Soloist, Johanna Egli (Contralto): Trio for Pianoforte, Violin, and 'Cello, Op. 101 (Brahms); Four Songs for Contralto (Reger): (a) Das Dorf, (b) Aeolsharfe, (c) Schelmenliedchen, (d) Reiterlied; Quartet for two Violins, Viola, and 'Cello (A. W. Paetsch). 8.50, Concert of Light Music by the Small Station Orchestra, conducted by Eugen Wilcken. 9.50, Elementary English Lesson. 10.15, Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW; (7 kW up to **4.40 p.m.**). **—11.40 a.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by the Little V.A.R.A. Orchestra, conducted by Hugo de Groot. **12.10 p.m.,** Concert by De Flierefluiters, conducted by J.v.d. Horst. 12.40, Concert by the Little V.A.R.A. Orchestra (contd.). 1.10, Organ Recital by Johan Jong. Overture, Norma (Bellini); Selection from La Bohême (Puccini); The Grasshoppers' Dance (Bucalossi); Ich bei Tag und Du bei Nacht (Heymann). 1.40 to 2.10, Interval. 2.10, Concert by the Amsterdam Chamber Orchestra, conducted by D. Kickens. Overture: Titus (Mozart); Liebeswalzer (Reger); Potpourri of Finnish Melodies (Herrmann); Melody (Rubinstein); Toréador et Andalouse (Rubinstein). 2.40, Recitations. 3.0, Organ Recital by C. Steyn. Negro Lullaby (Clutsam); Im Frühling (Steyn); Wer hat Schuld dran (Goetz). 3.10, Orchestral Concert (contd.). Parade of the Elephants (Basque); Scandinavian Suite (Juel Frederiksen); Spanish Dance (Sarasate). 3.40, Organ Recital (contd.). A Perfect Day (Jacobs Bond); Selection from The Little Dutch Girl (Kalman). 3.55, Orchestral Concert (contd.). Steppenreiter (Hiller); Schubert Potpourri (Urbach); Japanese Carnival (Basque); Treue Kameraden (Holzmann). 4.25, Programme for Children. 4.55, Popular Music on Gramophone Records. 5.40, Concert by the V.A.R.A. Orchestra, conducted by Hugo de Groot. Overture, The Caliph of Bagdad (Boieldieu); Selection from Carmen (Bizet); Two Viennese Dances (Gärtner); Slav Potpourri (Wilke); Hands across the Sea (Sousa). 6.25, Recitations. 6.40, Concert (contd.): Overture, La princesse jaune (Saint-Saëns); Beim Tanz der Völker (Mannfred); Waltz, Tales from the Vienna Woods (Joh. Strauss); Picador March (Oscheit). 7.20, Talk on Music. 7.39, S.O.S. Messages. 7.40, Berlioz Concert by the De Stem des Volks Choir and the Utrecht Municipal Orchestra, relayed from Rotterdam. Soloist: M. Gobets (Tenor); Fantastic Symphony; Requiem Mass. In the interval at 8.40, Dramatic Programme. 10.40, News Bulletin. 11.0 (approx.), Variety Music on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Christian Radio Society (N.C.R.V.).—**11.55 a.m.,** Gramophone Records: Theodor Chaliapin (Bass): (a) O could I but express in Song, (b) The Blind Ploughman; Elena Gerhardt (Mezzo-Soprano): (a) Vor dem Fenster, Op. 14, No. 1 (Brahms), (b) Die Forelle (Schubert); The Gresham Singers: Come to the Fair (Easthope Martin). 12.10 **p.m.,** Organ Recital from Amsterdam. 1.40, Broadcast for Schools. 2.15, Talk on Horticulture. 2.55, Dressmaking Lesson. 3.25, Programme to be announced. 3.40, Programme for Seamen. 4.40, Choral No. 3, in A Minor (Franck). 4.55, Recital of Sacred Songs. 5.55, Serenade for Thirteen Wind Instruments (Mozart), on Gramophone Records. 6.10, Answers to Correspondence. 6.40, Police Notes. 6.55, Time and News Bulletin. 7.40, Sacred Concert, relayed from a Church in Arnhem. The Arnhem Oratorio Society, J. Vincent (Soprano), C. de Wolf (Organ), Gerard Dekker (Pianoforte), G.v.d. Graaf (Harmonium), and the Arnhem Orchestral Society Wind Instrument Trio. 9.10, News. 9.25, Gramophone Records of Arthur Schnabel (Pianoforte), and the London Symphony Orchestra, conducted by Dr. Malcolm Sargent. Concerto in C, Op. 15 (Beethoven); Pianoforte Solo, Für Elise (Beethoven). 10.10, Gramophone Concert of Classical and Sacred Music. 11.10, Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusements' Guide, News, Financial Notes and Racing Results. 8.15, Sports Report. 8.30, Talk on Ghosts and Ectoplasm. 9.0, Weather and News. 9.15, Literary Talk. 9.30, Radio Concert. 12 Midnight till Close Down, Programme arranged in English by the I.B.C. H. I. Hitchcock announcing. 12 Midnight, Italian Song Recital. Ammore Canta (Tagliaferri); Nun me sceba (Tagliaferri); Orchestra: Czardas (Delibes); Carmela (de Curtis); The Old Refrain (Ritornello); Orchestra: Mazurka (Delibes); Vesta la Giubba (Leoncavallo); O Columbian (Leoncavallo). 12.30 a.m. (Tuesday), Dance Music: I may never pass your way again; I called to say Good-night; Till To-morrow; Street of Dreams; Young and healthy; What a perfect Combination; The Japanese Sandman; Look what you've done. 12.57, I.B.C. Good-night Melody. 1.0 (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Talk. 7.15, Announcements, followed by Light Music on Gramophone Records. 7.25, Announcements. 7.30, See **Warsaw.** 8.0, Opera, relayed from **Cracow.** In the interval at 10.0, Answers to Technical Correspondence. 10.30, See **Warsaw.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 368.1 metres.—6.15 p.m.,** Market Report. 6.25, Hungarian Songs and Duets. 6.40, Talk. 7.5, Concert by the Kansallis Choral Society for its Twenty-Fifth Anniversary, relayed from the University. 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf. 12.50 p.m., Weather, Time and News. 1.0, Concert, conducted by Eysoldt: Overture, Titus (Mozart); Item to be announced; Waltz, Les Fleurs (Waldteufel); Item to be announced; Two Pieces (Grieg): (a) The Return of Peer Gynt, (b) Solveig's Song; Selection from Der Tenor der Herzogin (Künneke); March, Alle voran (Teike). In the interval at 2.0, News. 2.30, Meat Market Prices. 3.30, Exchange and Time Signal. 3.50, Talk for Young People: The German Nation. 4.30, Haydn Concert by the Station Orchestra, conducted by Buschkötter. 5.50, Reading of Anecdotes by Ludwig Aurbacher. 6.0, Talk: The Rhenish Element in the German East Mark. 6.25, Talk for Parents: An Author's Reminiscences of his Early School Days. 6.45, Weather, Time, Economic Report, and Sports Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, First General News. 8.5, Concert by the Small Station Orchestra, conducted by Eysoldt. 9.0, The Nations and their Humour: Hungary. Programme of Hungarian Sketches, Verse, Prose and Music, with Introductory Talk and Commentary by Dr. Erich Fortner. 10.5, News, Announcements and Sports Notes. 10.30, Serenade, conducted by Wolf. 12 Midnight, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW. and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather Report and Time Signal. 12.5 **p.m.,** Spring, May and Sunshine—Gramophone Concert of Choral Music. 1.0, News. 1.15, Classical Music on Gramophone Records. 2.0, Art and Film Review. 2.30, Talk for Women: The Place of Women in Modern Germany. 3.0, Song Recital by Herbert Neck (Tenor). Frühlingsglaube (Schubert); Frühlingsbotschaft (Schumann); Frühlingsgrüss (Schumann); Wanderschaft (Lyra); Tanzlied im Maien (Franz); Heimweh (Wolf); Mahnung (Hermann); Friedensruh (Pretzsch); Eines steht Feuchtend (Lüttgens). 3.35, Economic Notes. 4.0, Talk: The Seventeenth Century Novel—Grimmelshausen. 4.20, Concert by the Emdé Orchestra: Overture, Flotte Bursche (Suppé); Waltz, Brennende Augen (Becker); Die Spieluhr der Pampadour (Noack); Potpourri, Leháriana (Lehár); Danza campestre (Respighi); Minuet (Gruber); Waltz, Märchen aus dem Orient (Joh. Strauss); Glow-worm Idyll (Lincke); Heinzelmännchens Hochzeit (Kopping); March, Unter dem Freiheitsbanner (Zoller). 5.50, Economic Notes, News, Weather Forecast, and Time Signal. 6.0, Report from the German High School in Pirna. 6.25, Reading: The Blind Man and his Dog. 6.45, Programme to be announced. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Variety Programme. 9.0, Topical Talk. 9.15, News. 9.20, Concert by a Nazi Military Band: Die Jugend marschiert (Lindemann); Seid einig (Busch); Overture on a Thuringian Folk Song Theme (Latann); Waltz, Dorfschwalben aus Österreich (Jos. Strauss); Fantasia on the Song Aus der Jugendzeit (Friedemann); Heinzelmännchens Wachtparade (Noack); Deutsches Land in Sang und Klang (Franke); March, 1933 Deutschlands Aufstieg (Taubert). 10.20, News. 10.30 (approx.), Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber; Shakespeare Suite No. 2 (Humperdinck); Selection from Hans Heiling (Marschner); Spanish Rhapsody (Richardy); Norwegian Melodies (Grieg); Selection from Die Landstreicher (Ziehrer); Waltz, Frühlingskinder (Waldteufel); Selection from Der Obersteiger (Zeller). 12 Midnight, Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. 7.0, Esperanto Lesson. 7.30, Serbo-Croat Lesson. 8.0, See **Belgrade.** In the interval at 9.0, Weather and News. 10.30 (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Political Talk. 7.15, Miscellaneous Items. 7.30, See **Warsaw.** 8.0, Relay of an Opera from **Cracow.** In the intervals, News from **Warsaw** and Talk. 10.30 till Close Down, See **Warsaw.**

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. 7.30 **p.m.,** Radio Gazette. 8.50, Concert relayed from the Conservatoire. After the Programme, News Bulletin.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes from the Cathedral, Exchange Quotations, and Radio Journal. 9.15, News Bulletin. 9.30 (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.50 p.m.,** Light Music on Gramophone Records. 6.0, Talk on School Examinations. 6.15, Talk for Workers. 6.25, See **Prague.** 6.30, German Transmission: Talk on Wilhelm Busch and Review of Periodicals. 7.0, See **Prague.** 7.25, See **Brno.** 8.25 till Close Down, See **Prague.** 10.15 (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert. 9.0, Talk in English: Marxism and Leninism. 9.55, Time Signal. 10.5, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m.,** Orchestral Concert. 5.45, Talk: The Rise of Democracy. 6.5, Talk: People of the Sudetic Mountains. 6.25, Pianoforte Recital. 6.45, Time Signal, Weather Report and Agricultural Notes. 7.0, Transmission for all German Stations relayed from **Berlin (Deutschlandsender).** 8.0, Orchestral Concert, conducted by H. Winter. Soloist: Erich Müller-Ahrenberg (Baritone). Overture, The Barber of Bagdad (Cornelius); Ballet Music from Rosamunde (Schubert); Three Songs for Baritone and Orchestra (Franckenstein); Petite Suite

(Debussy); Waltz, Die Schönbrunner (Lanner). 9.5, Talk: The Habnfalz in the Bavarian Mountains. 9.30, Concert of Chamber Music. 10.20, Time Signal, Weather Report, News and Sports Notes. 10.45, Serenade by the Bavarian Schrammel Quartet.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—5.0 p.m., Concert of Chamber Music by the Radio Ensemble: Overture, The Nurenberg Doll (Adam); Waltz, Mon Rève (Waldteufel); Geburtstagsständchen (Lincke); Plaisir d'amour (Martini); In the Shadows (Finck); Corona (Barnon); Popular Finnish Melody (Hermann). 6.0, German Lesson. 6.30, Talk. 7.0, Announcements, Weather, and News. 7.30, 'Cello Recital by Yrjö Selin: Sonata in G (Saunnartini); Minstrel Song (Glazunov); Sicilienne (Fauré); Intermezzo (Granados); Spanish Dance (Granados). 8.0, Time Signal. 8.1, Childhood's Friend—Play (Vogt). 9.10, Review of Foreign Politics. 9.38, Talk for Gardeners, Weather Forecast, and News Bulletin. 10.0, Topical Talk. 10.15, The Trout Quintet (Schubert) on Gramophone Records.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. 8.20, Gramophone Records. In the interval at 8.30, Time and Announcements. 9.0, Variety Concert. 10.0, A Comedy, followed by Gramophone Records of Popular Music. 10.55, News Bulletin.

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 Review. 7.0, Le Journal Parlé. 8.30, Concert arranged by the Composers' Society. Trio in the Form of a Suite for Pianoforte, Violin and 'Cello (Dandelot); Three Songs (Baston-Conat): (a) Nevermore, (b) Viola, (c) Notre Père; Concert Piece for 'Cello (de Faye-Josin); Three Poems for Pianoforte. Soirs (Lesur); Suite for Pianoforte, Les Carillons; Two Songs (Lantier); Pastorale for Oboe, 'Cello and Pianoforte (Roesgen-Champion); Sonata for Pianoforte and Violin (Bertrand). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé. 7.0, Hot Jazz on Gramophone Records. 7.30, Sponsored Concert. 8.0, Medical Talk. 8.5, Talk on Aviation. 8.15, Half an Hour of Songs, by Max Régnier and his Company. 9.0, Interval. 9.15, Sponsored Programme. 10.15, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—12 Noon, Concert of Opera and Ballet Music by the Radio Paris Orchestra. 1.0 p.m., Exchange, News, and Weather. 1.5, Piano Recital by Jean Dennery. 1.30, Exchange. 1.35, Orchestral Concert (contd.). 2.0, Exchange. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk. 6.30, Elementary English Lesson. 6.50, Film Review. 7.0, Book Review. 7.20, Concert by the Radio Orchestra: Berceuse (Gaubert); Danse des lutins (Gillet); Selection from The Little Dutch Girl (Kálmán); Scherzo (Mussorgsky). 7.45, Commercial Prices and News. 8.0, A Waltz Dream—Operetta (O. Straus). In the intervals at 8.30, News, Weather, and Sports Notes, at 8.40, Review by Paul Reboux, and at 9.15, Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—7.30 p.m., Health Talk by Dr. Royal S. Copeland. 7.35, KDKA Home Forum. 8.0, Betty and Bob, from **New York.** 8.15, Monday Matinée, from **New York.** 8.45, Human Values. 9.0, Teaberry Baseball Scores. 9.5, Programme to be announced. 9.30, Weather Report. 9.32, Market Report. 9.45, Lois Miller—Folk Songs. 10.0, Teaberry Baseball Scores. 10.5, Programme to be announced. 10.15, Dick Daring, from **New York.** 10.30, The Singing Lady, from **New York.** 10.45, Little Orphan Annie. 11.0, Programme to be announced. 11.15, Time Signal. 11.16, Weather Report. 11.17, Teaberry Sport Review. 11.22, Press News Reder. 11.29, Temperature Report. 11.30, Riggs and Moke. 11.45 to 1.30 a.m. (Tuesday), **New York** Relay. 11.45, To-day's News, by Lowell Thomas. 12 Midnight, Pepsodent Amos 'n' Andy. 12.15 a.m., Townsend Murder Mystery. 12.30, Five Star Theatre—Marx Brothers. 1.0, Cliquot Club Eskimos. 1.30, Programme to be announced. 1.45 to 3.0, **New York** Relay. 1.45, Phil Cook and the Ingram Shavers. 2.0, Sinclair Minstrels. 2.30, Jack Frost Melody Moments. 3.0, Time Signal and KDKA Players.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—5.55 p.m., Theatre Notes and Programme Announcements. 6.0, Miscellaneous Items and Wireless Notes. 6.20, Programme for Soldiers. 7.5, Miscellaneous Items and News. 7.28, Time Signal. 7.30, See **Warsaw.** 8.0, "La sonnambula"—Opera (Bellini), relayed from **Cracow.** In an interval, Sports Notes and News from **Warsaw.** 10.30, Time Signal, Sports Notes and Police Announcements. 10.45 (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Bratislava.** 5.10, Medical Talk. 5.20, Talk: Commercial Engineering. 5.30, Programme for Children. 5.50, Popular Music on Gramophone Records. 6.5, Agricultural Talk. 6.15, Talk for Workers. 6.25, News in German. 6.30, German Transmission: Talk on Municipal Politics. 7.0, Chimes. 7.1, News Bulletin. 7.10, English Lesson. 7.25, See **Brno.** 8.25, Talk: Plants of Medicinal Value. 8.40, Concert by the Nusle Mandoline and Guitar Club. 9.0, Time Signal. 9.1, Concert by the Station Orchestra, conducted by Otakar Jeremias and the Prague Sokol Choral Society, conducted by Jeremias and Kubat. Soloist: Marie Pixova. 10.0, Time Signal. 10.1, News Bulletin. 10.15 (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc s, 403 metres; 25 kW.; **Geneva, 395 kc s, 760 metres.**—7.30 p.m. (from **Lausanne),** Weather, News and Announcements. 8.0 (from **Lausanne),** Pianoforte Recital by Mme. Yvonne Gamboni. 8.25 (from **Lausanne),** Song Recital by Mme. Stierlin-Vallon. 8.50 (from **Geneva),** Variety Programme by the Broadcasting Serenaders. 9.50, News and Weather. 10.0 (from **Geneva),** Gramophone Records of Popular Music. 10.30 (from **Geneva),** Talk: The Work of the League of Nations. 10.50 (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—5.30 p.m., Orchestral Concert: Aria from Lohengrin (Wagner); Aria from The Valkyries (Wagner); Liebesleid (Kreisler); Russian Song; Moment musical (Schubert); Mattinata (Leoncavallo); Minuet (Paderevsky); Spring (Hildach); Waltz, Estudiantina (Waldteufel); Overture, Light Cavalry (Suppé). 6.10, Agricultural Talk. 6.40, English Lesson. 7.10, Weather Report. 7.15, Concert of Popular Latvian Songs by the University Choir. 8.0, News Bulletin. 8.20, Suite, Aphrodité (Février) by the Station Orchestra, conducted by J. Medins. 9.0, Weather and News. 9.15, Concert of Waltzes. 10.15 (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.**—1.0 to 2.15 p.m., Gramophone Concert of Light Music. In the interval at 1.30 (approx.) to 1.45, Exchange and Giornale Radio. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30, Song and Pianoforte Recital. Prelude, Sarabande and Toccata for Pianoforte (Debussy); Baritone Solos: (a) Aria from Faust (Gounod), (b) Cavatina from The Barber of Seville (Rossini); Soprano Solos: (a) Donne vaghe (Paisiello), (b) Aria from I Puritani (Bellini), (c) Aria from Hamlet (Thomas); Pianoforte Solo, Allegro from the Concerto (Granados); Baritone Solos: (a) Aria from Nero (Rubinstein), (b) Aria from Falstaff (Verdi). 6.40 (Naples), Shipping and Sports Notes. 6.50, Agricultural and Dopolavoro Notes. 7.10, Tourist Report. 7.20, Giornale Radio. 8.0, Time and Announcements, followed by Popular Music on Gramophone Records. 8.30, Giornale Radio and Sports Notes. 8.45, Concert of Light Music. In the interval, Talk. 10.55, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—8.0 p.m., Book News by Levere Fuller. 8.15 to 9.0, **New York** Relay. 8.15, Salon Concert Ensemble. 8.30, Three Scamps. 8.45, The Lady Next Door. 11.45, Stock Report. 12 Midnight to 1.30 a.m. (Tuesday), **New York** Relay. 12 Midnight, Socouyland Sketch. 12.30, National Opera Concert. 12.45, Band of Famous Brands. 1.0, A and P Gipsies. 1.30, One Man's Family, by the WGY Players. 2.0 to 3.0 (approx.), **New York** Relay. 2.0, Contented Programme. 2.30, National Radio Forum, followed by Programme Résumé. 3.0 (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—11.59 a.m., Time Signal from Neuchberg Observatory and Weather. 12 Noon (from **Basle**), With Kettle Drum and Trumpet Gramophone Concert of March Music. 12.30, News Bulletin. 12.40 (from **Basle**), Folk Music on Gramophone Records. 1.25 to 1.30 (from **Basle**), Exchange, Time and Weather. 5.0 (from **Basle**), Programme for Women. 5.30 (from **Berne**), Popular Music on Gramophone Records. 6.30 (from **Zürich**), Talk: Swiss Agriculture. 7.0, Time and Weather. 7.10 (from **Zürich**), Concert by the Swiss Radio Orchestra. 7.30 (from **Zürich**), English Lesson. 8.0 (from **Zürich**), Concert by the Swiss Radio Orchestra. 8.30 (from **Zürich**), Report from the New Studio. 9.0, Weather and News. 9.10 (from **Zürich**), Organ Recital from the New Studio. 10.15 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Göteborg, 932 kc s, 322 metres; Hörby, 1,166 kc s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—5.5 p.m., Concert by the Lidingö Male Voice Choir, conducted by Gösta Lidman. 5.30, Talk. 5.55, Popular Music on Gramophone Records. 6.55, Parliamentary Report. 7.15, Weather and News. 7.30, Talk. 8.0, Concerts by the Station Orchestra, Incidental Music from Plays: Extract from Meister Oluf (Anlin); Selection from Much Ado about Nothing (Korngold); Elegy from Gustavus Adolphus (Alfvén); Selection from Pelléas et Mélisande (Fauré); Selection from The Marionettes (Rosenberg); Incidental Music from King Christian II (Sibelius). 9.15 (from **Göteborg**), Reading. 9.45, Weather and News. 10.0, Orchestral Concert: Overture, Morning, Noon and Night (Suppé); Waltz, Wiener Bonbons (Joh. Strauss); Selection from Lilac Time (Schubert-Berté); Im Wiener Wurste-Prater (Brosch); Potpourri, Servus Wien (Dostal). 11.0 (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW. 11.30 a.m., Selection from the Operas of Masscnet on Gramophone Records. 12.45 p.m., News. 1.0, Time Signal and Exchange Quotations. 1.5, Light Music on Gramophone Records. 2.0 to 5.0, Interval. 5.0, Orchestral Concert. Conductor and Solo 'Cello: M. Roskam. Marche joyeuse (Guéjol); Waltz, Fleur d'Alsace (Christol); Schubert Potpourri (Ralf); Overture, Im Reiche des Indra (Lincke); Selection from The Tales of Hoffmann (Offenbach); Andante from the 'Cello Concerto (Goltermann); Rose-Thé (Fauchey); Selection from La Mascotte (Audran); Fantoccini (Gillet). 6.0, Book Review. 6.15, Talk in French: Through Lorraine. 6.30, Gramophone Concert. Selection from Schön ist die Welt (Lehár); Liebesfreud (Kreisler); Liebeslied (Kreisler); Knit joyeuse (Minsart); The Nightingales' Serenade (Klose); Am Lagerfleur (Siede); Spanish Waltz (Metra); March (Cariolato); Gipsy Melody, Black Eyes; Russian Melody, Shadows of the Past; Pourquoi nos dire adieu (Bos); La Fortune (Marrio); Rund um die Volga (Borchert). 7.30, Time and News. 7.45, Gabriel Fauré Concert on Gramophone Records. Après un rêve; Berceaux; Recontre; Clair de lune; Soir; Les Roses d'Ispahan; Les myrthes sont flétris; Au bord de l'eau; Pie Jésu. 8.15, German Press Review in German and Lottery Results. 8.30, Frederica—Operetta in Three Acts (Lehár). In the interval at 9.30 (approx.), Press Review in French. 10.30 (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—12 Noon, Promenade Concert by a Military Band, relayed from the Schlossplatz. Festival March from Tannhäuser (Wagner); Overture, Il Guarany (Gomez); Waltz, Tales from The Vienna Woods (Joh. Strauss); Hungarian Rhapsody (Reindel); Potpourri of Soldier Songs (Hannemann). 1.0, Gramophone Records of Light Music. 1.15, Time, News, Weather and Programme Announcements. 1.30, Gramophone Records of Herbert Ernst Groh (Tenor): Romance from Semiramide (Rossini); Cavatina from La Favorita (Donizetti); Romance from The Pearl Fishers (Bizet); Liebesfeier (Weingartner); Song from Le Postillon de Longjumeau (Adam); Song from Mignon (Thomas); Harlequin's Serenade from I Pagliacci (Leoncavallo); Im Prater blühn wieder die Bäume (Stolz); Waltz, Wiener Blut (Joh. Strauss). 2.0 to 2.15, Programme arranged by the Post Office, with Gramophone Records. 2.30, Spanish Lesson. 3.0 to 3.30, Elementary English Lesson. 4.30, See **Munich.** 5.45, Time, Weather and Agricultural Prices. 6.0, Talk: Germany and her Leaders—Paul von Hindenburg. 6.25, See **Frankfurt.** 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, See **Leipzig.** 9.0, See **Hamburg.** 10.0, Time, News, Weather and Programme Announcements. 10.20, Talk on Chess. 10.45, See **Munich.** 12 Midnight (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to fire. 7.30 p.m., Songs from Operettas. 8.15, Songs from Sound Films. 8.30, Arias from Operas. 8.45, Music Hall Programme. 9.15, Military Music. 9.30, Concert: Part I—Solos. Part II—Popular Songs. 10.0, Accordion Solos. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Request Concert. 11.30 to 12 Midnight, Programme in English by the I.B.C., W. Brown-Constable announcing. 11.30, Celebrity Concert on Gramophone Records: The Gay Highway, by Peter Dawson; The Bugginses prepare for a Party, by Mabel Constanduros and Michael Hogan; Dear, when I met you, by Jeannette Macdonald; The Vagabond, by Peter Dawson; Memories of Maurice Chevalier; The Telegraphy, by Billy Lancet; Love is like a Song, by Dorothy Dixon; Lullaby of the Leaves, by Roy Fox. 11.57, I.B.C. Goodnight Melody. 12 Midnight, Weather and Announcements. 12.5 a.m. (Tuesday), Bal Musette. 12.15, Instrumental Music. 12.30 (approx.), Close Down.

TRIESTE

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

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—5.10 to 6.0 p.m., Variety Concert. 6.35, Giornale Radio. Agricultural Report and Dopolavoro Announcements. 7.0, Time Signal and Tourist Report. 7.5, Gramophone Records. Fantasia, Excelsior (Marenco); Notte gioiosa (Tufanio); Cordoba (Albéniz); Farfalla rosa (Torregrossa); La España cani (Marquina). 7.20, Giornale Radio. 7.45, Light Music on Gramophone Records. 8.0, Announcements, Giornale Radio and Weather. 8.10 (approx.), Gramophone Concert. Overture, Der Freischütz (Weber); Selection from La Gran Via (Chueca-Valverde); Scherzo (Lalo); Selection from Boccaccio (Suppé); Symphonic Poem, Psyche (Franck); The Garden of Roses; Waltz, Roses from the South (Joh. Strauss). 8.45, Talk. 9.0, Chamber Music. 10.0, One Act Comedy. After the Comedy, Gramophone Records of Songs and 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 Italian. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 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.**—6.0 p.m. Talk: The Wienerwald. 6.25, English Lesson. 6.45, Time, Weather Forecast, Alpine Weather and Programme Announcements. 6.55, Rienzi—Opera in Five Acts (Wagner), relayed from the Opera House. In an interval at 9.15, (approx.), News and Weather Forecast. 10.50, Market Prices. 10.55, Concert of Gramophone Records. Overture, Der Opernball (Heuberger); Waltz, Roses from the South (Joh. Strauss); Paraphrase on the Dance Tune, Handsome Gigolo (Casucci); Musikalisches Wandelpanorama (P. Lincke); Selection from Die Puppenfee (Bayer).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—11.40 a.m., Press Review. 11.50, Weather for Aviation. 11.57, Time Signal and Fanfare from St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Popular Music on Gramophone Records. 1.20, Weather. 1.25, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Answers to Correspondents. 3.35, Answers to Technical Correspondence. 3.50, Light Music on Gramophone Records. 4.25, Elementary French Lesson. 4.40, Talk on Economics. 5.0, Song and Violin Recital by Z. Kowarska (Soprano) and Z. Roesner. 5.55, Programme Announcements. 6.0, Dance Music. In an interval, News. 7.0, Miscellaneous Items. 7.20, Agricultural Correspondence. 7.30, Topical Talk. 7.45, Radio Journal. 8.0, Dramatic Programme, relayed from the Municipal Theatre, **Cracow, 959 kc/s, 312.8 metres.** In the intervals, Sports Notes, Radio Journal, and Answers to Technical Correspondence. 10.30, Dance Music. 10.55, Aviation Weather Report and Police Notes. 11.0, Dance Music from the Adria. 12 Midnight (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MAY THE SIXTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL LONDON REGIONAL	"Tickets, Please," a modern fairy story with music. Act 1 of "Tristan und Isolde" (Wagner), from the Royal Opera House, Covent Garden.
MIDLAND REGIONAL	"O, Death, Where is Thy Sting?" a play by Allan Monkhouse, from the Repertory Theatre, Birmingham.
NORTH REGIONAL	"The Circling Year," a radio drama of the Industrial North, by R. Strickland.
WEST REGIONAL	Police Band concert.
SCOTTISH REGIONAL	"Two Town Topics," a revue by W. Lindsay.
BELFAST	Light orchestral concert.

ABROAD

BUCHAREST	8.20 p.m. Concert by the Station Orchestra.
BUDAPEST	6.30 p.m. Concert of Hungarian opera music.
EIFFEL TOWER	8.30 p.m. Opera: "L'Arlésienne," by Bizet.
HAMBURG	10.30 p.m. The Philharmonic Orchestra, conducted by H. Platen.
HUIZEN	2.40 p.m. Pianoforte recital by J. van Emden.
LEIPZIG	7 p.m. Old German songs, sung by the choir of St. Thomas' Church (relayed by other German stations).
MUNICH	8.5 p.m. Opera: "The Fair at Sorochinsk" (Mussorgsky) (relayed from **Nürnberg**).
POSTE PARISIEN	8.30 p.m. Concert of Norwegian music.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **5.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Readings. **7.15,** Recitations. **7.30,** Pianoforte Solos by Victor Love. **7.50,** Violin Duets by Mrs. Larchet and Mrs. Lange. **8.15,** Tenor Solos by Joseph O'Neill. **8.25,** The Station Orchestra. **8.40,** Tenor Solos by Joseph O'Neill. **8.50,** The Station Orchestra. **9.0,** Soprano Solos by May Doyle. **9.20,** The Station Orchestra. **9.30,** Gaelic Song Recital by Tadhg MacFirbhisigh. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records and Talk on Hygiene. **8.30,** Exchange Quotations and Art Notes. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **10.5,** Sponsored Programme. **10.30,** Two Musical Comedies: (a) El Pobre Valbuena (Valverde and Torregrosa), (b) La Venta de Don Quijote (Chapi). In the interval at **12 Midnight,** News. **1.0 a.m. (Wednesday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 p.m.,** Pianoforte Recital by Addolorata Sardelli. **6.0 to 6.30,** Popular Music on Gramophone Records. **8.0,** Agricultural Report, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and News. **8.40** (approx.), Choral Concert: Invocazione alla Madonna for Soprano, Choir, Pianoforte, and Harmonium (Mascagni); L'eco (di Lasso); Serenata (Arii); Three Songs Montanaro): (a) O villano, stimola quei buoi, (b) Dove vai, o Mariolina? (c) La Gianna; Canzone amorosa barese (Grimaldi); Contrappunto bestiale alla mente (Banchieri). **9.30,** Quintet Concert: Overture (Monton); Il minuetto (Licari); Selection from Frederica (Lehar); Valzer campestre, from the Suite siciliana (Marinuzzi); Festa di gnomi (Culotta); Selection from La Figlia di Jorio (Franchetti); Selection from Casanova (Lincke). In the interval, Announcements. **10.30,** Concert relayed from the Grand Hotel Moderno. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.5 kW.—**4.0 p.m.,** Concert by the Station Orchestra: March, Serbische Lieder (Rendla); Overture on Serbian Themes (Rendla); Egyptian Suite (Thiele); Love Song (Schmalstich); Selection from Tosca (Puccini). **5.0,** Talk. **6.55,** Time and Programme Announcements. **7.0,** Reading. **7.30,** Light Music on Gramophone Records. **8.0,** See **Zagrab.** **10.0,** News, followed by Concert of Cigány Music from the Rudnicanin.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW. **2.0 p.m.,** Gramophone Concert of Variety Music. **3.0,** Talk for Young People: Bathing. **3.30,** Weather and Exchange. **3.45,** Reading: Der Gottesfeind (Gerhard Klose). **4.0,** See **Leipzig.** **5.0,** Talks for Women. **5.25,** Topical Talk. **5.35,** Sextet for Pianoforte and Wind Instruments (Ludwig Thuille) by the State Opera House Wind Instrument Quartet and Soloists. **6.0,** A Poem. **6.5,** Schrammel Music by the Dietrich Quartet. **6.30,** Political Press Review. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** The Honeymoon—after the Novel by de Coster (arranged for Radio by Klaus Herrmann). **9.10,** Wind Instrument Concert, relayed from **Hamburg.** **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Hamburg.** **12 Midnight,** Close Down.

BERLIN

WITZLEBEN; 715 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Review of Books. **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.5,** Announcements. **8.10,** Youth and the State—Adventures and Prospects for the Intellectual (Leopold Dingräve). **8.35,** Concert by the Berlin Wireless Orchestra, conducted by Erich Orthmann: Reflections on a Russian Folk Song, for String Orchestra, Op. 56 (Erich Anders); Serenade in D (Mozart). **9.40,** Gutholz:—A Radio Report from a Skittle-Alley. **10.0,** Weather, News, and Sports Notes. **10.30** (approx.), Concert from **Hamburg.** **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Talk for Women. **7.55,** Lottery Results. **8.0,** Scientific Talk. **8.15,** News Bulletin. **8.30,** See **Paris (Eiffel Tower).**

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Concert by the Yugoslav Children's Choir, relayed from the Reduta Hall. **5.0,** Light Music on Gramophone Records. **5.20,** Sonatina for Violin, Op. 27 (Fibich). **5.50,** Talk: Influence of Education on the Character of Children. **6.0,** Light Music on Gramophone Records. **6.5,** See **Prague.** **6.15,** Sonata in F Minor for Two Pianofortes (Brahms). **6.55,** Programme for Women. **7.0,** See **Prague.** **7.25,** Talk on the following Transmission. **7.30,** Thais—Opera (Massenet), relayed from the Slovak National Theatre. **10.0,** See **Prague.** **10.15,** Concert of Schrammel Music. **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.—1.10 p.m.,** Gramophone Concert of Waltzes. **1.45,** Time, Weather, News, and Exchange. **2.5,** Request Gramophone Concert: Overture, The Caliph of Bagdad (Boieldieu); Aria from La Bohème (Puccini); Turkish March (Mozart); Mexican Folk Song (Bourdon); Selection from Tiefland (d'Albert); Liebeslieder-Walzer (Joh. Strauss); Puppe und Hampelmann (Siede); Waltz from Die Puppenfee (Bayer); March, Freiheitsjubel (Blankenburg). **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Children. **4.10,** Lieder Recital by Hedwig Zbeczka-Fuhrmann (Soprano): Klärchens Lied (Schubert); Im Haine (Schubert); Die Rose (Spohr); Du bist wie eine Blume (Liszt); Eros (Grieg); Ich liebe Dich (Grieg); Nur Wer die Sehnsucht kennt (Tchaikovsky); O du wogendes Feld (Rachmaninov). **4.40,** Book Review: Portraits of women in Diaries and Letters. **5.0,** Concert from **Leipzig.** **5.30,** Agricultural Prices. **5.35,** Talk: Christianity and Free Will. **6.0,** Memorial Concert of Music by Sigfrid Karg-Elert: Ciaconna con variazioni, Op. 14, No. 3; Um Mitternacht, Op. 58, No. 8; Air, Op. 37, No. 5, Canzone, Op. 46, No. 2. **6.25,** Programme to be announced. **6.50,** Weather for Farmers, News, and Market Prices. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** See **Stuttgart.** **9.0,** News. **9.10,** Military Band Concert, from **Hamburg.** **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.25,** Political Press Review. **10.50, Talk:** Film Criticism. **11.5,** Concert from **Hamburg.** **12 Midnight,** Close Down.

BRNO

678 kc/s, 342 metres; 35 kW.—**6.15 p.m.,** Talk for Workers. **6.25,** German Transmission: News and Agricultural Talk. **7.0,** See **Prague.** **7.25,** See **Bratislava.** **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 of Music by Gamne; The Small Station Orchestra, conducted by Paul Leemans. **12.30 p.m.,** Concert of Music by Belgian Composers. **1.0,** Le Journal Parlé. **1.10, Two Pieces (Liszt) on Gramophone Records: (a) Waltz, Mephisto, (b) Hungarian Rhapsody No. 12; Three Songs by M. Jacquier (Tenor). 1.45,** Three Melodies (Berlioz): (a) Dance of the Sylphs, (b) Hungarian March, (c) Scherzo from Romeo and Juliet. **5.0,** Lab Concert by the Radio Orchestra, conducted by Franz André: Overture, Le Roi d'Ys; Romance from the Violin Concerto; Divertissement. **5.30,** Programme for Children. **6.5,** Literary Talk. **6.15,** Quartet in D—the Skylark (Haydn) on Gramophone Records. **6.30,** Beethoven Concert by the Small Station Orchestra, conducted by Paul Leemans. **7.15,** Weekly Review and Film Notes. **7.30,** Programme for Women. **8.0,** Jazz in the Zoo—Fantasy (Basiliewsky), by the Station Orchestra, conducted by Franz André. **8.20,** Offenbach Concert: Overture, La Vie Parisienne; Intermezzo and Barcarolle from The Tales of Hoffmann; Quadrille from Orpheus in the Underworld; Overture, The Drum Major's Daughter. **8.45,** Talk on Music. **9.0,** Concert by the Radio Orchestra, conducted by Franz André; Soloist: M. Piergyl (Songs); Overture and Aria from Si j'étais toi (Adam); Overture and Aria from Véronique (Messager); Overture and Song from La Mascotte (Audran); Overture, Les Dragons de Villars (Maillart); Waltz from Les Saltimbanques (Ganne); Mademoiselle Sonrire (Lachaume); Aria from Les Noces de Jeannette (Massé); Waltz from Ciboulette (Hahn). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Concert. **10.40,** Gramophone Records: Concerto Grosso, No. 14 (Handel); Pièce héroïque (Franck). **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Gramophone Concert of Variety Music. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Leemans: Overture, Poet and Peasant (Suppé); Waltz (Ziehrer); Dance of the Hours from La Gioconda (Ponchielli); Gramophone Records and Racing Notes; Selection from The Bartered Bride (Smetana); Two Airs from a Sound Film (Grun). **5.0,** Popular Music on Gramophone Records. **5.45,** Programme for Children. **6.30,** Extracts from The Merry Widow—Operetta (Lehár) on Gramophone Records. **6.55.** Gramophone Records of Songs sung by Ernst Busch. **7.15,** Talk. **7.30,** Le Journal Parlé. **8.0,** Concert of Music by Peter Benoit and Other Flemish Composers; The Station Symphony Orchestra, conducted by Meulemans; Soloists: Irene van Rijsselberghe (Pianoforte) and Jef van Schoeland (Baritone). **10.0,** Le Journal Parlé. **10.10,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Monoi Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Song Recital by Aurel Alexandrescu: La nuit (Tchaikovsky); Song (Tchaikovsky); Der Gärtner (Wolf); Selbstgefühl (Mahler); O Bebliche Wangen (Brahms); Song (Mezzetti). **8.20,** Concert by the Station Orchestra: Prelude and Death of Isolda from Tristan and Isolda (Wagner); Suite, A Midsummer Night's Dream (Mendelssohn); Selection from Turandot (Puccini); Selection from La belle Hélène (Offenbach); Potpourri, Für alle (Dostal). **9.0,** Talk. **9.15,** Concert (contd.): Soloist, [illegible] Draghici ('Cello): Viennese Waltz (Dolmas); Second Movement from the Fifth Symphony (Dvorak); Marionettes (Liadov); Serenade No. 3 for 'Cello (Volkmann); Slav March (Tchaikovsky). **9.45,** Radio Journal. **10.0,** Talk: The Spas of Romania.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **6.30 p.m. to 12 Midnight. 4.0 p.m.,** Concert by the Lajos Skikszay Cigány Band. **4.45,** News Bulletin. **5.0,** Reading. **5.30,** 'Cello Recital by Paul Hermann. **6.0,** Talk by Pilot Tibor Bisitz: My Machine, Gerle 13. **6.30,** Concert of Hungarian Opera Music by the Opera House Orchestra, conducted by E. Friedl: Overture, Ilka (Doppler); Selection from Bánk bán (Erkel); Ballet Music from Tatjana (Lehár); Selection from The Queen of Sheba (Goldmark); Carnival Wedding (Poldini); Ballet Music from Die Maske (Hubay). **8.0,** Liszt International Pianoforte Competition relayed from the Academy of Music. **10.0,** News Bulletin. **10.15** (approx.), Concert by the Georg Guttenberg Concert and Dance Band and the Antal Kocze Cigány Band from the Café Ostende. Soloist: Paul Kalmar. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. and **KALUNDBORG, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, relayed from the Bellevue Strand hotel. **2.0 to 3.0,** No Transmission. **3.0,** Concert by Carl Rydahls Instrumental Ensemble. Soloist: Madelaire Pfeiffer (Pianoforte). **5.0,** Programme for Children. **5.45,** Exchange and Fish Market Prices. **5.55,** Talk. **6.20,** German Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk: Criminal Law in Soviet Russia. **8.0,** Chimes from the Town Hall. **8.5,** Introductary Talk to the following Transmission. **8.15,** Così fan tutte—Opera in Two Acts (Mozart). **10.15,** News. **10.30,** Reading. **10.55,** Dance Music relayed from the Nimb Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Wednesday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C.: T. St. A. Ronald, C. Danvers-Walter, and B. McNabb announcing. **5.30,** Concert of Special Request Items for Torquay and Exeter Listeners: Invitation to the Waltz (Weber). (a) Just plain Folk (Gilbert), (b) Songs: (a) Just plain Folk (Gilbert), (b) Sleep Baby, sleep (Tucker); Sketch: Days of the Dug-outs; Song: I'll never ask for more (Ahlert); Waltz, The Blue Danube (Joh. Strauss); Songs: (a) The Heart of the Sunset (Nicholls), (b) Take your To-morrow (Razof); Tales from the Vienna Woods (Strauss); Song: Hello Sunshine (Murray). **6.15,** Organ and Violin Recital for Plymouth and Devonport Listeners: Organ Solos: (a) A Perfect Day (Jacobs Bond), (b) Indian Love Call (Friml); Violin and Organ Duet: Because (d'Hardelot); Organ Solos: (a) Selection from Cavalleria rusticana (Mascagni), (b) Il Bacio (Arditi); Violin and Organ Duets: (a) I'll sing thee Songs of Araby (Clay), (b) Drink to me only (Calcott); Organ Solos: (a) Nola (Arndt), (b) Turkish Patrol (Michaelis); Xylophone and Organ Duet: The Whistler and his Dog (Pryor); Organ Solos: (a) Glow Worm Idyll (Lincke), (b) A Life on the Ocean (Binding). **7.0,** Radio Gazette. **7.20,** News Bulletin. **7.30,** Request Programme and News. **8.15,** Talk. **8.30,** Concert relayed from Le Havre. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Decolians: Back again to happy-go-lucky Days; Was that the Human thing to do?; Hot Coffee; She didn't say Yes; Good-night Vienna; Snap your Fingers; Five Minutes to Twelve; Snuggled on your Shoulder; Somebody loves you; Masquerade; Majah General Thing-a-me-bob; Auf Wiedersehen, my dear; Ooh! that Kiss; Good Evening. **11.0,** Concert of Hungarian Music; Comedy Overture (Keler Bela); Hungarian Dance No. 2 (Brahms); Violin Solo: Hejre Kati (Hubay); Hungarian Dance No. 5 (Brahms); Hungarian Rhapsody No. 2 (Liszt); Lucassi March (Lucassi); Hungarian Medley (arr. Leggatt). **11.30,** Songs and Or-

chestral Music; Songs: (a) To Mary, (b) Maire, my Girl, (c) Passing by; Wedgewood Blue; Songs: (a) Down Vauxhall Way, (b) Beauty's Eyes, (c) Green Hills of Somerset, (d) Sari Waltz. **12 Midnight,** Club Concert for Epsom and Kingston-on-Thames Listeners: Post Horn Gallop (Koenig); I do like a nice Outsider; Sleepy Valley (Hanley); Horses Carry Tails (Redmond); Thompson's Old Grey Mule (Pickard); Sketch: Peter Perkins at the Races; Waltz Favourites (Ancliffe); A Ghost of a Chance (Washington); Valse des Alouettes (Drigo); You're still my Sweetheart (Yellen); Just an Echo in the Valley (Woods); March of the Mannikins; Moonlight on the River. **1.0 a.m. (Wednesday),** Mandoline Solos: In old Seville (Rosen); Mandolinata (de Pietro); Capriccio Mazurka (Arienzo); Mandoline Band: Tesorio Mio (Beucci); Napolitana (Meisel); Mandolino (Thomé); Czardas (Monti); Mandoline Band: Waltz, The Blue Danube (Strauss). **1.30,** Songs: A Little Kiss each Morning (Woods); The Night was made for Love (Kern); I am the Words (de Sylva); Orchestra: Selection from White Horse Inn (Stolz-Benatzky); Now I'm in love (Yellen); A New Love is Old (Harbach); Little White Lies (Donaldson). **2.0,** Dance Music by the Hecolians: By the Fireside; Oh, Monah; The Longer that you linger in Virginia; To-day I feel so Happy; Sunshine and Roses; Consolation; Oh what a Night; Anchor's aweigh; I still get a Thrill; I'd like to find the Guy that wrote the Stein Song; That's where the South begins; Hunting Tigers out in India; If I could be with you; Soldier on the Shelf. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s,, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m.,** Astronomical Talk: The Heavens in May and June. **6.25,** Talk: The Importance of the German Mystics to us and our Age. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** See **Stuttgart. 9.0,** A German Almanac. **9.15,** Concert by the Station Orchestra: March, Frühlingskinder (Blankenburg); Sicilienne and Gavotte (Blockx); Waltz from the Aschenputtel-Suite (d'Albert); Bilder aus Norden (Hofmann); Musikalische Dorfgeschichten (Kretschmer); Romantic Suite (Armandola); March, Unter deutscher Flagge (André). **10.15,** Time, News, Weather, and Sports Notes. **10.45,** See **Stuttgart. 12 Midnight** (approx.), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.—5.55 p.m.,** Book Review. **6.20,** Lower Saxon Organ Music—Recital for Choir and Organ, relayed from the Christuskirche, Hanover: Organ Solo, A solis ortus cardine (Praetorius); Choir, Es war des ew'gen Vaters Rat (Praetorius); Prelude and Fugue in C for Organ (Böhm); Choir, Hymne an die Novembernacht, Op. 3b, No. 2 (v. Sosen); Organ Solo, Unseren deutschen Brüdern (Gorrissen). **6.45,** Frankfurt Exchange and Hamburg Egg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0** (from **Bremen**), Oldenburg—a Literary and Musical Radio Sequence. Part I—Address by Herr Carl Rover. The Oldenburg National Anthem, Heil Dir o Oldenburg; Variations for Clarinet and Pianoforte (Weber); The Countryside in Verse; Four Songs: (a) Am Strande (Karg-Ehlert), (b) Am Waldessaum (Rehfeld), (c) Zigeunerlied (Allmers), (d) Friesengesang (Allmers); The Sea, Marsh, Moor, and Heath in Prose; Concerto for Flute and Pianoforte (Manns); Poems in North German Dialect; Two Songs (Wüst): (a) Auf den Tod meines Kindes, (b) Folk Song; Finale. Part II—Military Band Concert of Marches. **10.0,** Time and News. **10.20,** Topical Talk. **10.30,** Concert by the Hamburg Philharmonic Orchestra, conducted by Horst Platén: Prelude to the Third Act and Bridal Chorus from Lohengrin (Wagner); Overture, Genoveva (Schumann); Allegro Molto, Scherzo and Minuet from the Serenade in D (Brahms); Selection from André Chénier (Giordano); Walzer-Szenen (Reuter); Die Mär vom tapferen Schneiderlein (Zimmer); Waltz, Frühlingsstimmen (Joh. Strauss).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 162 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert of Potpourris. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Market Prices and Exchange Quotations. **3.30,** Programme for Children. **4.0** (from **Danzig**), Police Band Concert: March, Der grüne Jägersmann (Allbont); Jubel-Ouvertüre (Flotow); Waltz from The Gipsy Princess (Kálmán); Selection from Mignon (Thomas); Intermezzo, Spring in Japan (Jessel); March, Sport und Spiel (Leuschner); Overture to Josef Lanner (Urbach); Fantasia, Nachruf an Weber (Bach); Introduction and Chorus from Rienzi (Wagner); Slav Rhapsody No. 2 (Friedemann); Kriegsspiele (Möller); Potpourri of Marches, Deutschlands Erwachen (Kochmann). In the interval at **4.50,** Programme for the 149th Anniversary of the Birth of Friedrich Rückert. **5.45,** Dialogue on the Army Training School for Administration and Economics. **6.15,** Agricultural Prices. **6.25,** Talk on Handicrafts: The Locksmith. **6.50,** Weather Forecast. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** News. **8.5,** Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken and the Glatzel Band. **9.35,** News. **9.45,** Talk: Seven Centuries of the Village of Marienwerder. **10.15,** Weather, News and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep.—**10.10 a.m.,** Organ and 'Cello Recital by Piet van Egmond (Jr.) and André Felleman. In an interval at **10.40,** Talk. **11.40,** Time Signal. **11.41,** Concert by the Wireless Orchestra, conducted by Nico Treep: March, Immer froh und heiter (Siede); Lyric Suite (d'Albert); Waltz, Très jolie (Waldteufel); Selection from I Pagliacci (Leoncavallo); Gramophone Records: Overture, Paragraph III (Suppé); Selection from Die blaue Mazur (Lehar); Liebesleid (Kreisler); Liebesfreud (Kreisler); Prelude (Rachmaninov); Czardas (Michiels); Gramophone Records: Overture, The Nuremburg Doll (Adam); Night in Cairo (Gilbert); Tango from Der Teufelsreiter (Kalman); Hungarian Dance Suite (Kalman); Von Ohr zu Ohr (Morena); March, Im Zigeunerlager (Oscheit). **1.55 p.m.,** Interval. **2.10,** Gramophone Concert of Light Music. **2.40,** Dressmaking Lesson. **3.40,** The Emperor Quartet, Op. 76, No. 3 (Haydn). **4.10,** Concert by a Children's Choir, conducted by Jacob Hamel. **4.40,** Programme for Children. **5.10,** Talk. **5.40,** Popular Music on Gramophone Records. **6.10,** Talk. **6.40,** Light Music on Gramophone Records. **7.5,** Interval. **7.10,** Talk on French Switzerland. **7.40,** Time and News. **7.45** Concert of Light Music by Kovacs Lajos and his Orchestra. **8.55,** Radio Play. **9.40,** Concert by the Wireless Orchestra, conducted by Nico Treep. Soloist: Egbert Veen (Pianoforte): Overture, Il Seraglio (Mozart); Pianoforte Solo: Rondo in B Flat (Beethoven); Selection from Tannhäuser (Wagner); Pianoforte Solo: Capriccio, Op. 22 (Mendelssohn); Overture, The Merry Wives of Windsor (Nicolai). **10.40,** News. **10.50,** Concert of Light Music by a Women's Orchestra, conducted by Alexander Shirmann. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Catholic Radio Society (K.R.O.). **11.55 a.m.,** Concert by the Con Brio Trio. **1.25 p.m.,** Interval. **1.40,** Programme for Women. **2.40,** Piano Recital by J. van Emden: Invitation to the Waltz (Weber); Rustle of Spring (Sinding); Liebesträume No. 3 (Liszt); La Campanella (Liszt); Gramophone Records; Grande Valse brillante (Chopin); Nocturne in F Sharp (Chopin); Etude in A Flat (Chopin); Etude in G Flat (Chopin); Mazurka in B Flat (Chopin); Minuet in G (Paderevsky). **3.40,** Programme arranged by the H.I.R.O. **4.50,** Concert by the KRO Sextet: The Belle of Barcelona (Payne); Ich möcht' einmal wieder verliebt sein (Stolz); Waltz, Mörgenblätter (Strauss); Potpourri; Lehàriana (Geiger); Mir gefällt jede Frau (Grosz); Selection from Lilac Time (Schubert-Berté); Kleine Yvonne (Sachs); Klänge aus Rumanien (Dauber); Femina (Fresco). In an interval at **5.40,** Talk. **6.40,** Police Notes. **6.55,** Talk. **7.20,** Gramophone Records. **7.25,** Talk. **7.40,** Concert by the KRO Orchestra, conducted by M. Kühn: Homage March (Wagner); Selection from Tannhäuser (Wagner); Selection from The Mastersingers (Wagner); Overture, Rienzi (Wagner). **8.20,** Press Review. **8.25,** One-Act Radio Play. **8.40,** Concert (contd.): Selection from Romeo and Juliet (Tchaikovsky); Elegy and Waltz from the Suite for Strings (Tchaikovsky); Theme, Variations, and Polacca from Suite No. 111 (Tchaikovsky). **9.10,** One-Act Radio Play. **9.30,** Concert (contd.): Academic Festival Overture (Brahms); Wiener Drievierteltakt (Wagenaar); March from The Damnation of Faust (Berlioz). In the interval at **10.10,** Press Notes. **10.15,** Light Music on Gramophone Records.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Notes, and Racing Results. **8.10,** Agricultural Talk. **8.20,** The Listeners' Quarter of an Hour. **8.35,** Radio Concert. **9.0,** Weather and News. **9.15,** Radio Concert (contd.). **12 Midnight** till Close Down, Programme in English by the I.B.C. **12 Midnight,** Organ Recital: Popular Irish Medley; La Serenata (Braga); Sweet Genevieve (Tucker); In a Chinese Temple Garden (Ketelbey); Mother Machree (Olcott); Who am I? (Newman); A Perfect Day (Jacobs-Bond); Medley of Wilfred Sanderson's Popular Songs. **12.30 a.m. (Wednesday),** Dance Music: A Letter to me Mother; Love will find a Way; Standing on the Corner; Butterflies in the Rain; I'm playing with Fire; Do you recall; Willow weep for me; Can't we meet again? **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW. **7.0 p.m.,** Talk. **7.15,** Announcements, followed by Popular Music on Gramophone Records. **7.25,** Sports Notes. **7.30,** See **Warsaw.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW., and **Helsinki, 368.1 metres.—6.14 p.m. to 8.45 p.m.,** Coastguard Programme. Music and Addresses. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Wolf; Soloist: Magda Langer (Soprano). In the interval at **2.0,** News. **2.30 to 2.45,** Sponsored Programme with Gramophone Records. **3.0,** Programme for Children. **3.30,** Economic Notes and Time Signal. **3.50,** Notes on the Broadcasts for Schools. **4.0,** Educational Talk: The Teaching of Mathematics. **4.30,** Concert by the Prisca Quartet, Margarethe Dörr (Contralto) and Egbert Grape (Pianoforte): String Quartet in B flat; Five Songs: (a) Auf dem See, (b) Dämmerung senkte sich von oben, (c) Es träumte mir, (d) Die Mainacht, (e) Swabian Folk Song; String Quartet in A Minor. **5.50,** Reading of Poems by Heinrich Lersch. **6.0,** Talk: The Open-Air Theatre in Modern Times. **6.20,** Italian Lesson. **6.45,** Weather, Time, Economic Report and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** First General News. **8.5,** May Night—a Radio Sequence, with Music by Leo Justinus Kauffmann. **8.40,** Chamber Music by Young Rheinish Composers; Josef Ingenbrand (Pianoforte), Walter Kinkel (Violin), Herbert Aurath (Violin) and Robert Grote ('Cello): Suite for 'Cello and Pianoforte (Ingenbrand); String Trio No. 1 in E Minor, Op. 14 (Schröder). **9.15,** Station D in the Polar Seas—Radio Play (Hanns Braun). **10.5,** News, Announcements, Sports Notes and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres, 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather Report and Time Signal. **12.5 p.m.,** Concert from **Heilsberg. 1.0,** News. **1.15,** Gramophone Concert of Classical Music. After the Concert, News. **2.0 to 2.15,** Agricultural Notes. **3.35,** Economic Notes. **4.0,** Concert by the Chemnitz Philharmonic Orchestra, conducted by Philipp Werner: Overture, Die vierjährige Posten (Schubert); Ballet Music from Austin (Marschner); Introduction to Act II of Die Königskinder (Humperdinck); Dance Suite (Klaas); Selection from The Black Orchid (d'Albert); Entr'acte and Hymn from the Stimmungsbilder (von Fielitz); Kleine Unterhaltungsmusik, Op. 69 (Siegl); Comedy Overture. In the Intervals, Readings in Dialect. **5.50,** Economic Notes, Weather Forecast, and Time Signal. **6.25,** Talk. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations. Old German Songs by the Choir of St. Thomas' Church, conducted by Dr. Karl Straube: Wach auf, wach auf, du deutsches Land (Walther, 1496-1570); Das Judaslied (von Bruck, d. 1545); Wohlauf, wohlauf, Jung und Alt (Anon., 1540); Trennungsschmerz (Regnart, 1576); Das Geläut zu Speier (Senfl, 1492-1555); Songs (Hassler, 1564-1612): (a) Mein G'müt ist mir verwirret, (b) Tanzen und Springen, (c) Herzlieb zu dir allein, (d) Im kühlen Maien; Songs (Schein, 1586-1630): (a) Je länger, je lieber, (b) Die Macht der Phyllis; Songs (Brahms): (a) Mit Lust tät ich ausreiten, (b) Bei nächtlicher Weil, (c) Die Wollust in den Maien, (d) In stiller Nacht. **8.0,** Speech by R. Walter Darré. **9.0,** News. **9.10,** Concert by the Leipzig Symphony Orchestra, conducted by Otto Urack: Symphonic Prelude, Op. 108 (Reger); Siegfried Idyll (Wagner); Serenade, Op. 48 (von Franckenstein); Minuet (Schubert); Old Styrian Dance Music (Pachernegg); Dynamiden-Walzer (Jos. Strauss). **10.25,** News. **10.30,** Extracts from Czar and Carpenter—Comic Opera (Lortzing), on Gramophone Records. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** German Lesson. **7.30,** Programme for Women. **8.0,** See **Zagreb. 10.0,** Weather and News. **10.10** (approx.), Light Music on Gramophone Records. **11.0** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.15 p.m.,** Miscellaneous Items. **7.30,** See **Warsaw. 10.45,** Popular Music on Gramophone Records. **10.55,** See **Warsaw. 11.30** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW. —**7.30 p.m.,** Radio Gazette. **8.30,** See **Paris (Eiffel Tower).**

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW. **8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal and Request Gramophone Records. In an interval at **8.30,** Talk by Joaquin España Cantos. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, Political Review and Relay from a Theatre. **12.45 a.m. (Wednesday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **5.10,** See **Prague. 5.50,** Popular Music on Gramophone Records. **6.0,** Talk on Neurology. **6.15,** See **Brno. 7.0,** See **Prague. 7.25,** See **Bratislava. 10.0,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert from the Radio Theatre. **9.0,** Talk in French: Social Democracy in Russia and the Power of the Soviet. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserlautern, 536 kc/s, 560 metres);** and **Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m.,** Orchestral Concert, conducted by Max Textor. Overture, Die Fledermaus (Joh. Strauss); Humoresque (Dvorak); Czardas in A Minor (Zehentbaur); Selection from Aida (Verdi); Perpetuum mobile (Strauss); Minuet (Mozart); Aufschwung (Schumann); Symphonic Intermezzo (Mascagni); Potpourri, Von Wien durch die Welt (Hruby). **5.45** (from **Nürnberg**), Talk on the Fourth Centenary of the Death of Veit Stoss. **6.5,** Talk: Bismarck's Work—German Problems and German Union, 1815-62. **6.25,** Introductory Talk to the **8.5** Transmission. **6.45,** Time Signal, Weather Report, and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.5** (from **Nürnberg**). The Fair at Sorochinsk—Opera (Moussorgsky). **9.20,** News. **9.45** (from **Nürnberg**), Caucasian Comedy—Opera (Otto Wartisch), relayed from the Municipal Theatre. **10.45,** Time, Weather Report, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres; 5.0 p.m.,** Light Music on Gramophone Records. **6.0,** Programme for Housewives. **6.45,** Recital of Jazz Music on Two Pianofortes. **7.0,** Announcements, Weather and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Talk. **8.30,** Concert by the Station Orchestra, conducted by Hugo Kramm. Overture, Le cheval de bronze (Auber); Potpourri (Schmalstich); In an Old Convent Garden (Hurum); Melodies of Spring (Sandell); Wanderer in der Nacht (Rubinstein); Danse lente (César Franck); Czardas (Lindsay-Theimer); Selection from Die indische Witwe (O. Straus). **9.38,** Agricultural Report, Weather and News. **10.0,** Topical Talk. **10.15,** Recitations, relayed from **Trondheim, 605 kc/s, 495.8 metres. 10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements. Tourist Talk, Agricultural Report and Giornale Radio. **8.20,** Gramophone Records. In the interval

MAY 16th **TUESDAY** *continued*

at 8.30, Time and Announcements. 8.45, Carmen—Opera (Bizet) on Gramophone Records. In the intervals, Literary Talk and Announcements. After the Opera News.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signal (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.**, Theatre Review. **7.0**, Le Journal Parlé. **8.30**, L'Arlésienne—Drama in Three Acts (Daudet), with Music by Bizet.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.**, Journal Parlé. **7.0**, Sponsored Concert. **8.0**, Talk on the Cinema. **8.5**, Legal Talk. **8.15**, Interval. **8.30**, Concert of Norwegian Music in Honour of the National Festival; Conductor, Theodore Mathieu; Soloist, M. Maurice Bêché (Pianoforte); Overture, Im Herbst (Grieg); Songs: (a) Die Prinzessin, (b) Ich liebe dich (Grieg); Extracts from the Concerto in A Minor for Pianoforte and Orchestra (Grieg); Norwegian Rhapsody (J. S. Svendsen); Melodies for Strings (Sigurd Lie); Two Songs (Sigurd Lie): (a) Snow, (b) Light; Carnaval à Paris (Svendsen); Dance and Wedding March (Halvorsen); Song, Liberty (Elling); White Nights (Hurum); Rustle of Spring (Sinding); Three Songs (Sinding); Two Melodies (David Monrad Johansen); Entry March of the Boyards (Halvorsen); Norwegian National Anthem. **10.30**, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**12 Noon**, Concert of Opera Music by the Krettly Orchestra. **1.0 p.m.**, Exchange, News, and Weather. **1.5**, Song Recital by M. Marino. **1.30**, Exchange. **1.35**, Orchestral Concert (contd.): Overture, Don Giovanni (Mozart); Air from the Suite in D (Bach); First Part of the Trio in C Minor (Beethoven); Overture, To the Story of the Lovely Melusina (Mendelssohn); Nocturne and Musette (Sibelius). **2.0**, Exchange and News. **3.45**, Exchange. **6.10**, Agricultural Talk. **6.30**, English Lesson. **6.50**, Theatre Guide. **7.5**, Talk on Art. **7.20**, Concert by the Krettly Orchestra: Selection from Lysistrata (Lincke); Gavotte (Steck); Russian Song (Manière); Suite, Joyous Youth (Coates). **7.45**, Review of the English Press. **8.0**, Half-an-Hour of Fantasy by Paul Weill. **8.30**, News, Weather, and Sports Notes. **8.40**, Review by Pierre Seize. **8.45**, La maison des juges—Play (Leroux). **10.0**, Press Review and News. **10.15**, Gramophone Concert: Overture, William Tell (Rossini); L'eau qui court (Georges); Les adieux à la forêt (Bruneau); Le sommeil de l'enfant Jesus (Büsser); March from Aida (Verdi).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.**, Health Talk by Dr. Royal S. Copeland. **7.35**, KDKA Home Forum. **8.0**, Betty and Bob, from **New York.** **8.15**, Radio Troubadours, from **New York.** **8.45**, Congress of Clubs Period. **9.0**, Teaberry Baseball Scores. **9.5**, Meredith Wilson Orchestra, from **New York.** **9.15**, Selma Brandt (Pianist). **9.20**, Weather Report. **9.31**, Market Reports. **9.45**, Programme to be announced. **10.0**, Teaberry Baseball Scores. **10.5**, Programme to be announced. **10.15**, Dick Daring, from **New York.** **10.30**, The Singing Lady, from **New York.** **10.45**, Little Orphan Annie. **11.0**, Village Barn Orchestra, from **New York, 11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Teaberry Sport Review. **11.22**, Press News Reeler. **11.29**, Temperature Report. **11.30**, Vick's Song Weavers. **11.35**, Riggs and Moke. **11.45 to 3.15 a.m. (Wednesday), New York** Relay. **11.45**, To-day's News by Lowell Thomas. **12 Midnight**, Pepsodent Amos 'n' Andy. **12.15 a.m.**, National Advisory Council on Radio in Education. **12.45**, Southern Singers. **1.0**, Eno Crime Clues. **1.30**, Adventures in Health. **1.45**, From the Composer to You with Herman Rupfield. **2.0**, Household Musical Memories. **2.30**, Willard Robison's Deep River Orchestra. **3.0**, Time Signal and the Tune Detective.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.**, Theatre Notes and Programme Announcements. **6.0**, Light Music on Gramophone Records. **6.35**, Topical Talk. **6.50**, Miscellaneous Items and News. **7.10**, Book Review. **7.28**, Time Signal. **7.30**, See **Warsaw. 8.0**, Concert of Light Music by the Station Orchestra. **8.30**, Soloist Concert: Part I—Violin Solos by Prof. Witold Both. Chaconne (Vitali); Arab's Song (Rimsky-Korsakov); Air from Rosamunde (Schubert-Kreisler); Andalusian Romance (Sarasate); Gipsy Dance (Nacher). Part II—Song Recital by Mmes. Jasnoch and Manczak. Part III—Concerto for 'Cello (Saint-Saens) by E. Sienkiewicz. In an interval, News from **Warsaw. 10.0**, See **Warsaw. 10.15**, Time Signal, Sports Notes and Police Announcements. **10.30**, Dance Music from the Esplanade Café. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.**, See **Moravská-Ostrava. 5.10**, Talk arranged by the Board of Trade. **5.20**, Czech Lesson for Germans and German Lesson for Czechs. **5.50**, Gramophone Records of Light Music. **6.5**, Market Prices. **6.15**, Talk for Workers. **6.25**, News in German. **6.30**, German Transmission; Beethoven Recital by Hans Hotter (Songs); Ervina Brokesova (Violin), Kurt Passer and E. Breinl-Tetmayer (Pianoforte): An die Hoffnung; Song; Violin Concerto in A, Op. 12; Freudvoll und leidvoll. **7.0**, Chimes from the Church of St. Ludmila. **7.1**, News. **7.10**, Talk. **7.25**, See **Bratislava.** In an interval at **9.0**, Time Signal. **10.0**, Time, News, and Sports Notes. **10.15**, Gramophone Records of Popular Music. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—**7.0 p.m.**, New Gramophone Records. **7.30** (from **Geneva**), Weather and News. **7.45** (from **Geneva**), Answers to Correspondence. **8.0** (from **Lausanne**), Talk: The Twenty-Ninth Cantonal Festival of the Vaudois Singers on May 24th, 27th, and 28th. **8.30** (from **Lausanne**), Recital of Sonatas, by M. Charles-Lassueur (Pianoforte) and M. Edmond Appia (Violin). **9.0** (from **Lausanne**), Country Programme by the Moser Orchestra and C. Gerval (Songs). **9.50**, News and Weather. **10.0** (from **Lausanne**), A Musical Innovation—Part I: Instrumental Solos on Gramophone Records, with Pianoforte Accompaniment in the Studio. Part II: Songs from the Studio, with Gramophone Accompaniment. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW. **5.30 p.m.**, Soloist Concert. **6.30**, French Lesson. **7.0**, Weather Report. **7.5**, Dramatic Programme. **8.0**, News. **8.15**, Concert by the Dziesmuvara Choral Society, relayed from the Conservatoire. After the Concert at **8.50**, News. **9.0**, Weather Report. **9.15**, Dramatic Programme. **9.35**, Popular Concert, conducted by A. Parups: Overture, Anacreon (Cherubini); Selection from The Tales of Hoffmann (Offenbach); Suite, Scènes d'Italie (Godard); Selection from La Traviata (Verdi); Waltz, Wine, Woman and Song (Joh. Strauss). **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.**—**1.0 to 2.15 p.m.**, Concert of Variety Music. In the interval from **1.30 to 1.45**, Giornale Radio and Exchange. **4.45**, Children's Radio Review. **5.10**, Announcements. **5.15**, Exchange and Giornale Radio. **5.30 to 6.15**, Orchestral Concert: Sousi (de Serra); Valzer del sole (Mariotti Mendez); Con me ti perterò (Proto Rano); Strimpellata alle stelle (Zanfi); Fantasia, Cinema Melodies (Salabert); All for love (Gay); Visione orientale (Becce); Mona Lisa (Stolz); Melody (Brodszky). **6.40 (Naples),** Shipping and Sports Notes. **6.50**, Agricultural and Dopolavoro Notes. **7.0**, Tourist Report. **7.10**, Lesson in Morse. **7.20**, Giornale Radio. **8.0**, Time and Announcements. **8.2**, Talk. **8.15**, Song Recital by Maria Valente (Soprano). **8.30**, Giornale Radio and Sports Notes. **8.45**, Variety Concert: Sonata in G for Violin and Pianoforte (Porpora); Tenor Solos: (a) Aria from Mignon (Thomas), (b) Ballata del pastorello in montagna (de Angelis), (c) Aria from Manon (Massenet), (d) Aria from Lucia di Lammermoor (Donizetti); Five Pieces for Violin and Pianoforte: (a) On a Theme of Salinas, (b) On a Theme of José Bassa, (c) On a Theme of Rafael Angles, (d) On a Theme of Pablo Esteve, (e) On a Dance Air of Pablo Esteve; Violin Solo, Caprice Viennois (Kreisler). **10.0** (approx.), Cuore bendato—Comedy in One Act (Sabatino Lopez). **10.30**, Songs of South America—Recital by Maria Senes, followed by Gramophone Records of Popular Music. **10.55**, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, (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.**—**11.45 p.m.**, Stock Reports. **12 Midnight to 3.0 a.m. (Wednesday), New York** Relay. **12 Midnight,** Blackstone Plantation. **12.30 a.m.**, Wayne King's Orchestra. **1.0**, Ben Bernie's Orchestra. **1.30**, Ed Wynn and the Fire Chief Band. **2.0**, Walter Damrosch Symphony Orchestra, followed by Programme Résumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.**, Time Signal from Neuenburg Observatory and Weather. **12.5 p.m.** (from **Zürich**), Concert by the Swiss Radio Orchestra. **1.25** (from **Zürich**), Exchange, Time, and Weather. **1.30 to 5.0**, Interval. **5.0** (from **Zürich**), Orchestral Concert. **5.30** (from **Basle**), Light Music on Gramophone Records. **6.30** (from **Berne**), Programme for Children. **7.0** (from **Berne**), Time, Weather, and Notes on the Broadcasts for Schools. **7.10** (from **Berne**), Variety Music on Gramophone Records. **8.0** (from **Berne**), Programme to be announced. **9.0**, Weather and News. **9.10** (from **Berne**), Programme to be announced. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.**, Programme for Children. **5.30**, Popular Music on Gramophone Records. **6.15**, Song Recital by Karin and Niels Juel. **6.45**, Elementary French Lesson, relayed from **Malmö, 1,301 kc/s, 231 metres. 7.15**, Weather and News. **7.30**, Cabaret Programme. **8.0** (from **Göteborg**), Discussion on Co-operation between the Middle Classes. In an interval, at **9.45**, Weather and News. **11.30** (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**, News, and at **1.0**, Time and Exchange. **2.0 to 4.45**, Interval. **4.45**, Talk in French on the French Colonies—Cambodia. **5.0**, Jazz Music conducted by Roskam. **6.0**, Historical Talk in French. **6.15**, Topical Talk in French. **6.30**, Concert of Chamber Music: String Quartet (Dumas); Sonata for 'Cello and Pianoforte (Boëllmann). **7.30**, Time and News. **7.45**, Light Music on Gramophone Records. **8.15**, Press Review in German and Lottery Results. **8.30**, Gala Evening, relayed from **Paris.** After the Relay, Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.**, Concert from **Langenberg. 2.0**, Programme arranged by the Post Office, with Gramophone Records. **2.30 to 3.0**, Advanced English Lesson. **3.30**, Talk: Flowers. **4.0**, Programme for Women. **4.30**, See **Munich. 5.45**, Time, Weather, and Agricultural Notes. **6.0**, Talk: The Dumb Speak. **6.25**, Talk: German Gliding. **6.50**, Time and News. **7.0**, Transmission for all German stations, relayed from **Leipzig. 8.0**, A Soldier's Life—Report from Ludwigsburg. **8.30**, Operetta Concert by the Station Orchestra, conducted by Gustav Görlich: Soloists: Gerda Hansi (Soprano) and Hans Hanns (Tenor): Overture, Gasparone (Millöcker); Recitative and Air from Die schöne Galathée (Suppé); Duet from Boccaccio (Suppé); March from Boccaccio (Suppé); Dream Waltz from Der Feldprediger (Millöcker); Song and Duet from Frasquita (Lehar); Selection from Paganini (Lehar). **9.45**, Talk on the Theatre. **10.15**, Time, News, Weather, and Programme Announcements. **10.45**, Dance Music by the Philharmonic Orchestra, with Soloists. **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**7.30 p.m.**, Sound Film Music. **7.45**, Music by a Symphony Orchestra. **8.15**, Popular Songs. **8.30**, Military Music. **8.45**, Opéra-Comique Music: Selection from Hamlet (Thomas), Lakmé (Delibes) and Carmen (Bizet). **9.0**, Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. Light Music in the intervals. **10.15**, North African News. **10.30**, Concert for Listeners in Morocco. **11.0**, Music by an Argentine Orchestra. **11.15**, Popular Melodies. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing; A Song and Dance Programme: Miss Elizabeth Brown; River stay 'way from my door; I'll always be true; With my Guitar and you; Dance of the raindrops; Life's Desire; Old-fashioned Girl; You are the Melody. **11.57**, I.B.C. Good-night Melody. **12 Midnight,** News and Weather. **12.5 a.m. (Wednesday),** Selection from The Geisha (Jones). **12.15**, Accordion Music. **12.30** (approx.), Close Down.

Foreign Programmes continued on page XIII.

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 to 6.0 p.m.**, Dance Music Relay. **6.35**, Giornale Radio, Agricultural Report and Dopolavoro Announcements. **7.0**, Time and Report of the Royal Geographical Society. **7.5** (approx.), Gramophone Records of Songs, Ombre (Galdieri-Don Caslar); Chiacchiere (Gurgo-Mari); Jungla (Di Lazzaro-Galdieri); Fez (Marf-Mascheroni). **7.20**, Giornale Radio. **7.35**, Light Music on Gramophone Records. **8.0**, Announcements, Giornale Radio, Weather and Popular Music on Gramophone Records. **9.0**, Variety Programme. **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; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 632 kc/s, 453.2 metres; Linz, 1,220 kc/s, 246.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**5.25 p.m.**, Pianoforte and Song Recital by Olga Hueber-Manseh (Pianoforte) and Cäcilie König (Soprano). Accompanist, Erich Meller. Sonata in F Minor, Op. 2, No. 1 (Beethoven); Songs: (a) Aria from Acis and Galathea (Händel), (b) Aria from Julius Cæsar (Händel), (c) Aria from the Cantata, Freue dich, erlöste Schar (Bach); Aria from The Creation (Haydn); Aria from Idomeneo (Mozart). **6.5**, Agricultural Talk. **6.30**, French Lesson. **7.0**, Military Band Concert, March, Kaiserhusaren (Lehár); Overture, Der Schatzmeister (Zichrer); March, Heil dem Ring der Goldenen (Penz); Waltz, Golden Rain (Waldteufel); Potpourri, Lilac Time (Schubert-Berté). **7.30**, Time, Weather Forecast, Alpine Weather and Programme Announcements. **7.35**, Concert (Contd.). March (Gaigg); Potpourri of Marches (Komzak); March, Aller Ehren ist Österreich voll (Novotny). **8.0**, Talk: The First International Flight over the Austrian Alps, 1933. **8.5**, Topical Talk. **8.20**, Honour where Honour is due—Radio Sequence. **9.20**, Talk: 1933 in German and Austrian History. **9.50**, News, Weather Forecast and Market Prices. **10.5**, Dance Music by Gustav Roh and his Orchestra, from the Palmhof Café. Soloist: Viktor Sterman (Songs). Willi Swobala (Pianoforte), and Hans Fischer (Vibraphone).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57** Time and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.**, Programme Announcements. **12.10**, Popular Music on Gramophone Records. **1.20**, Weather. **1.25 to 3.10**, Interval. **3.10**, Announcements. **3.15**, Economic Notes. **3.25**, Aviation Report and Anti-Gas Drill. **3.30**, Announcements. **3.35**, Book Review. **3.50**, Popular Music on Gramophone Records. **4.25**, Talk for Teachers. **4.40**, Talk relayed from **Cracow, 959 kc/s (312.8 metres). 5.0**, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by Grégoire Fitelberg. Soloist: Armand Ganteau-Biron (Pianoforte). **5.55**, Programme Announcements. **6.0**, Concert of Light Music from the Café Italia. In an interval, News. **7.0**, Miscellaneous Items. **7.20**, Agricultural Notes. **7.30**, Talk on Symphonies. **7.45**, Radio Journal. **8.0**, Concert by the Station Orchestra, conducted by J. Oziminski. Soloist: Marie Ronska (Songs). Overture, Maximilien Robespierre (Litolff); Divertimento from the Suite Op. 43, No. 2 (Tchaikovsky); Waltz from Eugene Onegin (Tchaikovsky); Arias from: (a) Il Trovatore (Verdi), (b) Don Carlos (Verdi), (c) Norma (Bellini); Suite from King Christian II (Sibelius); Prelude and Air from Déjanire (Saint-Saëns); Spanish Dance (Sarasate); Pauline's Aria from The Queen of Spades (Tchaikovsky); Song (Zelenski); Song, Deception (Szopski); Second Peer Gynt Suite (Grieg); Minuet (Paderevsky); Concert Waltz (Moszkowski); March from Sigurd Jorsalfer (Grieg). In an interval, Sports Notes and Radio Journal. **10.0**, Reading. **10.15**, Song Recital by Georges Czaplicki. **10.45**, Popular Music on Gramophone Records. **10.55**, Weather and Police Report. **11.0**, Dance Music from the Oaza.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.40 p.m.**, Announcements. **8.0**, Pianoforte Recital. **8.30**, Concert of Slav Music. **10.0**, News and Weather. **10.10.** Dance Music. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

PROGRAMMES CONTINUED

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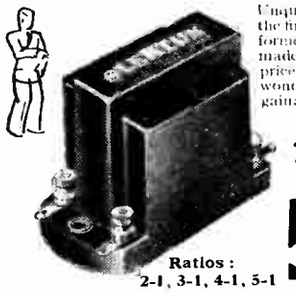

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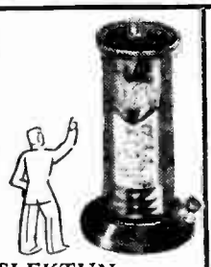

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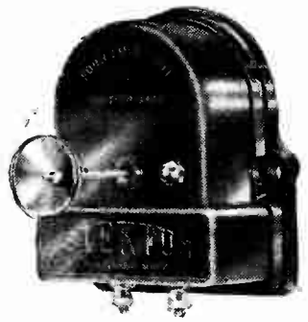

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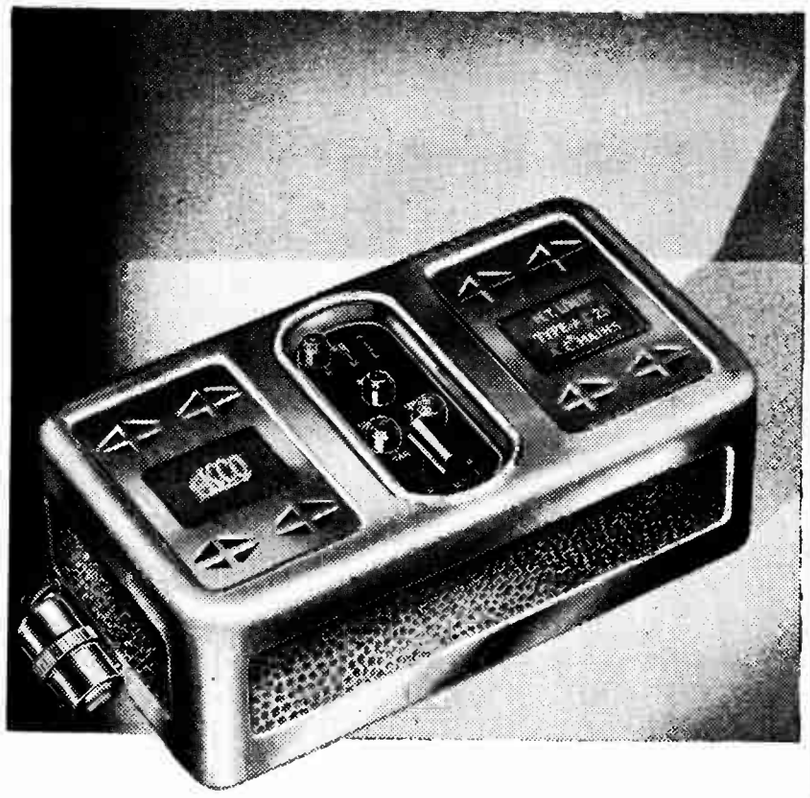

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The Wireless World

THE PRACTICAL RADIO JOURNAL
23rd Year of Publication

No. 715. FRIDAY, MAY 12TH, 1933. VOL. XXXII. No. 19.

Proprietors: ILIFFE & SONS LTD.

Editor:
HUGH S. POCOCK.

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.
Telegrams: "Cyclist, Coventry." Telephone: 5210 Coventry.

BIRMINGHAM:
Guildhall Buildings, Navigation Street, 2.
Telegrams: "Autopress, Birmingham." Telephone: 2970 Midland (3 lines).

MANCHESTER: 260, Deansgate, 3.
Telegrams: "Iliffe, Manchester." Telephone: Blackfriars 4412 (4 lines).

GLASGOW: 26B, Renfield Street, C.2.
Telegrams: "Iliffe, Glasgow." Telephone: Central 4857.

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.

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EDITORIAL COMMENT

Heading for Disaster

Back Pedalling in America

INTELLIGENT opinion in America is calling for a halt in the downward trend of prices of sets which, with ever-increasing impetus, is dragging down the quality of reproduction till there is no place left for pride in performance. Leading American journals are urging a return to quality in radio receivers, and the following is an actual quotation which is typical of the views held: "Steadily the average of our receiving sets grows worse and worse, more and more deficient in quality of reproduction, inadequate in material equipment and durability." America, it would seem, has during the past season or two been infected with the idea that mass-production and low prices are the only road to prosperity in the radio industry, but now at last the rather bitter experience through which the radio industry in America has passed seems to have taught the lesson that shoddy products in the radio industry do not mean prosperity, and that mass-production and cheapness are a safe policy only when quality does not suffer.

Are manufacturers in this country ready to profit by the example of America's mistakes and for once show initiative by short-circuiting America's season of retrogression whilst America is back pedalling? For the first time the opportunity presents itself to catch up technically and then lead the way with British individuality in future designs. If we in this country firmly resolve to maintain the quality of our sets at a high level we stand a very good chance of being at least on equal terms with America in the coming season. But if America's products of this season are again to be the British manufacturers' standard for next, we shall be mass-producing cheap and nasty sets at a time when the pendulum in America has swung right over to a policy of "quality first."

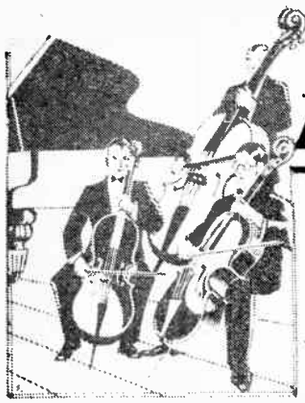
Of what use is it for the designers of broadcast transmitters to have gone on from year to year making steady improvements in the technique of broadcasting, until the quality transmitted has to-day reached a very high standard indeed, if set designers begin to pull away in the opposite direction and undo the good work which has been accomplished on the transmitting side?

The Catkin Valve

New Ideas in Construction

FIRST details are now available of a new series of valves which represent an entirely new departure in construction and promise much for the future development of this most important unit of the receiver. In this issue constructional drawings are included with our description so as to give our readers complete information on the points of novelty which have been introduced.

The "Catkin" is not a new valve with entirely new characteristics. The valve is at present being manufactured in types which are interchangeable with the existing series of receiving valves, so that no special receivers need be designed around these valves; they can be used in the same positions as their equivalents of orthodox type. Samples of the new valves are in our hands, but they have reached us too recently for it to be possible to include a report of our own tests with this first description which is based on information from the makers whom we congratulate on being first with a development of this importance.



Increasing Bass Response

How to Choose the Coupling Condenser for the Parallel-fed Transformer

By R. W. H. BLOXAM

IT is probably not generally known that the parallel-fed low-frequency transformer, which has found such wide application in receivers, can be arranged in circuit so as to raise the level of the bass response. This valuable property is explained in the accompanying article and a diagram is given which shows at a glance the value of coupling condenser required for different transformers to effect the bass resonance at any required frequency.

IT is well known that the problem of securing good bass response is more serious in the case of gramophone reproduction than in radio reception, owing to the falling characteristic of the recording level below about 250 cycles.

Assuming that the overall response of the amplifier and loud speaker is sensibly level down to, say, 50 cycles, the bass reproduction for broadcast reception will generally be reasonably satisfactory.

It must not be forgotten, however, that the frequency characteristic of the modern receiver with a small self-contained loud speaker is not inherently level, and compared to its prototype, the moving-coil speaker with a large cone, freely suspended at the edge, the bass is likely to be deficient.

Attempts to bring up the low-frequency response by acoustic or mechanical resonance, that is to say, by introducing cabinet resonance, or by making the loud speaker diaphragm resonate on its surround at an audible frequency, often result in an artificiality of bass response that is only too obvious to the keen musical ear.

For gramophone reproduction the use of a pick-up with a rising characteristic at low frequencies may provide a measure of compensation, but this will generally be insufficient to maintain the response to the extent desirable, bearing in mind the additional loss in the loud speaker and the decreased sensitivity of the ear towards the limits of the audible frequency spectrum.

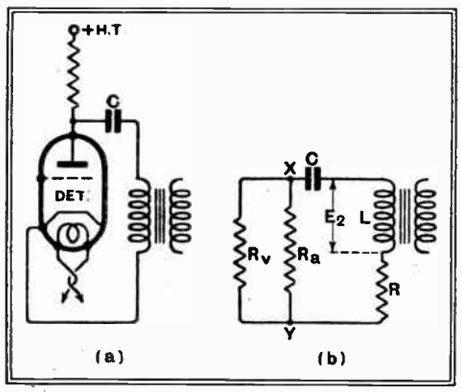


Fig. 2.—The conventional parallel-fed transformer scheme (a) and the equivalent electrical circuit (b).

In Fig. 1 the lower curve shows the falling characteristic of the recording below 250 cycles. The response at 250 cycles corresponds to the "level," since the response for all recorded frequencies higher than this will remain about the same until the upper recording limit is approached.

The uppermost curve has been plotted from the published response curve of a well-known pick-up of high quality, having a generally rising characteristic at the lower frequencies.

The dotted curve shows the resultant electrical output from the pick-up, and is obtained by algebraically summating the values of A and C referred to the level.

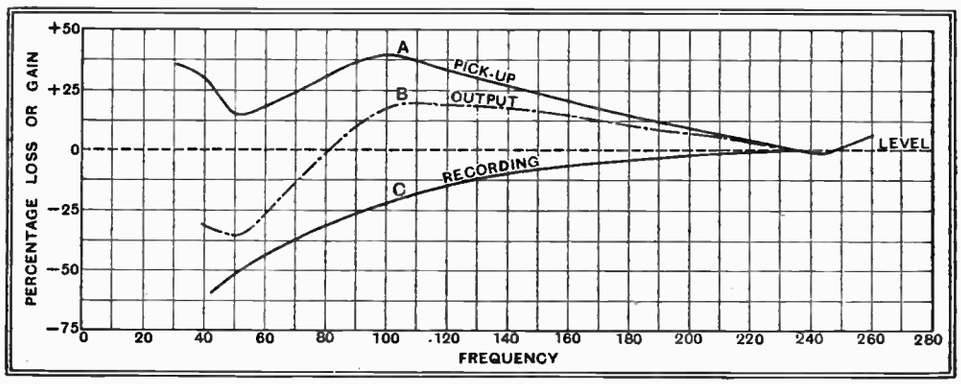


Fig. 1.—By combining the response curves of a well-known pick-up (A) and a typical gramophone record (C) the resultant output (B) is seen to give bass attenuation.

It is plainly seen that the electrical output below 80 cycles falls badly below level, being accentuated in this particular case by a droop in the pick-up characteristic.

Whilst another design of pick-up might make this deficiency good to some extent it is not possible to extend the compensation to very much lower frequencies without introducing undesirable features.

Down to 50 Cycles

Special compensating filters or networks provide the correction necessary to raise the bass response, but they suffer the disadvantages of adding considerably to the bulk and to the cost of the apparatus.

For true fidelity of reproduction excessive resonances of a mechanical nature are undesirable, since they are not readily controlled or altered. Rather the compensation should be electrical in character, in which case excessive responses are more readily obviated.

Before considering means of providing a measure of compensation in the amplifier itself, it is desirable to give some consideration to the question of the lowest frequency which we need to reproduce for good quality.

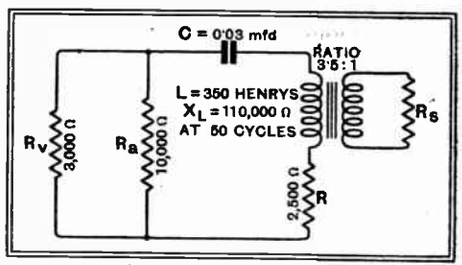


Fig. 3.—Showing typical values for the components used in the circuit of Fig. 2.

Glib talk is sometimes heard of "reproduction down to 20 cycles," but, in point of fact, whilst such low frequencies do convey some sensation of sound they hardly ever occur in music. A study of the frequency characteristics of musical instruments shows that the lowest fundamental frequency of a few reaches 32 cycles, but the majority of the bass instruments do not reach much below 50 cycles. This has been clearly shown in articles on reproduction.[1]

It is instructive to apply a small 50-cycle potential derived, say, from one-

[1] "The Last Component," *The Wireless World*, March 4th, 1931, and "Broadcast Reproduction," May 4th, 1932.

Increasing Bass Response—

half of a mains transformer heater winding to a potentiometer connected across the input of the amplifier. This gives a tone practically free from harmonics, and those who have not tried it previously will possibly be surprised at the very low pitch of the resulting sound. A frequency of 25 cycles implies that the pitch will be an octave lower, of course.

It is therefore certain that if cut-off (i.e., 70 per cent. of the normal "level") is not reached until 40 cycles we shall miss very little.

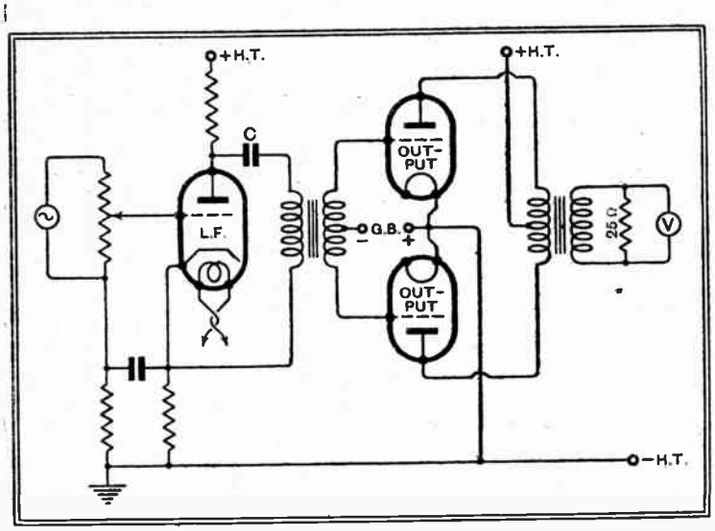


Fig. 4.—Circuit with push-pull output used by the author to examine the frequency response of parallel-fed transformer coupling.

It has recently been shown that a measure of bass compensation can be obtained with pentode valves when a choke-capacity output coupling is employed by choosing a coupling condenser having a somewhat smaller capacity than that previously adopted by convention.

The Equivalent Circuit

It is the purpose of this article to show that some measure of compensation can be obtained also with the now commonly employed parallel-fed transformer inter-valve coupling, although the action differs somewhat, and the application is not limited to pentodes.

Fig. 2a shows the conventional connections of a triode valve with resistance anode feed, coupled by means of a condenser C to the primary of the transformer. Fig. 2b shows the equivalent electrical circuit, in which Rv represents the A.C. resistance of the valve, Ra the external feed or coupling resistance, and R the resistance associated with L.

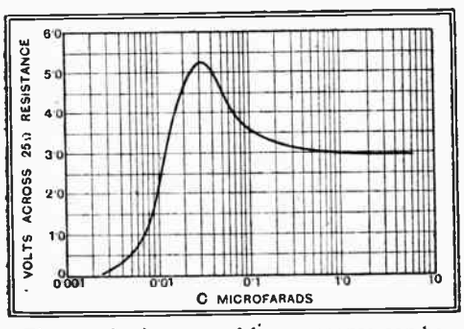


Fig. 5.—An increase of bass response can be obtained by arranging a suitable resonance frequency between the L.F. transformer primary and the coupling condenser.

Considering the action of the circuit, it is convenient to assume the application of an A.C. voltage across the points X Y representing the signal voltage developed across the anode feed resistance Ra. We will assume this to be 10 volts.

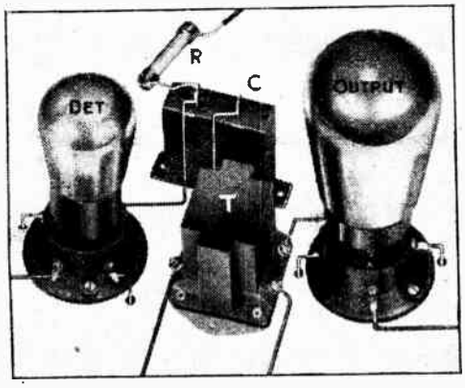
As far as the output is concerned, we are interested in the resulting voltage E2 developed across L, since this voltage, multiplied by the ratio of transformation, gives us substantially the voltage impressed between grid and filament of the succeeding valve, neglecting core losses, etc.

We thus have a series circuit formed by L and C, with the input voltage applied across its ends, and at a frequency $f = \frac{1}{2\pi\sqrt{LC}}$ cycles the voltage across L will be a maximum, and if the total resistance Rt of the circuit, which comprises R plus Rv and Ra in parallel, is sufficiently low, the voltage E2 across L may be greater than the voltage applied across X Y at frequencies near resonance.

Let us assume that the constants of the circuit are as shown in Fig. 3. If we assume the total resistance Rt to comprise the primary resistance plus the resistance of the two parallel paths through Rv and Ra, and the resonant frequency is 50 cycles, then the impedance at the resonant frequency is equal to Rt = 4,800 ohms, and the current $I = \frac{E}{Z} = \frac{E}{Rt} = \frac{10}{4,800} = 0.00208$ amp.

The voltage across L is then given by $I \times XL$ ($XL = 2\pi fL$) = $0.00208 \times 110,000 = 228$ volts, which is obviously impossible in practice. But we have not taken into account the resistance thrown into the circuit by the transformer, which will be equal to Rs divided by the square of the transformation ratio = $Rs/3.5^2$, which must be added to R and the effective value of Rv and Ra in parallel.

Now it will readily be seen that since



The essential components required for L.F. parallel feed. By a suitable choice of the transformer T and the condenser C the bass response can be increased.

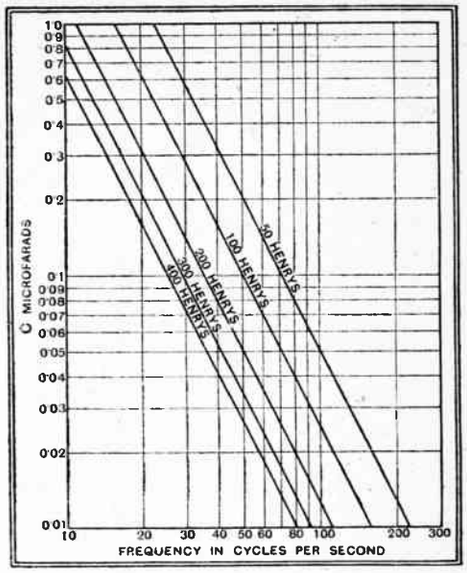


Fig. 6.—Given the primary inductance, the value of the capacity required to produce resonance at various frequencies can be read from this diagram.

Rs is the dynamic input resistance of the valve connected to the transformer secondary, Rs divided by the square of the ratio of transformation will be very large; indeed, it will be so large that R, Rv, and Ra may be almost neglected. Thus if we now assume the input resistance to the valve to be 0.8 megohm, we find that Rt will be approximately 70,000 ohms, and across L we have 15.7 volts at resonance. At any other frequency the impedance of the circuit is

$$Z = \sqrt{R^2 + (\omega L - 1/\omega C)^2}.$$

At frequencies well above resonance the voltage across L is a little less than the applied voltage across X Y.

From the foregoing two facts emerge. First, that the total resistance of the circuit determines whether or not any increased voltage will appear across L at resonance, and secondly that the step-up obtained will be greater for higher resonance frequency, since the value of ωL also becomes greater.

If the values of L and C are suitably chosen, we can arrange the resonant frequency at a point towards the lower end of the audible frequency range where it will be effective in compensating the bass to some extent, provided that the resistance of the circuit is low enough. The actual working value of the resistance is therefore all-important, since its value determines, together with XL, whether we obtain any step-up that is worth while.

Measurements were made on an amplifier comprising a push-pull output stage, since this case would seem to be the worst

Increasing Bass Response—

in regard to the high value of Rs to be expected.

The arrangement is shown in Fig. 4. A constant 50-cycle voltage was applied to the input of the first valve, and the voltage across the 25-ohm resistance, representing the loud speaker, was measured with various values of coupling capacity C.

The results are shown in Fig. 5, from which it is seen that an increase of response of over 50 per cent. above level is obtained for resonance at this frequency.

The value of the open circuit inductance of the transformer primary is generally stated by the makers, and the value of capacity required to produce resonance at a given frequency may be determined from Fig. 6, or by calculation. Alternatively, the value of L may be obtained experimentally by the method mentioned above and illustrated in Fig. 4.

The shape of the response curve will be similar to that of Fig. 5, and it will be noted that the cut-off point is reached rather rapidly, below the resonance frequency, which suggests that the latter should be arranged as low as possible in the audible range, but it must be remembered that when records are reproduced the input voltage has the form of the middle curve B of Fig. 1 and falls off at the lower frequencies; hence the compensation obtainable becomes less with decreasing frequency, due to this cause, and the decreased value of XL.

A compromise must be made, therefore, and in the particular case discussed this was found to be effected satisfactorily by fixing the resonance frequency at about 60 cycles by choice of a suitable value of capacity. Aural tests with various values of capacity show that the bass is considerably augmented when the resonant frequency falls anywhere between about 50 and 100 cycles. Screening should be fairly comprehensive, in order to prevent hum voltages being picked up from the rectified H.T. supply or from the heater wiring.

DISTANT RECEPTION NOTES

Can Stations Claim Wavelength "Rights"?

ONE does not envy the wavelength allocation committee of the forthcoming Lucerne Conference its task! Every little nation in Europe (as well as most of the big ones) will urge its claims to more—and longer—wavelengths and to higher-powered transmitters. Nobody wants wavelengths below 250 metres, though there are more than thirty channels below this mark and the bottom of the medium waveband that must be allotted to someone. Most of them will probably be assigned as group wavelengths to families of small relays; but even so there is sure to be much heartburning.

Stations that have used certain wavelengths for so long that they have come to regard them as their inalienable right will be loth to give them up; yet give them up they must in many cases, for nothing short of a complete reshuffle can straighten out the present tangle and make room at the same time for the thirty-odd new high-powered transmitters that are likely to be in operation within the next eighteen months.

One of the most pressing problems is the Russian programme. In all previous plans Russia has been regarded as outside Europe; but the interference caused by her stations nowadays gives ample proof that from the broadcasting point of view she is very much within it. The Russians have a most ambitious programme entailing the erection of fifty or more high-powered stations, some of them with output ratings up to 500 kilowatts. Will it be possible to make Russia realise that if she proceeds with this scheme, which is out of all proportion, the inevitable result must be chaos so far as broadcast reception is concerned, not only in neighbouring countries, but also in her own? One hopes so, but the present *régime* in Russia may prove unwilling to co-operate with the rest of Europe.

Whatever else it does, the Lucerne Conference must endeavour to obtain from Governments an undertaking to put down wavelength wandering with a firm hand. Owing to the crowded state of both wavebands, no plan can succeed unless stations adhere strictly to their allotted channels. In the United States the Federal Radio Board allows no station to deviate by more than 200 cycles from its proper frequency. The first offence brings an immediate warning; the second, unless some acceptable explanation is forthcoming, leads to the guilty station being ordered "off the air."

A glance at any month's U.I.R. report will show that many European stations wander by two *thousand* cycles or more between the beginning and the end of a given four weeks. At present the U.I.R. has no real powers to prevent this kind of thing. Acting through the Governments concerned, it could and should have such powers, if only international agreement could be reached that the most drastic action would be taken against offenders.

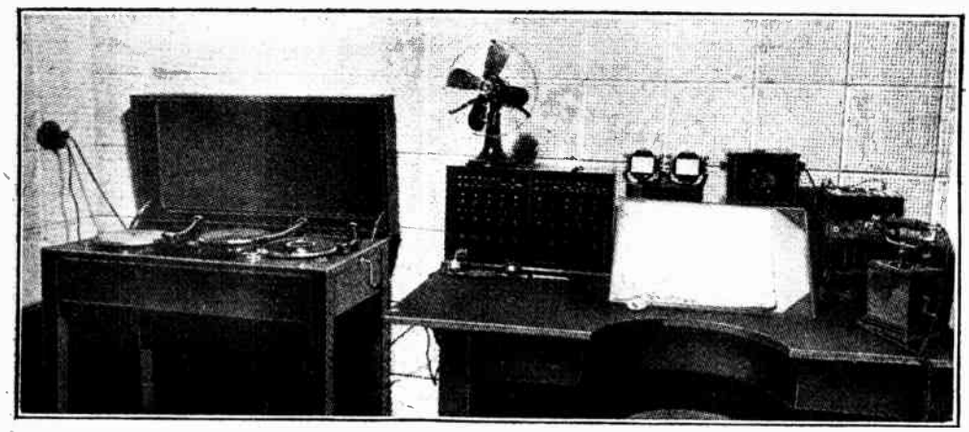
Wintry Conditions

There is very little noticeable diminution in the volume at which distant stations are received and the choice of programmes is still almost, if not quite, as wide on most evenings as it was in the depths of winter. On looking back through long-distance logs covering the last ten years I can find no similar instance of the persistence of what are virtually winter conditions for reception to such a late date. Improvements in transmitters must be largely responsible for this happy state of affairs.

Motala, Oslo and Kalundborg are outstanding long-wave transmissions at the moment. As they all transmit excellent programmes and are usually receivable at any time when they are working, the long-distance enthusiast should make a special note of them.

The medium-wave band is a very happy hunting ground just now. Between 450 and 550 metres something is to be found at almost every division of the tuning dials and there is a band almost as good between 320 and 350 metres.

Noteworthy medium-wave stations are: Katowice, Rome, Stockholm, Lyons la Doua, Beromünster, Leipzig, Budapest, Prague, Florence, Strasbourg, Hilversum, Heilsberg and Turin. D. EXER.



TAKING NO RISKS AT WARSAW. Every possible contingency seems to have been provided for in the announcer's studio at Warsaw (Polskie Radio). Two microphones, three gramophone turntables, a specially shaped desk, an electric fan, and an elaborate internal telephone system all help the announcer in his task of "keeping the pot boiling."

"THE WIRELESS ENGINEER"

IN the May number of *The Wireless Engineer* is an important contribution on "The Simplification of Accurate Measurement of Radio-frequencies," by W. H. F. Griffiths, F.Inst.P., A.M.I.E.E. Dealing first with the successive stages in the improvement of resonant circuit oscillators and the development of the dynatron oscillator, the author then describes in detail a stable oscillating wavemeter working on this principle.

The American developments up to the present time in A.V.C. are discussed in another contribution, and details of some typical circuits are given.

An absorption wavemeter for use on short waves is described by the staff of the Radio Research Station, Slough. Although covering a wide frequency range, a portion of each band can be spread to extend over the major part of the condenser scale, thereby affording greater accuracy within the restricted range.

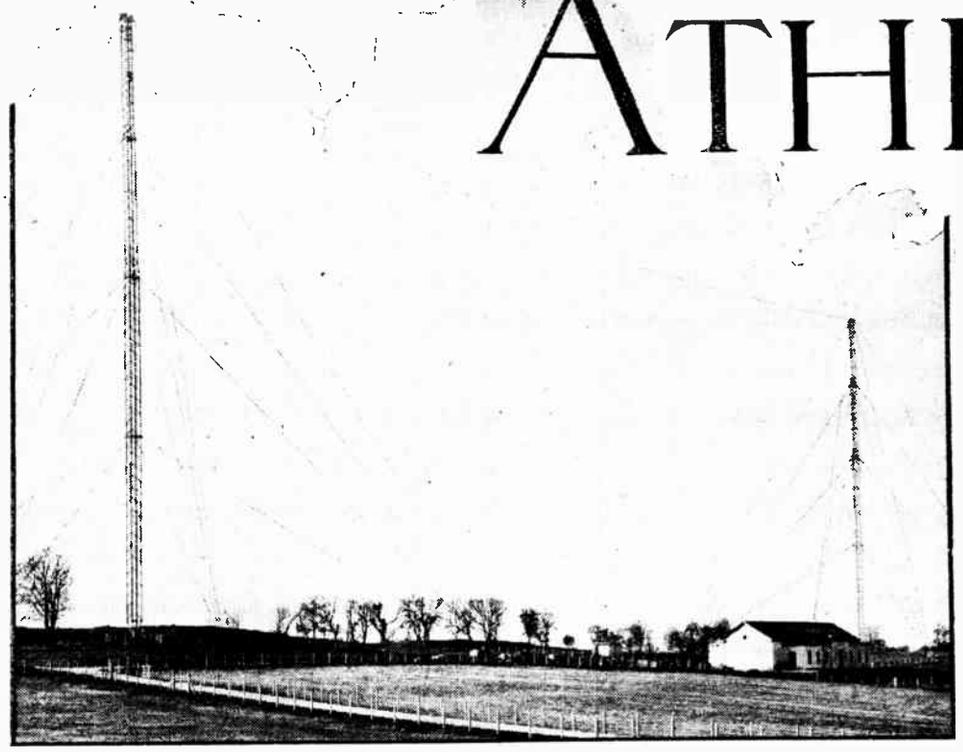
In addition to other material, the issue contains monthly abstracts and translations of the world's technical wireless articles and patents.

Copies can be obtained by order from newsagents or direct from the publishers of *The Wireless World.*

ATHLONE

The New Voice of the Irish Free State

By A SPECIAL CORRESPONDENT



High power alone does not account for the excellence of the Athlone transmissions. The station is situated on an ideal site 300 feet above sea level, and the masts are 330 feet high.

WITH the advent of the 60-kilowatt transmitter at Athlone the Irish Free State has definitely won a place in the broadcasting sun. Although in January, 1926, the 1½ kW. Dublin station, 2RN, made its broadcasting début and was followed soon afterwards by the low-powered relay station at Cork, English and Continental loud speakers have heard comparatively little of the Emerald Isle. But the "voice of Dublin" has now become the "voice of the Irish Free State," and since Athlone joined the ranks of the ether giants in February, reports of good reception have been received from all parts of England, Scotland and Wales and from Scandinavia, Europe, Newfoundland, the Yukon, Canada and the United States. The station has even received a report from Gisborne, New Zealand, though Dublin officials cannot but doubt the accuracy of this remarkable claim.

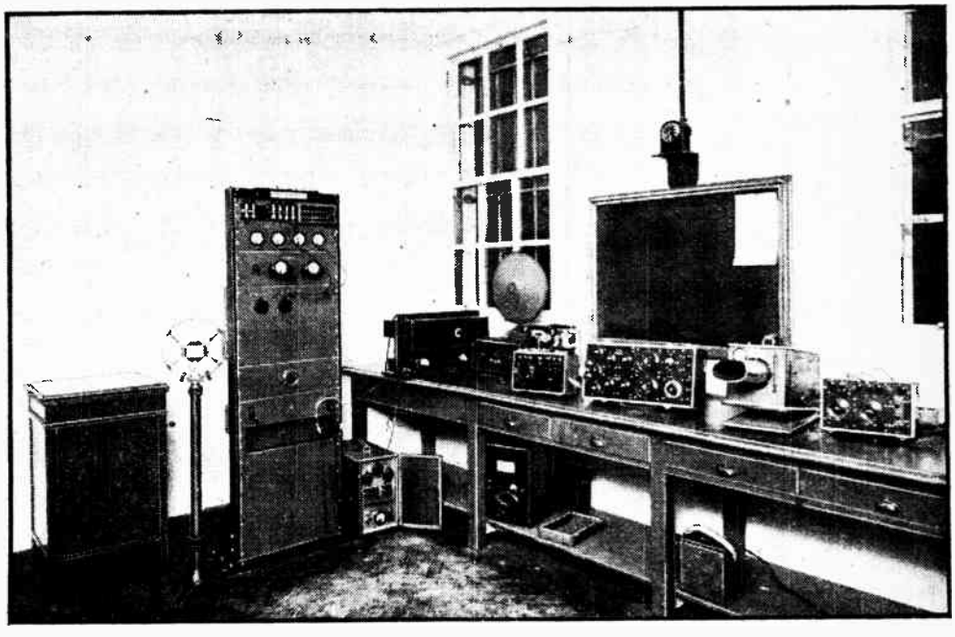
The Athlone and 2RN studios are in the Post Office building, Dublin, and the station director, Mr. S. Clandillion, presented me with the freedom of the studios. These, for a country possessing one of the most modern transmitters in Europe, are somewhat disappointing. There are three studios proper—one for orchestral and dramatic performances, another for vocal presentations, and the third for solo items—besides two rehearsal rooms which can also be used for broadcasting. All the studios have sound-proof walls, and drapings are suspended on the ugly-looking rafters to obviate echo effects.

Mr. Clandillion, the station director, who has been associated with 2RN since its inception, is a versatile and capable programme builder. The fluent Gaelic speaker and the principal announcer is Miss Margaret O'Grady, an M.A. graduate of the National University.

The Athlone transmitter is at Moydrum, 2½ miles east of historic Athlone on the river Shannon. The station obtains its 10,000 volts from the famous Shannon hydro-electric scheme. The site is ideal, flat rural country, about 300 ft. above sea level and practically at the geographical heart of Ireland. The station now wears a more pretentious air than in June last when, under dripping tarpaulins, engineers "carried on" for distant listeners to hear the Eucharistic Congress. The two 330ft.-high unpainted galvanised steel masts supporting the T-aerial are hinged on insulated ball and socket joints, thus permitting a greater degree of sway than in the case of the more common system of stays alone.

The engineer, Mr. Lyons, whose staff numbers about seven, conducted me through the transmitting hall, which is 100 ft. long by 35 ft. wide. The transmitter is of the same type as the B.B.C. Regional plants, but of higher power; if necessary, this power can be doubled to 120 kW. Points of difference between Athlone and the Regional transmitters are that the former uses a crystal-controlled oscillator instead of tuning fork, and in place of the ordinary H.T. generators employs mercury arc rectifiers for supplying the H.T. current to the valve anodes.

Among the features that impressed me were these: The largest valve dissipates 10,000 watts at the anode, and the smallest valve about 3 watts. From the 5,000-gallon storage tanks under the building 3,000 gallons of distilled water pass every hour through the valves. If a valve fails another is automatically switched into place. The whole of the transmitter is screened and cannot be operated if a "gate" is open. The power demand off the supply mains is 350 kW.



The control room with its checking equipment fills a dual rôle, for on special occasions it can be used as a studio. Note the microphone and gramophone cabinet.

Simplified Aids to Better Reception

IT may not have occurred to many readers that the simplest and cheapest way of gaining a practical insight into the working of the superheterodyne system is to begin with a short-wave converter, in conjunction with an existing receiver. Of course, this plan is open only to those whose receivers already include one or more stages of H.F. amplification; the H.F. amplifier of the set becomes an I.F. amplifier while the converter is in operation.

Making a Start

Attention has lately been focused on this subject by the publication, in *The Wireless World*, for April 28th, of details for building a short-wave converter for operation on A.C. mains. This piece of apparatus includes many refinements, and, though simple enough, is apparently complicated by the fact that it has self-contained mains equipment. Those who operate battery sets, or who are willing to provide battery feed for the converter, can make an even simpler unit by adopting the circuit arrangement given in Fig. 1. This device, being without an H.F. stage, is not quite so efficient or so easy to operate, but, in conjunction with a reasonably good set, will enable inter-continental short-wave reception to be carried out with a high degree of reliability. At the same time, the user will be initiated into the mysteries of frequency-changing; even if he is a comparative beginner he will probably find that the subject is much simpler than he has anticipated.

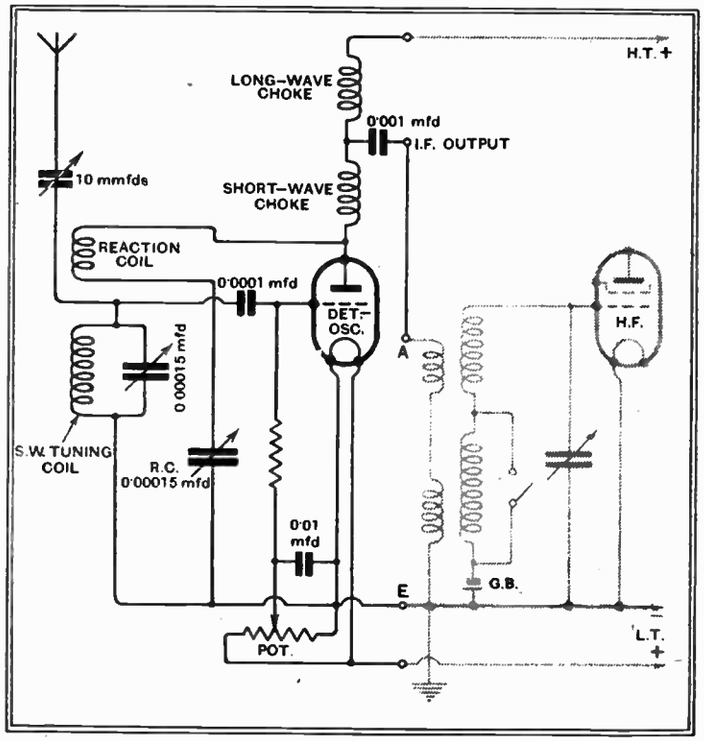


Fig. 1.—The simplest form of adaptor for converting a normal "H.F." set for short-wave reception. The grid leak may have a value of 1 or 2 megohms. Connections of the existing set are in faded lines.

The diagram is almost self-explanatory, but it should be pointed out that, for the tuning and reaction windings, a set of short-wave coils, with turns ranging between about 2 and 12, will be required. Coils designed for ordinary detector-L.F. sets are quite suitable for a superheterodyne adaptor, and there is no reason why the tuned coil and reaction winding should not be combined in a single plug-in assembly.

Contrary to the usual belief, there are practically no difficulties in operation. Before the converter unit is put into operation, the receiver proper is tuned to a long wavelength (in the neighbourhood of 2,000 metres), and its controls are not afterwards touched, except that, as compensation for probable differences in capacity across the input circuit, it may be worth while to try the effect of readjusting what is normally the aerial trimmer.

Those who have studied the superheterodyne theory will realise that, to receive a given station, the tuned circuit of the adaptor unit must be adjusted to a frequency equal to the frequency of the station, plus or minus that to which the H.F. amplifier is tuned.

As an example, if the set proper be tuned to 150 kc. (2,000 metres), and it is desired to receive a short-wave station at 15,000 kc. (20 metres), it could be received by tuning the converter circuit to either 14,850 or 15,150 kc. It is immaterial which tuning point be chosen.

Although it is always worth while to know what one is doing, there is actually no need to worry about these theoretical considerations, as the converter may be operated just like an ordinary set, provided that reaction coupling has been increased sufficiently to bring the converter valve into a state of self-oscillation.

WHEN the source of hum cannot readily be traced in a mains-operated set—and particularly in one of the D.C. type—it is advisable to try the effect of moving the receiver to another position in the room. This is because the disturbing voltages which give rise to this trouble are sometimes induced direct from concealed wiring in the walls. Radiation of this nature is often confined to the immediate vicinity of its source.

Direct Interference

ALMOST every moving-coil loud speaker sold nowadays embodies an output transformer as a part of the instrument; usually it is screwed to an extension of the cradle which supports the cone.

This is both convenient and practical, but, as has already been pointed out, it is not of necessity the best position for the transformer in every case. If, for example, set and loud speaker are installed in different rooms, it may be well worth while to go to the trouble of dismounting the transformer, refitting it in the receiver chassis, and connecting the extension leads from the secondary terminals, as shown in Fig. 2 (a), directly to the speech coil of the distant loud speaker.

Position of the Output Transformer

It seems that the benefits—and also the possible disadvantages—likely to accrue from this alteration are not fully appreciated. The most important gain is that any amount of capacity that is likely to exist in the extension leads will do no harm. Secondly, the leads are entirely isolated from the source of H.T. supply, and so there is no possibility whatever of

Practical Hints and Tips—

doing harm through a short-circuit to earth. Lastly, the risk of hum being produced by induced voltages from badly installed lighting circuits, etc., is greatly reduced. Almost the only disadvantage is that the ohmic resistance of the extension leads must be low in proportion to that of the speech coil of the loud speaker.

The ordinary method of connecting a loud speaker with the output transformer at the remote end is shown in Fig. 2 (b). This has all the disadvantages previously suggested, but, as it is in effect a high-impedance transmission line, ohmic resistance is of little importance, and so the finest wire that is sufficiently strong mechanically may be used. Insulation is, of course, important with this system.

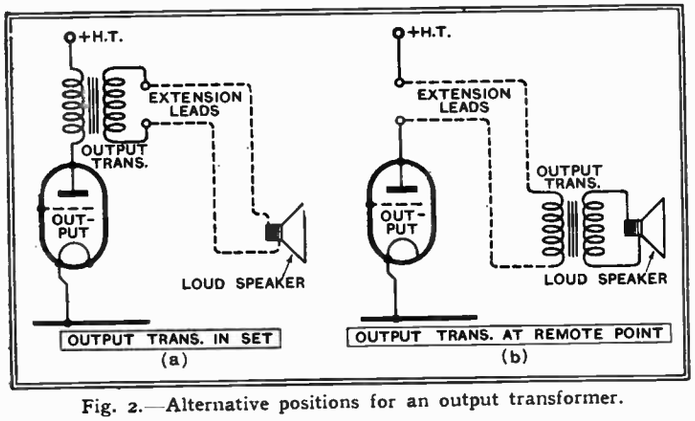


Fig. 2.—Alternative positions for an output transformer.

Ensuring L.F. Stability

IN ninety-nine cases out of a hundred nothing but good can result from increasing the capacity of by-pass condensers in L.F. decoupling circuits. In most modern sets, when motor-boating or some other form of instability occurs, or even when quality is deficient, the first thing to do is to try the addition of extra capacity in parallel with the existing detector-anode decoupling condenser.

Even when dealing with a well-tried standard receiver of known excellence, it may be worth while to try this expedient if quality seems to be a little "rough." No designer advocates a by-pass condenser very much larger than that considered necessary for dealing with the amount of magnification obtainable under average conditions, but sometimes the average is exceeded by a very fair margin. For example, the detector valve may be a particularly "hot" specimen; rectifier output may be high, and the associated decoupling resistance may be under rather than over its rated value. All these factors work in the same direction, tending to reduce the margin of safety, and this is a case where extra decoupling might well be beneficial.

One cannot usually increase the value of a decoupling resistance without risk of upsetting the designer's original intentions, but the use of a larger condenser should have the same beneficial effect, and, at the worst, can do no harm.

Manual and Automatic Control

AS stated in the article in which the "A.V.C. Unit" was described, the potentiometer adjustment of bias voltage for the control valve will generally provide the small amount of manual regulation that is needed when automatic control is in operation. For maximum loudness this potentiometer is adjusted so that the grid of the A.V.C. valve is made to work at a voltage appreciably more negative than that which stops the flow of anode current entirely. In this way delayed control is introduced, and no bias voltage is fed back to the controlled valves until signals have reached a certain value, which may easily be determined by trial.

When, on the other hand, it is desired to reduce volume below the normal level, a certain amount of anode current may be allowed to flow in the A.V.C. valve by reducing its negative bias by rotating the potentiometer slider towards the positive end, *i.e.*, that end of the resistance element which is connected to the least negative socket on the bias battery.

In cases where a further manual control is desirable it is generally best to fit it in the L.F. section of the receiver. Where resistance coupling is employed it is a fairly easy matter to substitute a potentiometer for the normal fixed grid leak or anode resistance, but with transformer coupling it is rather more difficult to devise a control that is entirely free from objections. In most cases the fitting of a 50,000-ohm variable resistance in shunt with the transformer primary will prove satisfactory enough.

Why Tuning Changes

IT is worth while to bear in mind that the input capacity of a valve changes with variations in H.T. voltage or heating current, and as a consequence the stray capacity existing across its grid circuit is also subject to variation through these causes.

Therefore it follows that the operations of calibrating, or "ganging," a set should only be carried out when voltages throughout are those which will normally be applied when the set is in operation.

To carry the subject a little farther, it may be pointed out that when tuning "drifts," and the condenser setting corresponding to a known station is observed to have undergone a change, we have an indication that the power supply system may be behaving erratically, and that investigation is called for.

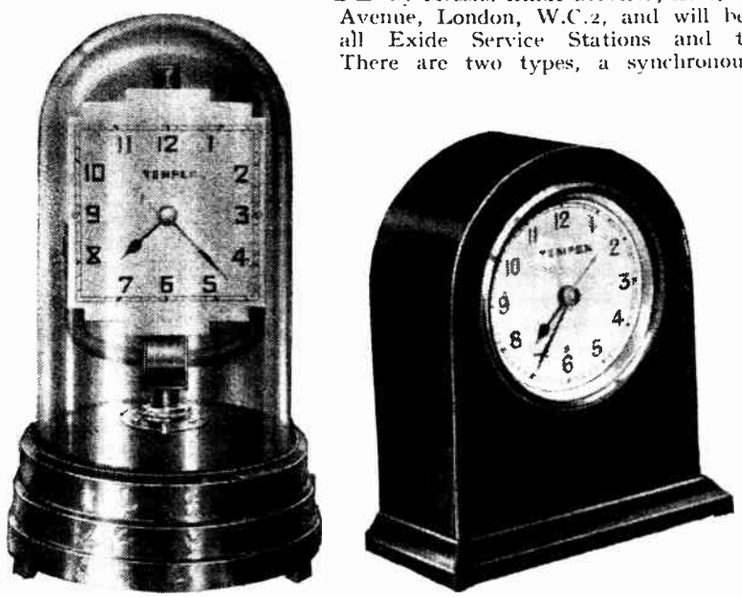
Variable-mu Battery Sets

USERS of battery-fed receivers in which volume is regulated by variation of negative bias supplied to the H.F. valve should remember that, when using the set for gramophone reproduction, the "radio" volume control should always be set at minimum. In this way H.T. battery current is conserved; with maximum bias, anode and screening grid current combined will usually amount only to a matter of microamperes, whereas with the bias potentiometer set for maximum sensitivity, it may rise to 3 or 4 milliamps.

As an alternative to this plan, there is no reason why, in a battery set, an extra switch should not be fitted in to break the filament circuit of the H.F. valve.

"TEMPEX" CLOCKS

A NEW range of electric clocks is now being marketed by Messrs. Exide Services, Ltd., 203-231, Shaftesbury Avenue, London, W.C.2, and will be available through all Exide Service Stations and the usual dealers. There are two types, a synchronous motor clock for controlled A.C. mains, and for those without mains supply a pendulum-controlled clock for operation from batteries. The A.C. model (type A.C.303) is housed in a neat moulded case and costs 30s., while the battery-operated model is available in two types, the P.101 at 45s. in a case similar to the A.C. model, and the N.202 at 49s. 6d. enclosed in a domed glass container.



"Tempex" electric clocks. (Left) Battery model, type N.202. (Right) A.C. mains model, type A.C.303.

The Catkin Valve

A Radical Departure in Design

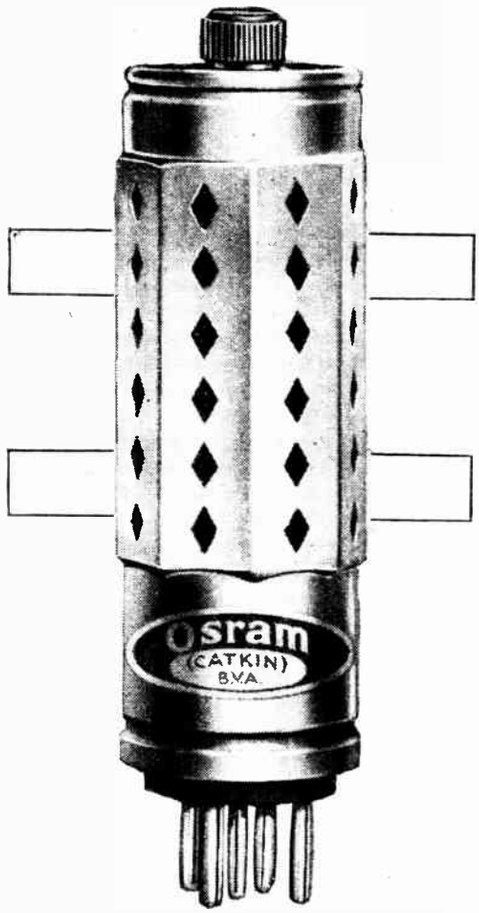
VALVE design is never at a standstill. The steadily increasing figure for mutual conductance is, perhaps, to be expected, and the addition of an extra grid or so no longer creates surprise. Now we are to experience what is undoubtedly a most radical development in valve technique since the inception of the triode. The familiar form of valve with its glass bulb is soon to disappear. Its place will be taken by one of greatly reduced dimensions where the glass envelope is replaced by a metal cylinder which is actually the anode.

Valves in which the glass envelope has been replaced by a copper container represent, of course, well-proved practice in transmitting valves where water-cooling is directly applied to the anodes. Such valves are designated C.A.T. (cooled anode transmitters), promptly designated "cats" in laboratory slang. From this abbreviation is derived the name "Catkin" as indicating the genealogy of the valve better than kitten; so Catkin was adopted as the name for the new miniature air-cooled version now to be available for reception.

An examination of the Catkin valve manufactured by Marconi and Osram supports the claims put forward.

Smaller Valve Losses

The spacing between the elements of a valve governs characteristic. If uniformity between one valve and another of corresponding type is to be maintained, accuracies of less than a thousandth of an inch are required in the disposition of the electrodes. Such precision is undoubtedly difficult to maintain when the only support afforded to the elements depends upon the critical setting up of wires embedded in glass. The Catkin has no such arrangements. First of all a robust steel clamp surrounding a mica insulator firmly holds the supporting wires. These wires are, moreover, straight, for it will be appreciated that where bent wires are used accuracy cannot so well be maintained. Next, the entire electrode system is located with precision within the anode envelope by mica spacing pieces. Thus the entire system forms a single and absolutely rigid unit as distinct from the comparatively meagre support which it is possible to provide for the electrodes in the glass type. This is the primary merit of the Catkin, accruing from which we may expect uniformity of set performance, and there will be no such thing as a "picked" valve. To the set manufacturer valve uniformity permits of standardisation of receiver performance, and the correct working conditions will be maintained without the need for special testing of the initial set of valves. The rigidity of the electrodes and accuracy of spacing are claimed to be immeasurably greater than is possible in the valve of conventional design.



It cannot be denied that the flattened glass portion giving support to the electrodes is a source of losses. Glass is by no means one of the best dielectrics, and the time has come when attention must be drawn to the magnitude of the dielectric losses arising in the valve itself. The advent of tuning coils of very high efficiency has served to emphasise that the losses arising from the conventional type of valve are of sufficient magnitude to mar the superior merits of a modern tuned circuit. Bearing this in mind, in the design of the Catkin it was decided to abandon the glass "pinch" and substitute mica as the insulator. It is true that the outgoing leads pass through a glass ring at the base of this new valve, but here they are set around the circumference. The resulting capacity between the leads is exceedingly small where we have glass as the dielectric.

Screen-grid and detector valves are, nowadays, usually metallised. There is thus an earth potential spread over the insulating glass, preventing it from acquiring an electric charge. Metallising has the effect of reducing interelectrode capacity, and, moreover, it prevents the setting up of stray electric fields which would otherwise arise between the charged globe and the surrounding leads, a condition which, if permitted, is a prodigious source of hum in mains receivers and a common cause of spurious back-coupling.

The electric field within the anode of the Catkin valve is entirely uninfluenced by any surrounding charges, and the electrons cannot build up unwanted potentials which might interfere with the field within the electrodes.

Better Screening

Should circumstances demand it the signal potential on the anode of the Catkin may be prevented from creating stray coupling by the provision of a tubular metal screening cover shown in the photograph. The inclusion of this outer screen is optional. It extends over the valve from top to bottom, and, like metallising, is connected to the cathode in the case of mains valves, but has the additional advantage that it embraces the outgoing leads at the base. This outer screen is perforated to afford ready dissipation of heat and its octagonally flattened faces prevent it rolling. Being parallel sided, quantities of valves occupy much less space than hitherto.

In the exposed anode type a coating of black enamel is applied giving sufficient insulation to prevent shock should one accidentally touch the high-voltage anode. It will be appreciated that the generous heat dissipation afforded by the Catkin design gives cooling for the grid as well as the anode. Conditions are very different in the glass type, where the large surrounding vacuum presents the difficult problem of getting the heat away where dissipation by convection or conduction is non-existent. Effectiveness of cooling does, of course, to a very large extent, govern the rating of output valves.

Present-day sets with enormous overall gain are very prone to what is commonly called "howling," which arises from the sound vibrations

The Catkin Valve.—

causing movement of the electrodes, usually in the case of the detector valve. By virtue of its rigidness the Catkin is not likely to be influenced in this way. As a further precaution, however, the valve is secured to its base ring by a rubber clamp, and the sound conduction path is limited to the thin conducting wires joined to the valve pins. It is well known that rubber is the only sound insulating material which will provide a non-microphonic mounting, and we now have, for the first time, an effectively sprung clamp, and this is independent of the valve holder. A non-microphonic mounting is of vast importance when the set, as is now commonly the case, takes up a position immediately behind a single or perhaps dual loud speakers, into which the output valve delivers several watts.

Wireless is now finding its place as part of the equipment of the car, and the Catkin valve, being uninfluenced by vibration, whilst being robust and compact, has attractive possibilities for car radio. In this connection, in addition to durability, it should be noted that a new form of filament-cathode design has been adopted, which permits of a 10 per cent. fluctuation of heater potential, thus allowing for the voltage variation of the car battery. Compactness is another important advantage in this application. The much reduced size of the metal envelope as compared with the glass counterpart is an important feature in the prevention of direct coupling with the sound output of the loud speaker.

BY resorting almost entirely to metal, instead of glass, in the manufacture of a revolutionary new receiving valve called the "Catkin," the Osram and Marconi Companies claim to have achieved for the first time real consistency in valve characteristics. In other words, every "Catkin" can be regarded as a "picked valve."

The anode forms the external envelope in the new valve, which is almost unbreakable and non-microphonic.

Some valve users have experienced trouble due to the glass bulb breaking away from its bakelite base. Fracturing of the cement in this way is a weakness of present valves, and it is interesting to note that no form of cementing is employed and a loose cap becomes an impossibility.

Copper-to-glass Union

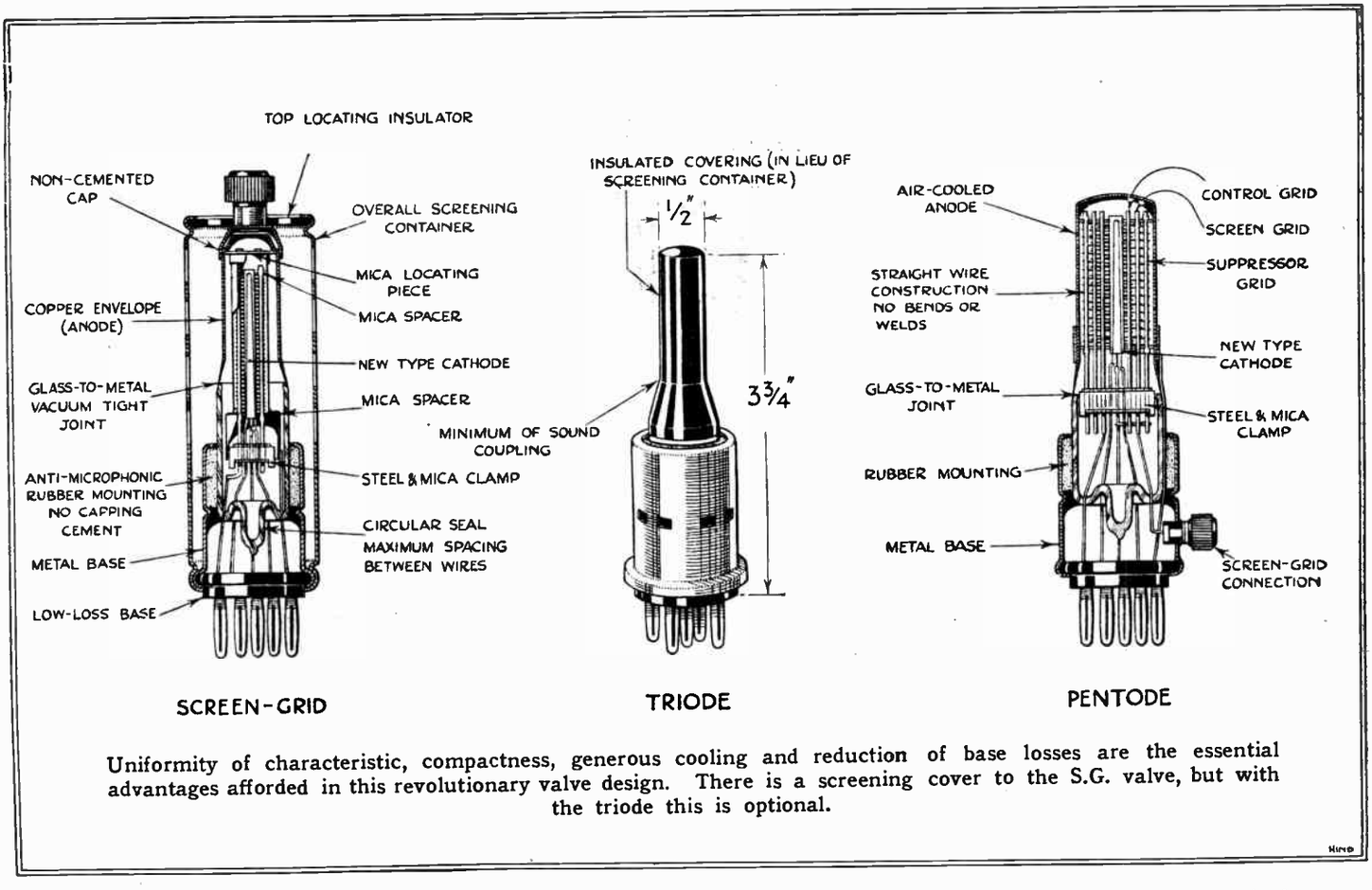
The Catkin valve is practically unbreakable, and may be dropped from a height of several feet on to a concrete floor with but little risk of damage either by fracture or by derangement of the critical spacing of the electrodes.

The copper-to-glass union is an interesting feature of the new valve, and it is a creditable achievement to produce a gas-tight seal under mass production methods. In order that the vacuum may be well maintained in a valve, excessive temperature rise for any prolonged period must be avoided. All metal parts within the valve are, of course, gas-freed at a high temperature, but in the course of manufacture the glass bulb in a conventional valve is a prolific source of gas and necessitates prolonged de-gassing.

Catkin equivalents of the MS4B, VMS4, MH4, and MPT4 will make their appearance on the market almost immediately. These are the types which are in most general use, and it is the intention of the manufacturers to add to this range shortly. The characteristics of the Catkin valves follow those of the glass equivalents and for which they serve as replacements. The four types issued are those adopted in the more popular sets, so that in many cases immediate advantage can be taken of their use.

At a later date we hope to give a report of our own experiences with these valves.

DRAWINGS TO ILLUSTRATE DETAILS OF THE NEW VALVES



Uniformity of characteristic, compactness, generous cooling and reduction of base losses are the essential advantages afforded in this revolutionary valve design. There is a screening cover to the S.G. valve, but with the triode this is optional.

BROADCAST

WHEN LEEDS SPEAKS. The talks studio at the new Yorkshire headquarters of the B.B.C. On the right is the "cue light" device for indicating to the speaker when the microphone is in circuit for broadcasting or, alternatively, connected to the dramatic control panel. The studio colour scheme is green and orange.

The New Organ

WORDS are always inadequate to describe the impressions created by music, and I will not attempt the verbal fireworks which would be necessary to do justice to the new organ in the Concert Hall at Broadcasting House.

There is no doubt that listeners may expect a real treat on or about June 16th, when the organ will be heard for the first time in a broadcast programme to which a number of eminent organists will contribute.

Inaugural Recital

Having regard to the distinguished players who have shown an interest in the instrument during its construction, I think the B.B.C. will have to include among its recitalists Mr. Berkeley Mason, Mr. G. D. Cunningham, and, of course, the designer of the organ, Sir W. G. Alcock. Probably the inaugural recital will resolve itself into a performance of a composition by each of these great executants.

Orchestral Flexibility

During a test recital I was struck not only by the organ's richness of tone, but by its ease of control. Thanks to a combination of all the latest "gadgets" and the enclosure of the whole instrument in swell boxes, the player can command an almost infinite range of tone with the flexibility of an orchestral conductor.

A Studio Audience ?

Most of these effects should be apparent to broadcast listeners, but the B.B.C. will doubtless admit some of the general public to the Concert Hall for the inaugural recital, though how the lucky few will be chosen is undecided.

A little self-selection might be advisable, and I think readers who are interested might do worse than forward applications to the Corporation now.

An Awkward Period

THE period "'twixt tea and dinner" has always offered a problem to the programme builders, and now that it is definitely decided to exclude talks from the 6.30 to 8 p.m. period during the summer months, their difficulties are accentuated.

The trouble is that there is very little suitable "outside broadcast" material available at this hour; it is the transitional period in the day when the world refuses to take life seriously. Work is over, but the pleasures of the evening have not really begun.

For the Present . . .

For the present the Programme Department is obviously in a bunker as regards new ideas for this period. At the moment the intention is to fill the 6.30 to 8 p.m. period exclusively with light music of the kind provided by the Gershom Parkington Quintet and Reginald King's Orchestra.

Car Drivers and Wireless

This, by the way, seems to be the ideal sort of programme for the radio-minded motorist, of whom we shall probably see and hear quite a lot this summer. Few people will object to the reception of soothing music while driving; it is only when the man at the wheel is tempted to listen too closely to a classical concert, or, more dangerous still, a debate in the talks studio, that pedestrians and other motorists will stand in peril.

Programmes for Motorists

But even light music, according to some people, might prove too much of a distraction to a driver who has any musical sense. If this is really the case, it might be advisable to prepare special programmes for motorists. As these would require a minimum amount of mental concentration, it is difficult to say what form they should take. Tom-tom music and slow fox-trots might make for safety.

The Leeds Recipe

TAKE one old Quaker Meeting House, as much money as you like, and Mr. J. C. Proctor, F.R.I.B.A. With these ingredients there is nothing more to worry about; in a few months' time you have one of the finest broadcasting studios in Europe.

Last week, by kind invitation of Mr. Edward Liveing, North Regional Director, I was escorted into a rather severe-looking conventicle in Woodhouse Lane, Leeds. Only the inscription "Broadcasting House" on the outside door prepared me for the startling transformation within.

The Last Word

The Leeds building is undoubtedly the last word in broadcast studio technique, for the architect, Mr. Proctor, has benefited by the experience gained in Portland Place, and has not hesitated to add a number of clever and original touches of his own.

New Mike Suspension

It is not often, I imagine, that an architect gives a lead to the engineering department, although close co-operation between the two branches has always been the rule with the B.B.C., but at Woodhouse Lane Mr. Proctor has set the engineers thinking by producing his own design for a microphone suspension device, and this gleaming arrangement, chromium-plated and balanced like a huge crane, dominates the whole of the big studio.

What Mr. Ashbridge Thought

Mr. Ashbridge, Chief Engineer of the B.B.C., was eyeing the arrangement with a non-committal expression, and I asked him whether the design had the full approval of the engineering branch.

The "Chief" said that it was possible that the arrangement might be adopted in other studios. Could an architect receive higher praise?

Function of the Studios

Mr. Liveing was anxious to explain that the new studios must not in any sense be regarded as the special property of Leeds. They were intended to "put Yorkshire on the map." Lancashire has always had its say at the North Regional microphone, but since the Leeds-Bradford relay station faded out two years ago it cannot be said that Yorkshire has enjoyed the same facilities.

Now, however, with a studio bigger than anything at Broadcasting House except the Concert Hall, listeners in the North will have an opportunity to hear the brass bands and massed choral concerts which are so dear to the heart of every Yorkshireman.

Broadcasting House in Miniature

The new accommodation comprises two floors and a basement, and consists of two studios, artists' and band waiting rooms, a control room with the most modern equipment, battery, machine and echo rooms, dramatic control room and administrative offices.

The Northern Repeater

Special importance attaches to the control room, for it is the focal point for all S.B.

BREVITIES

By Our Special Correspondent

programmes between London, Manchester, Newcastle and the North.

In fact, Leeds is the Northern repeater station, filling the same function as Bristol in the West.

"We Want West Regional"

SOMETHING quite new in the experience of the B.B.C. engineers has occurred in connection with the West Regional tests. Listeners, instead of protesting at the changed conditions, as has usually occurred when a Regional has been on test, are actually clamouring for a complete service from the new high-power station.

In consequence, West Regional will tomorrow (Saturday) take over all the Regional transmissions.

A Daring Test

This transfer from the old to the new transmitter has been carried out in a very much shorter time than was the case with the other Regional stations, but I, for one, am a little doubtful as to whether things will go quite so smoothly when West National begins testing.

No Heterodyning ?

This synchronising of the West and London National wavelengths constitutes quite the most daring test of its kind ever attempted by the B.B.C., and it will be distinctly interesting in a fortnight's time to see whether the two transmitters can avoid heterodyning each other.

It is quite likely that West National will begin its first tests on or about June 1st.

"Tickets, Please"

THE platform of a wayside station provides the scene for a modern fairy story with music entitled "Tickets, Please," which is to be broadcast on May 16th (National) and May 23rd (Regional). This is the first musical play to be put on the air under the direction of Mr. Val Gielgud.

I am told that the play contains several very catchy tunes (train catchy?); one, "I am singing while you are dancing," is in the repertoire of the B.B.C. Dance Orchestra, while another, "Tell me at teatime," is shortly to be published, and is likely to be sung and whistled everywhere.

An "R. L. S." Play

IF you want the cosmopolitan atmosphere these days spend a few minutes in the foyer of Broadcasting House. Any day you may see the English, French, American, Negro, Polynesian, Japanese and Indian artistes who are rehearsing for the broadcasting of "The Bottle Imp;" by Robert Louis Stevenson, on Saturday, May 20th.

The story of Keewe and his wonderful bottle was written for a Polynesian audience. It is a thrilling tale, and is to be found among the Island Night's Entertainments. It should make a good microphone play. Lance Sieveking is the producer.

Memories of the Lyric

MEMORIES of the Lyric Theatre, Hammersmith, will be revived by a programme to be broadcast on May 20th, with Sir Nigel Playfair as compère and Alfred Reynolds as conductor of the B.B.C. Theatre Orchestra. The name of the Lyric, Hammersmith, is inseparably connected with the names of Nigel Playfair and Alfred Reynolds, for these two created the Lyric tradition. During their régime such plays as "Derby Day," "Midsummer Madness," "Tantivy Towers," "The Beggar's Opera," "Abraham Lincoln," and "Riverside Nights" were presented to Hammersmith audiences. Numbers from these and other notable successes will be heard by National listeners on May 20th.

The New Showmanship

BY commissioning professional actors to broadcast translations of speeches given in the English Parliament, Poland has opened up new possiblities for broadcast entertainment.

Hitherto the very notion of broadcast debates from Westminster has made strong men blanch, but a moment's thought will show that the speeches could be made much more acceptable if they were dramatised.

Making Speeches Palatable

I should like Mr. Val Gielgud or Mr. Eric Maschwitz to choose suitable vaudeville actors and comedians who could be guaranteed to give us the actual words from a Parliamentary debate flavoured with the mannerisms and asides which could make even the Budget speech palatable.

Mr. Gillie Potter would make any Cabinet speech more fragrant.

Car Thrills Broadcast

THE thrill experienced last year when one of the sternest battles in the history of motor racing was fought should be repeated on May 27th, when London Regional listeners will share with the Midland Region a running commentary on the Open Hill Climb for Racing and Sports Cars at Shelsley Walsh, given by Mr. F. J. Findon and Major Vernon Brook.

Accidents . . . but Not Serious

Shelsley is situated about twelve miles north-west of Worcester. From the foot to the summit of the hill is over one thousand yards. On each side of the narrow, twisting road are steep banks, forming a natural grandstand for the thousands of onlookers. Beyond the bank on one side rises a beautiful wooded slope; on the other is a sheer drop down the side of a great rolling hill. The commentator's hut will be erected on the bank at an advantageous point on the course.

Although accidents do sometimes occur at Shelsley they are rarely serious.

Something New

IF you should tune in the Scottish Regional on May 25th, do not imagine that your set has suddenly begun converting the speech or otherwise chopping it up, in the manner resorted to by the Post Office to obtain secrecy on the radio telephone routes.

Actually, you may be listening to the first broadcast of a play in Gaelic. This is "Dunach," written by Donald Robertson. Of the plot I can tell you nothing, so get out the old Gaelic lexicon and listen for yourselves.

THE VERY LATEST. This, the new main studio at Leeds, was formerly a Friends' Meeting House. The original gallery has been given distinctly bold treatment and the ugly iron pillars have been completely enclosed by glossy black columns. Note the novel microphone suspension device.

Marconiphone Model 254

A Compact Three-Valve Console Radio-Gramophone

***Type.**—Three-valve console radio-gramophone. Moving-coil loud speaker. Disc type induction motor with automatic stop.* ***Circuit.**—Screen-grid H.F. stage with band-pass input filter, grid detector with reaction, power pentode output valve, full-wave valve rectifier.* ***Controls.**—(1) Tuning, with rotating horizontal scale calibrated in wavelengths. (2) Combined radio and gramo. volume control and reaction. (3) Wave range and on-off switch.* ***Price.**—24 guineas.* ***Makers.**—The Marconiphone Co., Ltd., 210/212, Tottenham Court Road, London, W.1.*

THE specification of this receiver indicates that it is admirably suited to the requirements of the average household. It offers a choice of radio or gramophone reproduction with an undistorted power output of 1¼ watts—quite sufficient for a large living room. The three-valve radio circuit has sufficient range to give reliable reception of all the more important British and Continental stations while the inclusion of band-pass tuning ensures adequate selectivity in relation to the sensitivity of the circuit. The controls are simple to operate and the boldly marked horizontal tuning scale is easily read.

The quality of reproduction on both radio and gramophone is full and satisfying, and the bass response is broad without any obvious tendency to resonate on a particular note. Adequate balance is imparted to the general effect by the brilliant response in the upper-middle register, particularly in the region of 2,000-2,500 cycles. To avoid harshness and to reduce background noise and needle scratch, no attempt has been made to maintain the response into the extreme high frequencies, and it will be safe to estimate the top cut-off as being in the region of 3,500-4,000 cycles. At the natural level of the human voice speech is well reproduced though, as might be expected, there is some tendency to hollowness if the volume is excessive.

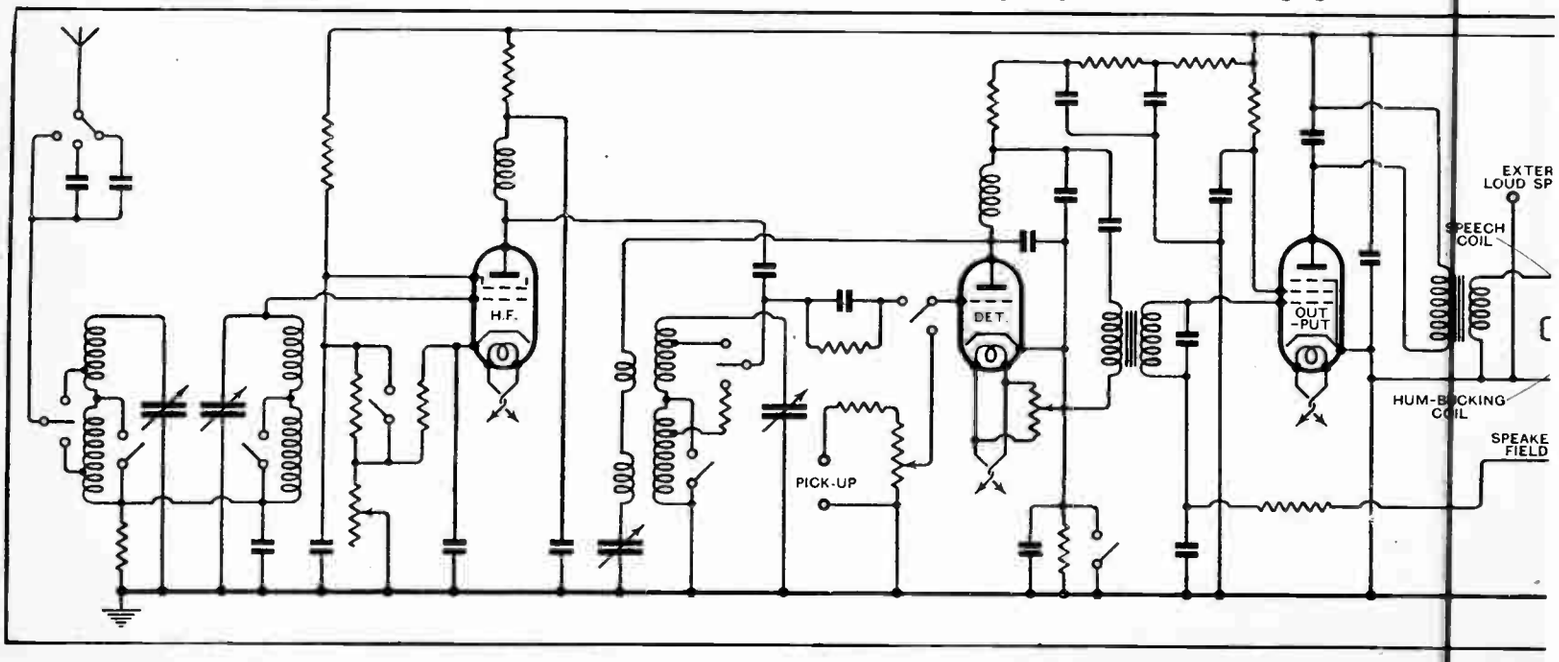
The volume available from gramophone records is just sufficient to load the output valve fully, so that the full range of the volume control is available. The automatic switch on the induction type disc motor produces an appreciable click in the loud speaker when the record is started and stopped, but there is a commendable absence of mechanical noise from the pick-up when the lid is closed, as the precaution has been taken of lining this with baize. The friction type hinge, by means of which the lid can be set at any angle, is a refinement which will be readily appreciated.

The hum level is sufficiently low to escape notice unless one is sitting close to the loud speaker. It can be adjusted to a minimum by a small filament potentiometer mounted at the back of the chassis.

Range and Selectivity

Tested in Central London the daylight range of the receiver proved to be exceptionally good. At midday no fewer than five Continental stations were available at good programme strength on the medium waveband. After nightfall, therefore, the choice of at least thirty alternative programmes can be confidently predicted. On long waves, of course, the set gave an even better account of itself under daylight conditions, and the absence of background noise on this wave range was a noticeable feature. The selectivity gave ample neutral ground between Daventry

Complete circuit diagram of the receiver unit. The reaction condenser and the radio and pick-up volume controls are ganged.



Marconiphone Model 254

and Radio Paris for the uninterrupted reception of Königswusterhausen.

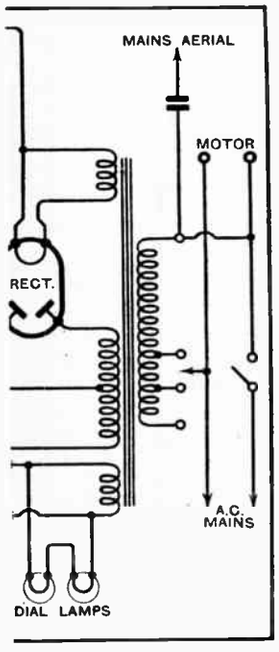
With a full-size aerial and the receiver adjusted for maximum range three, or, at the most, four channels on either side of the Brookmans Park transmitters were lost on the medium waveband. This is quite a good result for a receiver with only one H.F. stage and even better results would, of course, be obtained with a shorter aerial and at a greater distance from the local transmitter. Every precaution has been taken, in addition to the use of a band-pass input filter, to ensure the maximum possible selectivity. The aerial tuning coil is tapped down and the choice of three alternative connections through series aerial condensers is available. Similarly, the tuned grid circuit between the H.F. and detector valves is tapped to reduce detector loading.

Coupled Volume Controls

The volume control, which is arranged to vary the bias on the screened grid valve, also has some bearing on selectivity, as it is coupled mechanically to the reaction condenser. This spindle also carries the pick-up volume control and considerable simplification of the controls is thus effected. When reproducing gramophone records the lower half of the potentiometer feeding the screened grid of the H.F. valve is short-circuited, thus preventing the infiltration of radio signals.

The anode supply to the detector valve is exceptionally well filtered and decoupled and the output from this valve is passed on to the pentode power amplifier through a parallel-fed transformer. The field of the moving coil loud speaker, which is connected in the negative H.T. lead, is used both for smoothing and to provide the bias for the output valve. To reduce mains ripple a hum-bucking coil in series with the speech coil is wound on the outside of the field winding.

The power supply circuit calls for little comment. It will be noticed that parallel terminals are provided for the gramophone motor and a small series condenser is included to enable radio signals to be picked up from the mains in circumstances where an outdoor aerial is impracticable. The twin dial lamps are connected in series across the filament heater winding.



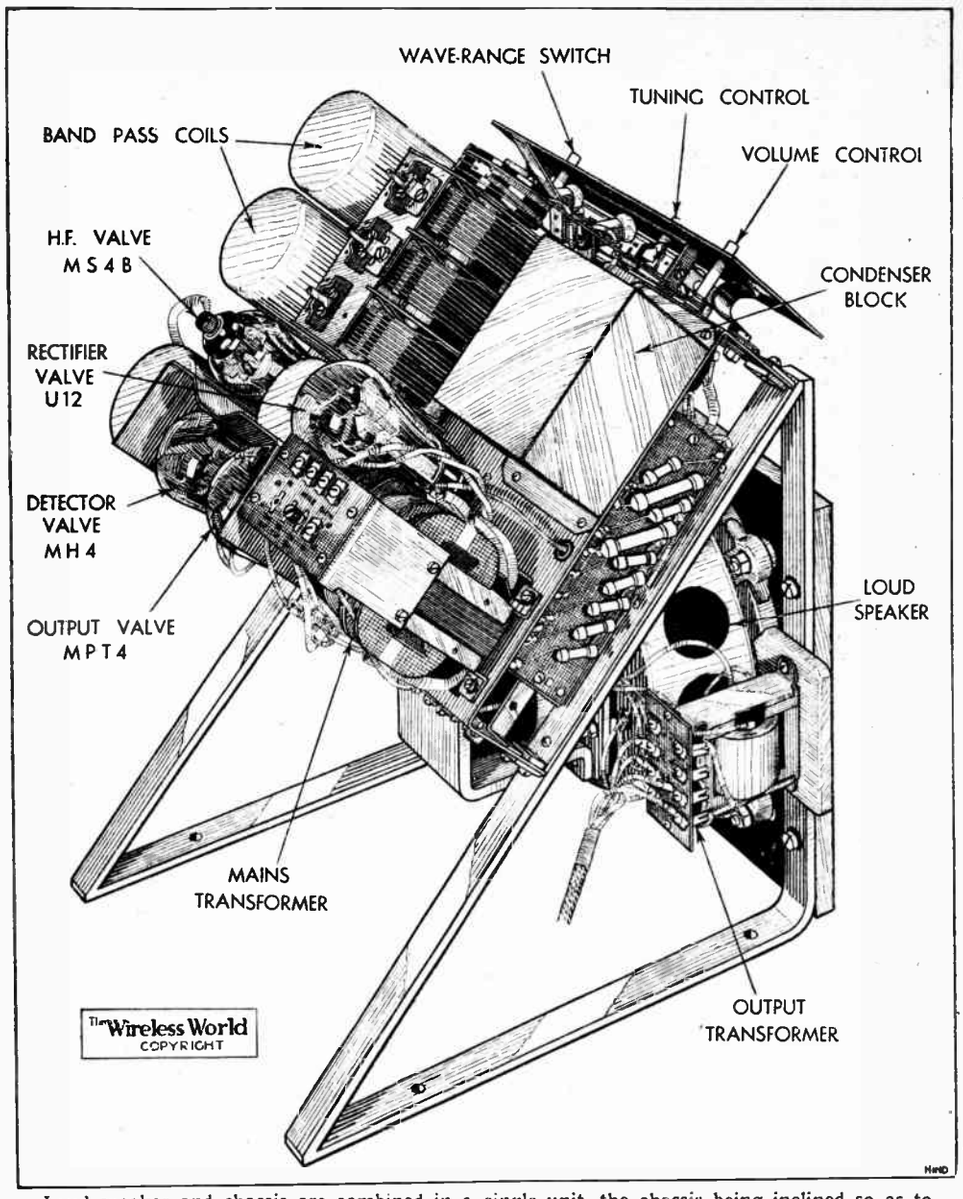
The chassis assembly is exceptionally well thought out and lends itself to easy removal for servicing. The triangular framework carrying the loud speaker on a subsidiary baffle and the receiver chassis at the correct angle for fitting the control recess is pushed up to the front of the cabinet and held down by four screws in the base. Snug fitting between the control panel and the cabinet is ensured by spring loading the panel which presses firmly against the slot provided for it in the cabinet. An incidental advantage of mounting the chassis in this way is the improved accessibility for valve replacements. Incidentally, it is unnecessary to remove the control knobs when withdrawing the chassis.

The design of the chassis itself follows conventional lines with the principal components arranged to give a clean top layout. Most of the resistances are connected on a panel at the side where their values can be easily checked in the unlikely event of failure. A horizontal dial of square section carries the wavelength calibrations on adjacent faces and is rotated to the appropriate position by a link mechanism working in conjunction with the cam-operated wave range switch.

Adjustment of the primary of the mains transformer to the supply voltage is effected by a shorting plug at the back of the chassis. Access to this and to the hum adjuster can only be gained after removing the back panel which is gauze covered to reduce box resonance. It is not necessary, however, to remove this panel to adjust the aerial input, which is controlled by a small three-position switch mounted on a bracket at the side of the cabinet. The cabinet is well proportioned and for a console is not unduly bulky. The dimensions are: height 38in., width 20¾in., depth 17in.

To sum up, the reproduction contains no qualities which are likely to attract unfavourable attention after living with the set for some time. The selectivity meets all reasonable demands, both on medium and long waves, while it would probably be necessary to go to a superheterodyne to improve on the range. Ample volume is available and mains hum is unobtrusive. The power consumption on radio is 65 watts and on gramophone 95 watts.

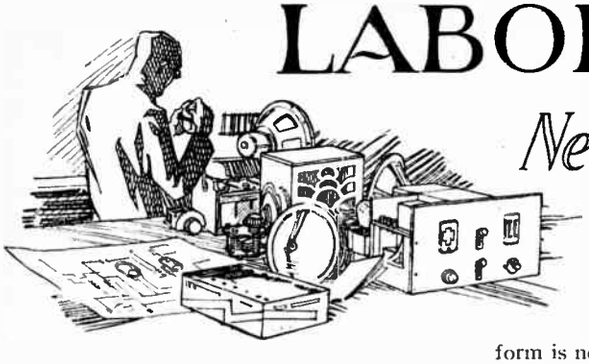
A CHASSIS LAYOUT DESIGNED FOR ACCESSIBILITY



Loud speaker and chassis are combined in a single unit, the chassis being inclined so as to register with the recessed aperture in the cabinet.

LABORATORY TESTS

New Radio Products Reviewed



FRANKLIN DRY ELECTROLYTIC CONDENSERS

MADE by the Franklin Electric Co., Ltd., 150, Charing Cross Road, London, W.C.2, these dry electrolytic condensers are obtainable in a wide range of values and for various working voltages. The larger values, which in the low-voltage class amount to some hundreds of microfarads, are suitable for use in grid bias circuits, whilst those of from two to eight microfarads come within the category of H.T. smoothing condensers. A specimen of the latter type, rated at 8 microfarads and 450 volts D.C. working, was tested and successfully withstood D.C. potentials up to 500 volts without unduly straining the dielectric. With potentials of between 500 and 600 volts occasional breakdown occurred, but the condenser immediately resealed itself and did not appear to have suffered in the least by this misuse.

On raising the applied potential to a little over 600 volts, a definite breakdown occurred from which the condenser did not recover by resealing.

The leakage current at the rated working potential is a shade less than one milliamp. All capacities are made to a uniform size,

Franklin 8 mfd. dry electrolytic condenser; 450-volt D.C. working.

a moulded bakelite case measuring 3½in. × 1¼in. × ⅝in. being used. The price of the model illustrated here is 6s.

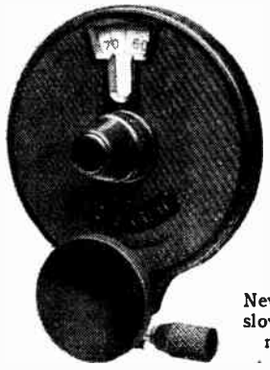
"SME" SOLDERING PASTE

"SME" is not a substitute for solder, but actual solder in the convenient form of a paste mixed with the requisite quantity of a non-corrosive flux. Soldered joints can be made without the aid of a tinned copper bit, the heat being applied to the joint by a poker or a blow-lamp for large work, and by a match or a candle in the case of light materials, such as thin wires, etc.

We have verified by test that "Sme" soldering paste makes a perfectly satisfactory joint, and find that the maker's claims are in no way exaggerated, for it is very simple indeed to handle. The paste is sold in tubes costing 7½d. each, and it is available also in tins, containing 1 lb.; supplies can be obtained from Andrew R. Findlay, 17, Robertson Street, Glasgow, C.2.

IGRANIC INDIGRAPH DIAL

THE Igranic Indigraph slow-motion dial, which embodies a micrometer adjustment, has been redesigned, and in its latest form is now definitely a better dial for short-wave work than the model it replaces, despite the fact that the earlier dial had few equals in this particular field. The main drive, giving a 9 to 1 reduction, is much smoother to operate, as the micrometer mechanism can be put entirely out of gear. When in action this



New Igranic Indigraph slow-motion dial with micrometer drive.

gives a reduction of 600 to 1, and is invaluable for short- and ultra-short-wave reception.

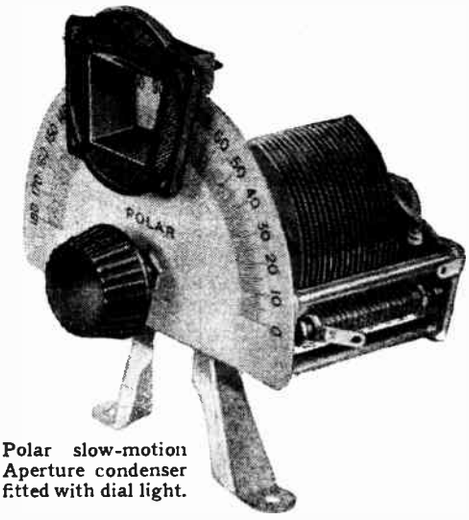
The shape, size, and general design of the new dial is the same as the earlier models, so, also, is the price, which is 9s. 6d.

The makers are the Igranic Electric Co., Ltd., 147, Queen Victoria Street, London, E.C.4.

POLAR APERTURE CONDENSER

THIS condenser is particularly well suited for use in the simpler type of receivers in which a single tuned circuit is used. It consists of the Polar No. 2 type slow-motion condenser mounted on a bracket 2¼in. high. A semi-circular translucent scale is fitted, and provision is made for illuminating it from the back. The slow-motion drive gives a reduction of about nine to one.

The measured minimum and maximum capacities of a 0.0005 mfd. specimen were 14 m-mfds. and 500 m-mfds. respectively.



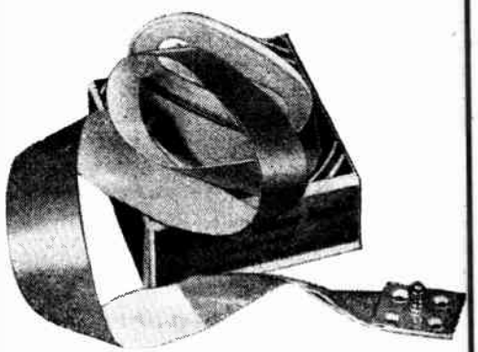
Polar slow-motion Aperture condenser fitted with dial light.

The condenser is quite robust despite its small size. Aluminium is employed for the vanes and plates, whilst the spindle and supporting rods, also the fixing bush, are of brass.

This style is obtainable in 0.00035 mfd. and 0.0003 mfd. sizes in addition, the price being 7s. 6d. in each case.

"HET" INDOOR AERIAL

MADE by the Univolt Electric, Ltd., 119-125, Finsbury Pavement, London, E.C.2, the Het Indoor Aerial takes the form of a metal foil strip one inch wide and having a backing of adhesive paper so that it can be readily attached to the wall or to woodwork. One end is provided with a small brass plate in which are four screw holes for fixing, and it carries a terminal to which is joined the aerial lead to the receiver. The aerial can be run round the room either above or below the picture moulding in the form of a frieze, and will harmonise with most furnishing schemes



"Het" metal strip indoor aerial.

since it can be obtained finished either in gilt or silver, and the price is 1s. 6d.

Catalogues Received

Westinghouse Brake and Saxby Signal Co., Ltd., 82, York Road, King's Cross, London, N.1.—Leaflet I.P. 11W, giving operating instructions and circuit details for the new high-frequency metal rectifiers designated the Westector.

The Edison Swan Electric Co., Ltd., 155, Charing Cross Road, London, W.C.2.—Sixty-three-page descriptive booklet dealing with the full range of Mazda valves. Characteristic curves, operating conditions and some typical circuits are given. Also illustrated folder describing the B.T.H. range of gramophone pick-ups.

Thompson, Diamond and Butcher, 34, Farringdon Road, London, E.C.1.—1933 radio wholesale catalogue describing and illustrating the full range of receivers, radio gramophones, accessories and components handled by this firm.

R. Cadisch and Sons, 5 and 6, Red Lion Square, London, W.C.1.—New Season's Radio Catalogue in which 206 pages are devoted to illustrations and descriptive matter of this firm's range of receivers, radio gramophones, accessories and components. A separate section deals with the numerous other articles, electrical, mechanical, and of domestic interest also handled.

The Pentagrid Converter

An American Development in Frequency Changers

By CLAUDE L. LYONS, B.Sc.

HERE is the first description of a new single-valve frequency changer which should simplify the construction of the superheterodyne. It combines in one envelope the electrodes necessary for a triode oscillator and a variable-mu first detector with the added advantage that aerial radiation and interaction between tuning circuits is avoided.

IN view of the ever-increasing popularity of the superheterodyne, the Pentagrid Converter valve which has been recently developed in America is of considerable interest. Two types of valve are available in that country: the first is intended for use in ordinary A.C. receivers and has a 2.5 volts heater, while the other, which is also of the indirectly heated cathode type, is rated for 6.3 volts for use in car sets.

The valve is intended to function as a single-valve frequency changer, and it not only oscillates and rectifies, but complete isolation of the two processes is obtained. There are six electrodes; immediately surrounding the cathode is the oscillator grid, and outside this the oscillator anode is fitted. This does not surround the grid in the normal manner, however, but consists merely of two bars. Around the whole oscillator assembly is placed one portion of the screen-grid. Outside this is the control grid of the detector portion, then comes the second portion of the screen-grid, which is connected internally to the first, and, lastly, the detector anode.

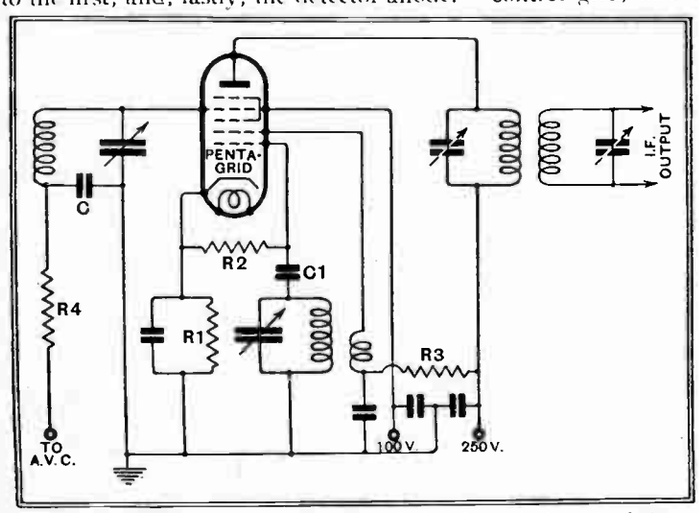


Fig. 1.—The circuit arrangement and the electrode layout of the new Pentagrid frequency changing valve.

In operation the cathode, inner grid, and oscillator anode form the three electrodes of a conventional oscillator system, which is screened from the other electrodes by the first screening grid. From the point of view of connections, the cathode is common to the detector; actually, however, it is stated that the true detector cathode is a cloud of electrons existing between the first screening grid and the detector control grid. This being so, the detector cathode is a cloud of electrons, and the control grid, second screen-grid, and anode form the remaining three electrodes of an ordinary screen-grid first-detector valve, the characteristics of which are of the variable-mu type. It may thus be used for automatic volume control purposes.

Electronic Mixing

The connections for the new valve are shown in Fig. 1, from which the arrangement of the electrodes will also be apparent. It will be seen that the tuned oscillator circuit is connected between the oscillator grid and the earth line, which is negative H.T. for this valve, while the reaction coil in the oscillator anode circuit is coupled to it. The grid is negatively biased by means of the voltage drop set up by the passage of grid current through the resistance R2.

In the detector portion, the incoming signal is applied in the usual way to the control grid, and the initial negative bias is obtained through the drop along the cathode resistance R1. The resistance R4 and condenser C are the usual filter circuit for A.V.C. The I.F. transformer is connected in the anode circuit, to which electrode a potential of some 250 volts is applied. The common screens are fed from the usual 100 volts point on the H.T. supply.

It will be observed that oscillation takes place among the inner electrodes of the valve, and rectification, through which the beat note between the incoming signals and the local oscillations is formed, and amplification occur in the action of the outer electrodes. Normally, where two separate valves are used, it is necessary to provide coupling between the circuits of the two valves so that the oscillations are applied to the detector as well as the signal. It is sometimes found that this coupling leads to difficulties, since with certain arrangements interaction may occur between the tuning controls, and there is a danger of radiation from the aerial unless an H.F. stage be used.

No such circuit coupling is employed with the Pentagrid, and the necessary coupling occurs within the valve and, by virtue of the screening, is entirely electronic in nature. It has been stated that the cathode of the variable-mu portion of the valve is a cloud of electrons around the inner screen-grid. The intensity of this cloud depends upon the instantaneous potentials of the oscillator electrodes. These are continuously changing, since the valve is oscillating, and the density of the electron cloud varies in sympathy. As a result, the anode current of the variable-mu portion of the valve varies also at the oscillator frequency. The action can perhaps best be visualised by regarding the arrangement as similar to a two-valve circuit in which the first detector cathode is heated by the oscillator current so that its temperature varies with the oscillator current. With ordinary valves, of course, a scheme of this nature is impracticable on account of the temperature lag.

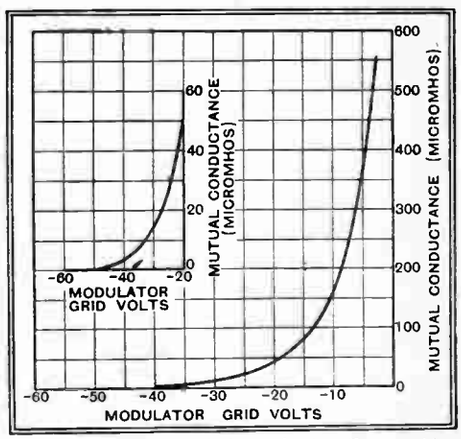


Fig. 2.—Characteristics of the Pentagrid showing that a large negative grid bias can be applied.

Good A.V.C. Control

Although the oscillator thus affects the operation of the detector so that electronic mixing is obtained, the potentials of the purely rectifier electrodes do not modify the oscillator action in any way. It is possible, therefore, to control volume by varying the bias applied to the control grid, so increasing the range of control in an A.V.C. set. The curves of Fig. 2 show that the bias can be varied up to about 50 volts negative, at which the mutual conductance is under 0.001 mA/V. This is probably impossible with any other single-valve frequency changer.

It is stated that normal type oscillator

The Pentagrid Converter—

coils can be employed, and, of course, the methods of ganging the oscillator and signal frequency circuits follow the usual practice. The values of the other components depend largely upon the voltages applied to the valve, and the grid leak R2 is particularly important. If an incorrect value be employed here, a tendency to low-frequency howling or squegging may be apparent.

It will be seen, therefore, that the new valve combines within a single glass envelope the electrodes necessary for performing the functions of both a triode oscillator and a variable-mu first detector, and it is claimed that the efficiency is at least equal to the normal arrangement. Furthermore, there is the not unimportant advantage that interaction between the tuning circuits and aerial radiation is avoided. The valve, therefore, is to be welcomed as affording a simplification in the superheterodyne, and it probably represents the first efficient single-valve frequency changing device which is not open to objection on the score of difficulties due to effective balancing.

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, London, S.E.1, and must be accompanied by the writer's name and address

The Ferrocart III

The following interesting report on the performance of the above set has been received from Lt.-Col. H. Ashley-Scarlett, President of the Golders Green and Hendon Radio Scientific Society, who carried out a test in collaboration with a fellow member, Mr. J. C. Emerson, B.Sc.

The Ferrocart III A.C. receiver described in *The Wireless World* of March 3rd, has been the subject of a test carried out by myself and a fellow member, Mr. J. C. Emerson, B.Sc. The following report on performance will, we think, be an encouragement to other readers who contemplate building the receiver.

Quality.—For the type of receiver remarkably good; there was no aural evidence of high note loss on local station reception. If any criticism could be made it would be that the very low notes are slightly lacking. Hum is quite absent and volume is quite sufficient for ordinary domestic requirements.

Pick-up.—The set is quite stable when using a pick-up—quality as above.

Selectivity. — Most noticeably good, especially on the lower part of the medium wave band where most interference is usually experienced.

Sensitivity.—Up to standard.

Range.—Twenty-five broadcasting stations easily received on the loud speaker during daytime at programme strength. After dusk the number was increased to 68, with the greatest facility.

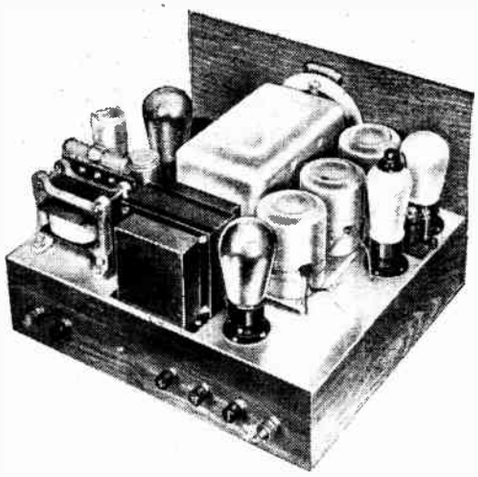
Reaction.—Particularly good and effective.

General.—An excellent general-purpose receiver. The set was tested six miles from Brookmans Park. On the National programme use of local station switch was necessary to reduce the signal to a comfortable level. To receive foreign stations when very closely spaced the volume control was turned down to allow full scope to reaction, thus obtaining the necessary selectivity. The reaction control is excellent and does not give rise to the terrific distortion usually associated with its use. The condenser dial is marked in metres, but the readings are approximate only. In view of the high selectivity a closer division of the marking would be an advantage. The dial setting is somewhat affected by the position of the reaction condenser.

The appearance and finish of the set are excellent, and we would particularly mention the neat method of mounting and bringing out the leads of the power transformer.

H. ASHLEY-SCARLETT, Lt.-Col.
President, Golders Green and Hendon Radio Scientific Society.

19th April, 1933.



"The Wireless World" Ferrocart III, an A.C. receiver described in our issue of March 3rd, 1933.

A Birthday Greeting from Holland

ON the occasion of the twenty-second birthday and of the moving to new, "bigger and better" premises of *The Wireless World*, I wish to convey my sincere congratulations. I hope that the date of April 17th, 1933, may mark the beginning of a new and very prosperous era to *The Wireless World*, that it may be "bigger and better" still, and may remain to the real amateur and experimenter what it has always been, a real encyclopædia on wireless, the herald of new ideas, a champion for better reception, and always a stimulus to those who seek the real scientific lines and principles of wireless. Being myself a "victim" to "that wireless craze," as some say, since 1922, and a regular reader of *The Wireless World* since 1927, I, and with me many of my old-timer friends, have profited by it.

I can tell you frankly that among all radio periodicals I know I consider *The Wireless World* to be the best of all. No other periodical, be it on radio or other subject, neither Dutch nor foreign, can compare with it. In view of the fact that I spend on professional literature, both radio and medico-chemical, about £10 a year, which is for Holland rather much, I can say I know what a good periodical means and looks like.

I hope that there will be many sequels to your last constructional article, about an input-transformer, and if I am allowed to make a suggestion it would be greatly appreciated by many of your Dutch readers, as myself, experimenting with public-address gear, if you would publish an article on the construction of 20 hy.-120 mA. chokes and tapped output chokes for push-pull. I sincerely hope that shortly we may find something on these lines in the pages of *The Wireless World*. I hope that *The Wireless World* may still a very long time be the factotum of every real amateur.

C. W. VERBAARSSCHOTT.
Voorburg, Holland.

Broadcast Stunts

I WAS interested in the notes under "Broadcast Brevities" in *The Wireless World* of April 24th, but would suggest that the complaint that there are "no novelties" nowadays is hardly fair to Midland Regional, in view of the following recent facts.

A series of County Week Broadcasts—the first of their kind—was begun in October. There were actual relays of cattle on a Hereford farm and of big power presses and heavy stampers at various factories, and records by blattnerphone (Stille) process of trawlers arriving and departing, of a fish auction and of a thousand-ton quarry blast.

To take next week only, we are fading in to our Pageant of Gloucestershire, a blattnerphone record of Dr. Hayes' tune from Gloucester Cathedral Chimes, taken in the Tower on a windy day last week, and we are broadcasting the arrival and departure of the Cheltenham Flyer.

Stunts obviously lose their value if they are carried out too frequently, but I do claim that the B.B.C. staff here realise their value and the amount of appreciation accorded them. It probably won't be very long before an announcement will be made of another stunt which our Programme Department and O.B. Engineers have in view.

PERCY EDGAR,
Midland Regional Director,
British Broadcasting Corporation.

BLUE PRINTS

For the convenience of constructors full-sized blue prints are available of the following popular *Wireless World* sets that have been recently described, price 1s. 6d., post free.

Monodial A.C. Super. (Booklet, price 1s. 8d. post free.)
Short Wave Two. (November 4th and December 23rd, 1932.)
Straight Three. (December 16th, 1932.)
Modern D.C. Three. (December 30th, 1932, and January 6th, 1933.)
All-wave Monodial Super. (January 27th and February 10th, 1933.)
Modern A.C. Quality Amplifier. (February 17th, 1933.)
Ferrocart III. (February 24th and March 3rd, 1933.)
***A.V.C. Monodial Super.** (March 17th and 24th, 1933.) With 2·5 watt or 5 watt amplifier. State which is required when ordering.
The Class "B" Ferrocart Receiver. (April 17th, 1933.)
Universal A.C. Short-wave Converter. (April 28th, 1933.)

* Price of this blue print is 2/-.

These can be obtained from the Publishers, Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.

NEWS *of the* WEEK

Current Events in Brief Review

Short Waves and Politics

GERMAN short-wave amateurs desiring transmitting licences must not only pass a rigorous technical test, but must satisfy the authorities as to their political integrity.

In Palestine

AT the end of 1932 there were 900 licensed wireless receiving sets in Palestine, according to the American Consul at Jerusalem. Empire broadcasting is stimulating interest, and new receivers have been reaching the country during the last few weeks.

How France Would Win

WE understand that the French delegates to the Lucerne Conference will present an attractive little scheme for the apportionment of wavelengths. This is based on the geographical size of each country, and the French engineers have calculated that on this basis France, Germany, and Great Britain would obtain waves in the ratio of 6: 5: 3. Thus France would secure double the number of wavelengths owned by Great Britain.

The Conference opens on Monday next, May 15th.

A Helping Hand

PAPA STEPHAN, the famous president of the Radio Circle of Katowice, who has correspondents all over Europe, has earned the sincere thanks of *Radio Toulouse*. In a public statement the management of *Radio Toulouse*, after thanking listeners for the innumerable messages of sympathy received after the recent fire at that station, recall with gratitude the gesture of sympathy with which M. Stéphan Tyminiecki (Papa Stéphan) has not hesitated to put his station at the disposal of *Radio Toulouse* for answering questions over the ether.

Toulouse is hoping to reopen regular transmissions in the very near future.

Programmes from the Empire: Indian Suggestion

THE Western India Wireless Association is anxious to reciprocate in the matter of broadcast programmes with transmissions from India for distribution over Great Britain. The Association offers to prepare a typical Indian programme for transmission from Poona. This would be picked up at Rugby and sent to London and thence relayed by the B.B.C. stations. The entertainment would consist of a *potpourri* of Indian sounds—musical, vocal, street, and jungle—together with a running commentary by an English-speaking announcer. These transmissions would have to begin about 11 p.m. Indian time.

This strikes us as an admirable idea, and, with the completion of the Post Office Empire telephone services, there should be no obstacle to the reception of programmes from all parts of the Empire.

New Swiss Regional

MONTE CENERI, the Italian-speaking regional station at Tessin, Switzerland, started tests on April 18th with a power of 7 kW. and a wavelength of 680 metres.

Bisamberg in a Fortnight

WE understand that the new 100-kW transmitter at Bisamberg, near Vienna, will open with a special programme on May 26th. Vienna's wavelength is 507.2 metres.

Where the Rainbow Ends

THE "European Zone" over which the forthcoming Lucerne Conference will have jurisdiction actually comprises all countries as far as 40° east of Greenwich and extends southwards to the southern shores of the Mediterranean. Countries on the outskirts include Northern Africa, Palestine, Turkey, the Irish Free State, and part of Russia as far as Moscow.

N.P.L.'s New Radio Department

WE understand that, with effect from May 1st, a new Radio Department has been formed at the National Physical Laboratory, under the superintendentship of Mr. R. A. Watson Watt. The new Radio Department includes the former Wireless Division of the N.P.L. Electricity Department, and also the Radio Research Station at Slough, which will continue its present work.

Short Waves and Signal Crashers

TWO wireless vans now leave Scotland Yard daily under sealed orders. Their purpose is to trap motorists who ignore traffic lights. Arrived at the chosen spot, one van is stationed close to the traffic light, while the other van waits 100 yards farther along the road. When a car driver disobeys a signal the nearer van transmits a short-wave message to the one in front, and the offender is intercepted.

The First Radio Play

TO Britain belongs the honour of broadcasting the first microphone play, according to M. Paul Berger, Editor of the *Antenne*, who declares that this first effort was the broadcasting of a scene from Rostand's "Cyrano de Bergerac" from the experimental station at Writtle, England, more than ten years ago.

A Popular Short-wave Station

SHORT-WAVE listeners will be interested to hear that W2XE, the short-wave station of the Columbia Broadcasting System, has returned to the ether with considerably increased power. The daily schedule is as follows: 4-6 p.m. on 19.64 metres; 8-10 p.m. on 25.36 metres; 11 p.m. to 4 a.m., 49.02 metres. The times are G.M.T.

THE PACE THAT KILLS. This amusing cartoon from the New York trade journal *Radio Retailing* has a serious significance for all who value quality more than quantity. Mass production methods in American radio have led to continual price cutting, and the race to produce the cheapest set has had dire results on tone quality and craftsmanship. Is the process to be repeated over here?

May Day Millions

THE May Day celebrations in Berlin were distinguished by the fact that on the Tempelhofer field there was assembled a crowd of over 1,000,000 persons—probably the largest collection of individuals the world has ever seen. That the majority of them were able to hear the Chancellor's speech could only be ascribed to the 112 Telefunken loud speakers.

The broadcasting of the event, says a correspondent, meant a very busy day for the Technical Staff of the Radio Reichs Gesellschaft, which employed a special new O.B. van for the first time. This housed half a dozen amplifiers fed by five groups of microphones distributed throughout the great Berlin port.

Midgets in Spain

MIDGET sets are a craze in Spain, where, it is reported, thousands have been sold during the last few weeks.

Lectures on Television

THE first of a series of four lectures on television was given by Mr. H. J. Barton Chapple, Wh.Sch., B.Sc., on Wednesday last, May 10th, at the Polytechnic, Regent Street, London, W.1, and the three remaining lectures will be given on May 17th, 24th, and 31st. The lectures are illustrated by experiments, lantern slides, and demonstrations of television receivers. Full particulars can be obtained on application to the Polytechnic.

Faraday Building

"FARADAY Building can well be described as the switch board of the world," said the Postmaster-General, the Rt. Hon Sir Kingsley Wood, M.P., at the opening of the International Telephone Exchange, Faraday Building, Queen Victoria Street, London, on Thursday, May 4th. Inspection of the exchange confirms the appropriateness of the remark. Faraday Building not only serves as the converging point for Post Office radio telephone services from Montreal, New York, Buenos Aires, Rio de Janeiro, Cape Town, Cairo, Sydney, Bombay; it is also the exchange for linking-up these centres with each other and with the capitals of Europe. It is, in fact, known as the Overseas Telephone Exchange. Although the actual telephone circuits or channels themselves are a highly complicated engineering undertaking, the Overseas Exchange differs very little in appearance from an ordinary inland telephone exchange, though special arrangements have been made to exclude extraneous noises. Sound-absorbing and echo-suppressing materials have been provided for the floor and ceiling of the switch room.

The exchange is coupled up with Rugby, which is the outward transmitting station for all the Post Office overseas radio telephone services. Reception is effected through Cupar, in Fifeshire, which deals with long waves from America, and Baldock, Hertfordshire, for all the short-wave services.

It is now possible to speak from this country to any one of thirty-two million telephone subscribers.

UNBIASED

By FREE GRID

What Lancashire Thinks To-day . . .

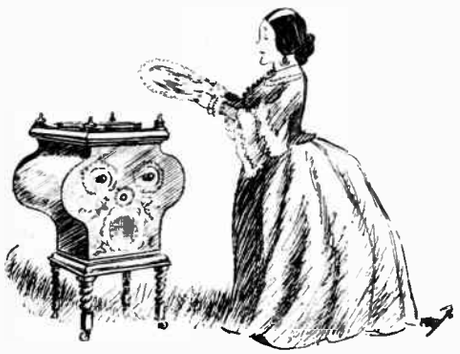
I AM very surprised to learn that "wired-wireless" does, after all, exist in this country. Not only are programmes being relayed to subscribers' houses *via* this system, but my informants (Community Radio, of St. Anne's-on-Sea) tell me that at the Hotel Majestic, at St. Anne's, the incoming radio programmes are being distributed to the various rooms by this method. I presume that they use either the electric light wiring or the electric bell wiring. It says much for this Lancashire city that they are pioneers in using this system instead of the ordinary loud speaker extension.

A "Period" Set

THE other day I was dragged, much against my will, to visit a futuristic-looking dwelling which was supposed to represent the sort of place in which we shall all be living in 1950.

Being neither an architect nor a furniture designer, I do not feel justified in commenting upon the general ugliness of the place and its lack of comfort, to say nothing of the old-fashioned dirt-collecting corners, which I should have thought would have been rounded off by the year mentioned. Concerning the radio set exhibited in the house, however, I feel I can let myself go. It was a real "period" model.

Naturally the instrument was also supposed to be of the 1950 period, and quite properly it was shown as a combined "sound and sight" instrument; in other words, it was a radiophone-cum-radioscope, or radio-phonoscope, as I suppose the combined instrument will be called in days to come. No snag was encountered until I lifted the lid and dived into the innards, despite the protests of a uniformed and much-bewhiskered attendant, who smacked of 1850 rather than 1950.



A real "period" model

Now it is, of course, quite impossible to predict what radio developments will have come along by 1950, and in the circumstances, therefore, I think that the designer (?) of the set might have left it to our imagination. He had, however, thought otherwise, but so far from attempting to project his mind into 1950, he had retrojected it into the early part of 1931. As for the television part of the apparatus, I could not help thinking that he must actually have borrowed the instrument which is usually on show in the Science Museum.

The most ridiculous part of the whole affair, however, was the radiogramophone. Not only had the sponsor of this instrument failed to perceive that the disc type of record will have sung its swan song long before 1950, but he had forgotten that, with the perfection of television, gramophone records will incorporate sight as well as sound. When that time comes the name of this all-embracing home entertainer will, no doubt, be "radiogramophonoscope," or "radiogramoscopophone," or perhaps even just "phonoscope" or "scopophone" for short.

To crown all, this wretched travesty of a house contained no provision for reception in rooms other than the one in which the receiver was operating.

Old Iron at Brookmans Park

I SUPPOSE that all of you have heard the preliminary efforts of the new West Regional station, and I hope that you are all as delighted as I am with the excellent results obtained, more especially from the point of view of quality.

The point to which I wish to call attention, however, is the *relatively* inferior results of the London transmitter when compared with this later station. (I have quality in mind more than anything else.) In other words, isn't it about time that the London transmitter was modernised; rebuilt, in fact? It must be remembered that the proposed Droitwich station is not expected to be in operation before the middle of 1934, and by the time the B.B.C. has dealt with the Belfast area, thus completing the Regional scheme (*circa* 1935), London will be much behind the times; in fact, we shall have the ludicrous spectacle of the capital of the Empire having a transmitter which is more antique than any other in the country.

I am perfectly well aware that the B.B.C. Engineering Department will immediately deny that London will then be out of date, just as they did recently when certain journals suggested that it was high time that 5XX (which was opened in 1925) was handed over to the old-iron dealer.

Any old iron?

The London station is over three years old, regular transmissions from the Regional transmitter having commenced on March 5th, 1930, and by the time the Regional scheme is finished it will have whiskers on it. A five-year-old broadcasting station (which will be London's age when the Regional scheme is complete) is just about as antique as a one-year-old broadcast receiver; more so, in fact.

Just as in the case of large metal structures like the Forth Bridge the painters are never finished, one gang beginning all over again before the old gang is finished, so ought the B.B.C. to deal with the Regional scheme. At least *one* station should always be in a process of demolition and reconstruction.

It Works

I MUST thank the many readers who sent me such helpful advice in regard to my difficulties in the matter of a hospital radiogram some little time back. You may recollect that one of my greatest problems was to devise a record changer which would keep up a continuous programme of gramophone records in the hospital throughout the night and at such other times when there was no broadcasting.

As one reader remarked, the problem was quite simple, as all that was necessary was to get hold of half-a-dozen or more playing desks fitted with the usual "eight-record" changing gear, and to devise mechanism so that when the first instrument had done its stuff it operated a relay which started the second one, and so on.

My correspondent states that he has already filed his patent, and that if he can't manage to get some manufacturer to take it up soon he will have to file his petition also. I must confess that the apparatus sounds rather cumbersome, and I shall need a complete room to house all the playing desks, but, nevertheless, I am assured that it works, and that is the great thing. I must confess, however, that I think it very remiss of our manufacturers not to tackle the problem of giving us a record-changer which will hold more than a miserable eight records.

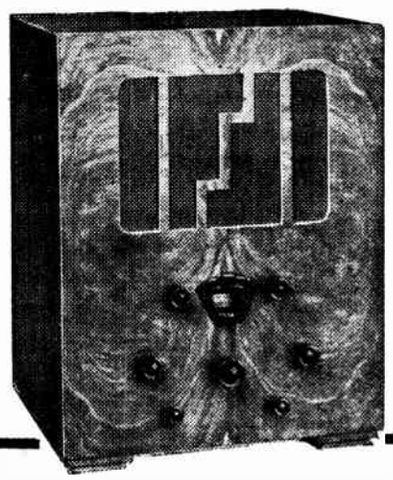
"THE WIRELESS WORLD"

CLASS "B" FERROCART RECEIVER

In view of the phenomenal interest which is being taken in this wonderful circuit, we have reprinted 10,000 copies of the original constructional article which appeared in "The Wireless World" of April 7th last, and these are being offered free to all readers of "The Wireless World" on receipt of application. Wireless dealers will be supplied gratis with as many copies as can conveniently be disposed of amongst their customers.

Trade Enquiries Solicited.

The fact that this handsome Cabinet, finished in beautifully figured Walnut, was chosen by "The Wireless World" for their latest Receiver, speaks for itself. Fashioned on modern lines, it is of extremely neat design, and its construction leaves nothing to be desired. Special care has been taken to ensure that Cabinet resonances are eliminated. Overall dimensions:—Height, 19¾ in. Width, 15 in. Depth, 12¾ in. Complete with Loudspeaker Baffleboard, "Konductite" metal-lined baseboard and removable back. Front drilled ready to take the "Ferrocart" Receiver, if desired, without extra charge.



Cabinet with metal-lined baseboard - **32/6**

The demand for Kits of parts for this wonderful Receiver—which has to be heard to be believed—is increasing daily, but in accordance with our original undertaking, we can still deliver every Component ON DEMAND.

In view of the remarkable performance of the new Class "B" Battery Valve, both as regards quality of reproduction and power output, it can safely be predicted that this type of outpnt will be included in the majority of future battery sets. In efficiency it is considerably greater than any other output stage, and, in combining this method of amplification with the undoubted superiority of the Ferrocart Coils, "The Wireless World" has to be congratulated on evolving a circuit which, at least as far as battery operated sets are concerned, has totally eclipsed all previous efforts.

KITS AS SPECIFIED

(Designer's first Choice).

KIT 'A'	Complete (less Valves, Batteries, Cabinet and Loud Speaker)	£8-3-6
KIT 'B'	Complete with Valves (less Batteries, Cabinet and Loud Speaker)	£10-9-9
KIT 'C'	Complete with Valves, Cabinet and Loud Speaker (less Batteries)	£14-1-9

Detailed Lists, Post Free.

FREE DEMONSTRATION

All readers of "The Wireless World" are cordially invited to see and hear this wonderful Receiver at our Surrey Street Showrooms, where we are displaying a working model of the complete instrument.

Hours of business: 9 a.m. to 6 p.m. Two doors from the Strand, facing Aldwych tube station.

The CITY ACCUMULATOR Co., Ltd.,
Showrooms: 4, Surrey St., Strand, London, W.C.2.
Office and Works: 7, Angel Court, 173, Strand, London, W.C.2.
Telephone: Temple Bar 8620. Telegrams: Cityacco, Estrand, London.

The retort courteous!

"The Wireless World"
in a recent editorial called for cheaper components.
In reply WILBURN & CO. introduce
The New

PEAK ELECTROLYTIC CONDENSER

CAPACITY 8 mfd.

PRICE 4/9 ea.

450 VOLTS.

Not since we introduced our now famous **TYPE 1500** has such value in condensers been offered to "Wireless World" readers. Remember that recommended and used as they are by the "Wireless World," you take no risks when you buy Peak Condensers.

PEAK WORKING.

The Electrolytic condenser featured here is only one of the many new additions to the Peak range. A new list, ready shortly, contains full particulars and will be gladly sent on request.

PEAK CONDENSERS are used by the War Office, Post Office & other Government Depts.

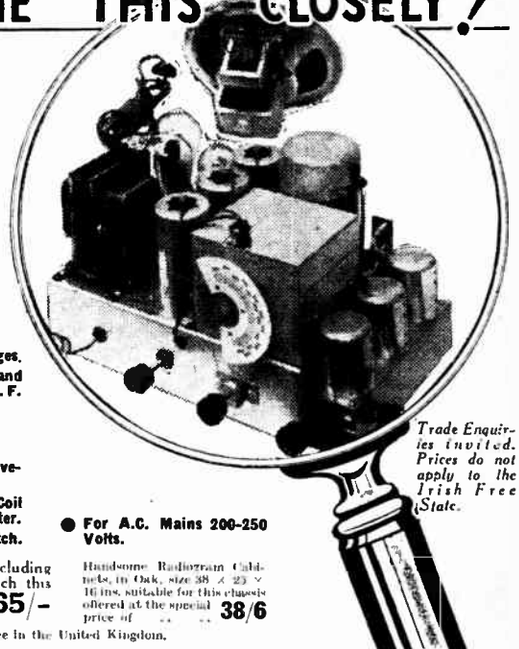
Manufacturers and Trade Supplied.

23, Bride Lane, Ludgate Circus **WILBURN & COMPANY** **London, E.C.4** *Phone: CENTRAL 6994*

Northern Distributors : W. Andrew Bryce & Co., Bury, Lancs.

EXAMINE THIS CLOSELY!

AN ALL-ELECTRIC SIX VALVE CHASSIS AT LESS COST THAN YOUR BATTERY SET



Remarkable results have been obtained under difficult conditions with this highly efficient six-valve circuit (including rectifier). You will be amazed at its standard of selectivity and capacity for receiving long-range stations.

- **2 Variable-mu H.F. stages.**
- **Distortionless Detector and Resistance-coupled L.F. stage.**
- **Power-Pentode Output.**
- **One-dial control**
- **Long and medium wavebands.**
- **Field-energised Moving Coil Loudspeaker, 7½" diameter.**
- **Fitted Tone Control Switch.**
- **For A.C. Mains 200-250 Volts.**

★ Kit of 6 Valves (including Rectifier) tested to match this receiver offered at the special inclusive price of **65/-**

Handsome Radiogram Cabinets, in Oak, size 38 × 23 × 16 ins. suitable for this chassis offered at the special price of **38/6**

Delivered Free in the United Kingdom.

Trade Enquiries invited. Prices do not apply to the Irish Free State.

6 VALVE CHASSIS AND MOVING COIL SPEAKER £6.19.6 COMPLETE

BON MARCHE Ltd. BRIXTON S.W.9.

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

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For particulars of Box Number Advertisements and Deposit System see previous issues.

RECEIVERS FOR SALE.

MURPHY 3 Mains, used 2 months; £10/10.—Sandall, 9a, Powis St., Woolwich. [2611

LOTUS Bud, D.C., 89/6, condition absolutely as new.—G. Alderson, Poplar Rd., Solihull. [2594

PYE S. All Mains Superhet; list price £23, as new, £15.—Apply 87, Red Post Hill, S.E.24. [2589

4-VALVE Chassis S.G. Detector, pentode rectifier, complete with B.V.A. valves and energised moving coil loud speaker; £8 8 complete.

5-VALVE Latest Pattern Superhet. Chassis, complete with B.V.A. valves and energised moving coil loud speaker; £10 10, complete. Stott's, Clare Hill, Hudderfield. [2601

MORE Part Exchange Receiver Bargains for Disposal; state approximate requirements for quotation.—Coutts, Wireless Engineers, Horley. [2613

D.C. Monodial Radiogram, Garrard universal motor, B.T.H. pick-up, Magnavox 143H speaker, superb modern cabinet; 25 guineas.—Blake, 95, Hillway, N.6. [2532

CLIMAX All-electric 200-250 A.C. Band Pass Three, in walnut cabinet, complete with valves and moving coil speaker; list price £16 16, unopened, £8/8; c.o.d., carriage paid.

50/-.—Ediswan D.C. all-electric set, S.G., detector and Pentode, without valves, can be converted to A.C.; list price 21 guineas, unopened packing; c.o.d., carriage forward.

PHILIP KAY, Ltd., 167, City Rd., Finsbury, London, E.C.1. [2541

ALL-WAVE Monodial, 5-valve Columbia Portable, S.T. 300, and sundry parts; no junk; genuine bargains; stamp with enquiries.—Frank Rowe, Rylands, Sampford Arundel, Taunton. [2477

7-VALVE American Bosch D.C. Mains Receiver, self contained, moving coil loud speaker, magnificent instrument, practically unused, full set spare valves; offers.—Box 6836, *C/o The Wireless World*. [2584

ELECTRAD Quality Amplifier, model L.W.220, for 220-240v. A.C., complete; cost £12 5, nearest £5/10 secures; also, Regentone eliminator (as new), S.G. tapping, accept £2; also "Felex" universal short wave convertor, complete, cost 57/6 three weeks ago, a sacrifice at £2.—Raymond Snowden, Keighley Rd., Cowling, Yorkshire. [2605

CHARGERS AND ELIMINATORS.

MILNES 120v. H.T. Unit, £2; S.22/S.G., 7/6.—Edwards, 14, Pulteney Rd., E.18. [2615

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

N.P. Battery Chargers for A.C. Mains, eliminators, 4 tappings to 120 m.a., 57/6; with trickle charger, 76/6; photographs.

N.P. Trade Price Lists and Photographs of Battery Chargers; Senior Two will do 1 to 36 2v. cells, also H.T. 120v. at ¼ amp.; 105/-; H.P., terms; Westinghouse rectifiers.

N.P. Valve Chargers, one, two or four circuits; from 65/-; state requirements.

N.P. Specialise in Battery Chargers and Eliminators of all sizes, for A.C. mains.

N.P. Have a Few Soiled Instruments; bargains; lists.—Nash Products, Ltd., Stechford, Birmingham, 9. [2536

VORTEXION, Wimbledon, for the latest type transformers, all with screened primaries and 12 months' guarantee, absolute reliability (we supply talking equipment); regulation guaranteed within 5% all models except supers, which are 2%; you cannot buy more reliable or better looking transformers, not a pressed shrouding, but a substantial casting free from hum.

VORTEXION.—Specified for A.C., quality amplifier, 400 volts 110 m.a., 4v. 3, C.T., 4v. 2, 4v. 1, C.T., terminals, 24/-; tagged leads, 20/-; shrouded, 24/-.

VORTEXION.—Ferrocart III, 350-0-350, 60 m.a., 4v. 2.5, C.T., 4v. 5.5, 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 Model for Universal A.C. Short-wave Converter; open type 10/6, shrouded 12/6; post 9d.

VORTEXION.—Open type H.T.8 model, 4v. 4a; 12/6; post 1/-.

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 Kit for Output Transformer.—Sankey laminations B.I. wire, Empire cloth, cost aluminium frames and terminal strips, state secondary gauge required, 7/6; made to specification, 9/6.

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.

(This advertisement continued in third column.)

for 'SOUND' AMPLIFYING EQUIPMENT

- Special P.A. Speakers suitable for all outputs.
- Power Amplifiers suitable for DANCE HALLS, SPORTS MEETINGS, FETES, ETC.
- The most up-to-date apparatus for outdoor or indoor sound reproduction and Radio reception.

TANNOY PRODUCTS

DALTON ST., WEST NORWOOD, LONDON, S.E.27.

Manchester Branch:— 2, Whitworth St. West, Deansgate, Manchester.

SHORTWAVES!

Announcing the new

SCOTT SESSIONS' "EQUATOR - SUPER"

An advance design for Overseas Battery users.

SPECIAL FEATURES:—

CIRCUIT:
7-valve Super-Heterodyne incorporating Westinghouse Metal-Oxide 2nd Detector, with Automatic Volume Control.

OUTPUT:
2 watts A.C. (Class B).

WAVE RANGE:
12 to 80 metres and 220 to 550 metres with no coil changing.

H.T. BATTERY CONSUMPTION:
Approx. 15 m/a only.

SPEAKER:
Fitted with latest "Celestion" P.M. Class "B" Moving Coil Speaker.

CABINET:
Teak, specially designed and finished for Tropical use.

COMPONENTS:
Specially selected and constructed for Overseas requirements.

PRICE £33 (plus £2-2-0 Royalties)

Write for full details and specification.

TRADE SUPPLIED.

SCOTT SESSIONS & CO.

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

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

BOOKS on WIRELESS

Write for complete list to
ILIFFE & SONS LTD.
Dorset House, Stamford St., London, S.E.1. W.W.1

Chargers and Eliminators.—Contd.

(This advertisement continued from first column.)

VORTEXION 400 or 450 or 500 v., 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 2½in. × 1½in., a super job, 2% regulation; 35/-, shrouded, with terminals, less terminals, 30/-, open type 26/-; post 1/3.

VORTEXION.—Mains to B.E.S.A. specification, 100 or 110 volts to 200 or 220 or 240 volt, 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 1/3; 2,000 watt mains, £4 10.

VORTEXION.—Chokes, 20 h. at 120 m.a., 8/6; 30 h. at 60 m.a., 5/6; 30 h. at 150 m.a., open type 10/6, shrouded 12/6; post 1/-.

VORTEXION.—1,000 volt 600 m.a. transformers, weight 34 lbs., £4 10, or similar wattage; carriage free.

VORTEXION.—4 + 4 mf. 500 peak electrolytics; 4/6.

VORTEXION.—Transformers made to your specification.

VORTEXION, 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2560

CABINETS.

RADIO-GRAM Cabinets; fully illustrated list free; remarkable values.—Gilbert, Cabinet Maker, Swindon. [1986

DYNAMOS, ETC.

ROTARY Converter, 12in., 200-350 volts output, 50/-; wanted, M.L. 24 or 32 input, 400 out.—Jersey, Cleanor Hill, Oxford. [2427

GRAMOPHONES, PICK-UPS, ETC.

4 Kolster Brandes K.B.158 Pick-ups, new model, unboxed; cost 32/6, accept 19/6.—Courtier, 22, Percy Place, London. [2534

LOUD-SPEAKERS.

TWO Rola K9 10in. Speakers (£6 model), 230v. A.C.; accept £3/10 each, or nearest offer.

MAGNAVOX 10in. Speaker, 210-240v. A.C., model 4.5; cost £11/10, taxe £4/10, or nearest offer.—Raymond Snowden, Keighley Rd., Cowling, Yorkshire. [2594

PAIR Magnavox Dual-compensated Speakers, 42/-; latest standard type; approval.—Oglesby, Excise, Grantham. [2600

COLUMBIA A.C. and D.C. Moving Coil Speakers, fitted variable ratio transformers in attractive figured oak cabinets; from 37/6 complete.

ALL Types of Moving Coil Speakers, pots and windings, etc.; going cheap.—R. Newman, 309, Roman Rd., Bow, E.3 [2418

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 30 lbs., and are vastly superior to cheap speakers now on the market, 100 volts, 150 volts, and 200 volts D.C.

27/6!!—6v. D.C. speaker, as above; £2/7/6, speaker as above for 100-250 A.C.

SIMPSON'S Electric Turntables, 25/-; carriage paid; cash with order, or c.o.d.

B.T.H. Brand New Public Address Amplifiers, 4-stage, including microphone stage, 2 types, 12 watts and 6 watts outputs, 12-watt type has 2 P.P.5 400s in output, 6-watt type has 2 P.P.3 425s in output, 12-watt type price £15, 6-watt type £12/10; B.T.H. cinema type pick-up, 16in. tone arm brand new, 17/6.—Ward, 12, Tredegar Rd., Bow, E.3. [2604

14/6!!—Magnavox D.C. 144, Pentode transformer, 2,500 ohms; Pye shrouded chokes, 32 henry, 4/-; Radiophone potentiometers, with gauged mains switch, 10,000 ohms, 3/9; Utility condensers, disc drive, trimmers, etc., complete, 2-gauge 7/6, 3-gauge 10/6; set manufacturer's new surplus; satisfaction guaranteed.—Howard, 102, Torrington Park, N.12. [2577

B.T.H. R.K. Moving Coil Speakers, guaranteed new, not used, manufacturers' surplus, original price 4 guineas, highly sensitive and wonderful tone response, will handle up to 10 watts output, available for 6v., 100v., 200v., 30/-; also A.C. models, £2 10; carriage paid, c.o.d. or cash with order; the best value in speakers obtainable today.—Seekamp, 46, Farringdon St., London, E.C.4. [1424

ROLAS (last few) F.6 6 volts, 2,000 ohms, 2,500 ohms, 4,700 ohms, or 6,500 ohms (200-250), list 35/-, at 17/-; voltages as above in F.7, list 46 6, at 25/-; permanent magnets, F.6 P.M., list 49 6, at 28/-; F.7 P.M., list £3, at 35/-, complete with transformer; state if power or pentode; all carriage paid; cash with order or c.o.d.—Mayfair Radio, 31, George St., Hanover Sq., London, W.1. [2620

CHAL-ELECTRIC Offer Set Manufacturers' Brand New Surplus.—Rola's F.6 6 volts (8½ ohms), 110-175 volts (2,000 ohms), 90-130 volts (2,500 ohms), 150-200 volts (4,700 ohms), 200-250 volts (6,500 ohms), list 35/-, at 17/6; F.7's in all above voltages, list 46/6, at 25/-; permanent magnets, F.6.P.M., list 49 6, at 28/-; F.7.P.M., list £3, at 34/-; ultra permanent magnets, type 95 P.M. (real hefty job), list £4 10, at £2 5; all complete with transformer; state if power or pentode; all carriage paid; cash with order or c.o.d.—Chal Electric, 6, Conduit St., London, W.1. [2618

PICTURE RECEIVER APPARATUS.

TELEVISION Components, wide range, used, new, constructor's guide, 1/10.—Ancel Television, 230, High St., Camden Town. [2587

VALVES.

ANOTHER New Large Purchase of a Set Manufacturer's Stock of Valves, guaranteed as new, all latest types, and any valve differing from the makers' characteristics exchanged free.

210 H.L.s, 210H.F.s, 210L.F.s, P.M.1H.F.s, P.M.1L.F.s, H.L.210s, H210s, L.210s, 3/9; 215P.s, 220P.s, L.P.2s, P.215s, D.E.P.215s, P.M.2s, P220s, P.M.2A, 4/9; D.H.s, 41M.H.L.s, 41M.Hs, M.L.4s, A.C. H.L.s, A.C./2H.L.s, 354Vs, 904V.s, D.C.3 H.L., 7/-; 41M.P.s, M.L.4s, A.C./P.s, 7/6; P.T.4, P.T.41, P.E.N.4V., M.P. P.E.N.s, A.C./P.E.N.s, 12/-; latest metallised S.4V.B.s, M.S.4B.s, M.S.G./H.A., A.C. S.G.s, 9/-; Cosmos M.V.S.G., 12/-; 442B.V., 1807s, 7/9; 1821s, 7/-; D.O.60s, 40/-.

4,000 Valves are Always in Stock for Immediate Despatch; prompt attention, for cash or c.o.d.

NEWMAN, 309, Roman Rd., E.3. [1659

Valves.—Contd.

THE Following Valves are Guaranteed as New, and any valve differing from the makers' characteristics will be exchanged, all latest types.

A.C./Pens., P.T.4s, G.U.1s, A.C.S.G./V.M.s, Pen.4V.s, P.T.625s, V.M.S.4s, D.C.2/Pens., D.P.T.s, M.P.T.4s, V.M.4Vs, A.C.S.1/V.M.s, P.M.24Bs, D.C.2S.G./V.M.s, 11/-; M.S.4s, M.S.4Bs, A.C.S.G.s, S4V.A.s, S4V.B.s, M.S.G./L.A.s, D.S.B.s, A.C.S./2s, P.X.4s, D.C.2S.G.s, 9/6; U14s, 10/-

M.L.4s, A.C./Ps, 41M.P.s, P.M.24s, 8/-; A.C./H.L.s, 164Vs, 354Vs, A.C.2/H.L.s, 41M.H.L.s, U10s, U.U.60/250s, M.H.4s, M.H.L.4s, 7/6; V.S.2s, 2158.G.s, 220S.G.s, P.M.12s, P.M.12As, 9/-; 442 B.U.s, D.W.3s, 8/6.

ALL Types of Brand New American Valves in Stock, first class makes: 247s, 235s, 224s, 236s, 237s, 233s, 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; for quickest delivery send telegraph money order.

OVER 4,000 Valves Always in Stock for Immediate Delivery; carriage paid; cash with order or c.o.d.—Ward, 12, Tredegar Rd., Bow, E.3. [2609

FOUR Only L.S.6A, 15/-; two D.C./H.L., 6/9; two A.C.2/H.L., 9/-; three Eta By2023, 3/-; all emission as new or money refunded.—G. Alderson, Poplar Rd., Solihull. [2593

TRANSMITTERS.

RAYMART Transmitting and Receiving Equipment, designed by specialists; all our staff licensed operators, one with years' tropical short wave experience.—Radio Mart, 44, Holloway Head, Birmingham. [2596

COMPONENTS, ETC., FOR SALE.

PEPPER'S Stocktaking Sale.

GENUINE Bargains, must be cleared, offers considered; goods sent on 3-days' approval against cash, or c.o.d. CARRIAGE Paid on Orders over £2; rapid delivery.

VALVES, as new, all tested before despatch.—P.M.1a, P.M.1h.f., P.M.11.f., etc., 3/3; P215, 215P, L.P.2, P.M.2, etc., 4/3; P2, P220, 230N.P., P.M.252, etc., 5/3; S.G.215, P.M.12, D.G.210, etc., 7/6.

P.M.14, P.M.16, P.M.24, P.M.26, 6/11; P.M.3, P.M.5x, P.M.5b, H.L.610, P.M.6d, P.M.5d, P.M.4dx, L410, H610, L610, Tungsram H607, etc., 1/11; Tungsram P414, 415, P614, P615, etc., 2/6; Mullard P.M.256a, M-O, P625a, 4/11.

L.S.5, L.S.5a, 6/11; P.T.25's, 25/-; P.M.24a, P.M.24b, A.C./Pen., 9/11; A.C./S.G., M.S.4, 41M.S.G., D.C./S.G., D.C./Pen., D.S.B., etc., 8/3; A.C.084, A.C.064, A.C.104, etc., 4/11; M.H.4, A.C./H.L., 904v., 6/11; Cosmos A.C/x, A.C./S.G., S.P.42/u, S.P./45u, Osram S8, S625, 4/9.

RADIOGRAM Accessories.—Garrard 12a. motor, 9/11; foreign ditto, 7/6; Harlie scratch filters, 2/11; Sovereign, etc., volume controls, 2/-; Centralab, 3/3.

LOUD-SPEAKERS.—Primustatic (mains), 14/11; Magnavox D.C.144's, 2,500 and 7,000's, 15/6; Baker Elomag, 7,000, 12/6; Epoch 66 6-volt, 19/6.

3D. Bargains.—On-off switches, valve holders, Benjamin, Lotus, etc., Dubilier, Telsen, etc., grid leaks, Spaghettis, plug in coils, Lissen Igranic, etc., 1 watt anode resistors, Duhilier, etc., filament resistances.

6D. Bargains.—Lewcos, Lissen X and C.T. coils, Dimics, 0.0002, 0.0003, 0.0005 variables, Lyons strip-resistors, Colvern ditto, Wearites decouplers, Formolensers, mica capacities; neutralising condensers, J. B. Gambrell, Igranic, etc.; Igranic variable resistances; Lissen, Igranic, Federal potentiometers, 400 ohms, Cossor coils.

1/- Bargains.—Peerless, Emkabe, etc., variable condensers, slow-motion dials. Above bargains are supplied only with other goods.

SWITCHES—Wearite, Utility, 1 to 4-pole, anticapacity, 9d. each; Lotus, etc., Jackswitches, 6d.; Q.M.B. mains, 9d.; double pole, 1/-.

COILS.—Wearite Binowaves, boxed, 4/11; Wearite 0.2, O.T.1, O.T.2, A.T.G., Lewcos O.se44, Varley B.P.6, B.P.22, 4/3 each; Varley B.P.5, 6/11; Colvern K21, 22, 23, 16/6; P.W. dual-waves, Star-turns, 2/9; British-General Band-pass units, 4/11; ditto intervalve, 3/3; British-General tuners, old type, 2/11; dual-waves by Colvern, Tangent, etc., R2r, T2R, Orgolas (Tunewell, etc.), Talisman, 2/11 each; T.G.S.C., and cans, 3/6; H. & B. dual-wave frames, 9/6; Goltone G.B.A., G.B.S., G.G.B., boxed, 3/3 each; Lewcos D.B.A., 2/11; Watmel S.A.1, boxed, 3/6.

REACTION Condensers.—Telsen, Lissen Polar plain, 1/3; differential, 1/6; Polar, Ormond S.M. differentials, 2/-.

SERIES Aerial Condensers, Ferranti, 2/-; Telsen 0.0004, 1/6; 0.0003, 0.0005, etc., 1/-; Metrovick Elastic aerials, 2/11; Ducons, 1/-.

VARIABLE Condensers.—Polar, Lotus, Lissen, J.B. Logs, etc., 1/9; J.B. Tinys, Polar J.B. Populars, slow motion types, 2/9; Ormond Logs, S.L.F., Astra, etc., many new, 1/3.

AMSCO 2-gangs, with trimmers, similar Radiophone; listed 21/-, in original wrappings, 4/3.

J.B. R.1s, 4/6; R.2s, 8/6; Polar Uniknobs, twin-gangs, 8/1/1; J.B. chassismounts, with drives, singles 3/11, drum drive, 2-gang, 4/11; Ormond 4-gangs, 8/11; Lyons 4-gangs, 10/6; Cyldon ditto, old type, 5/6; ditto extensers, 3-gangs, drum drive type, 9/11.

H.F. Chokes.—Lewcos, Trix, Igranic, Sovereign, Watmel, 1/6; British-General, Varley, Wearite, McMichael Binocular; 2/6.

L.F. Chokes.—Pye 20H., 32H., 4/11; Telsen 100H., 2/6; Power grid, 3/6; Climax C.P.S., 9/6; 50H 120 m.a., 14/11; Varley Pentode, 8/6.

L.F. Transformers.—Lissen, Croix Fotos, Marconi Popular, etc., 1/9; A.F.4, 6/6; A.F.5, 15/-; O.P.M.3, O.P.M.6, 10/6; O.P.4c., 8/6; Marconi Ideals, 4/6; Telsen Pentode output, 4/11.

WIRE-WOUND Resistances.—Ferranti, Varley, Mullard, Lissen, etc., various up to 500,000 ohms, 1/3 each; holders, 6d.

FIXED Condensers.—Wego, Telsen, T.C.C., Hydra, Dubilier, etc., 0.01, 0.03, 0.1, 0.5, etc., 9d.; 0.01 mica 1/-; 0.05 mica, 2/6; 0.1 mica, 3/11; 1 mfd.s, 1/-; 2 mfd.s, 1/6; 4 mfd.s, 2/6; 6 mfd.s, 2/11; Ferranti C.19s, 5/11; Hydra 2 mfd., 2,000v. D.C., 3/11; 1,500v. D.C., 1 mfd., 2/11; 2.0 mfd., 3/11; 4 mfd., 4/11; 750 D.C., 1 mfd., 1/6; 2.0 mfd., 2/3.

SERADEX Condenser Blocks.—4×4×4×2×2×2×1 mfd., 16/9; 4×2×2×2×1, 9/9; 4×4×2 mfd., 8/11; 4×4 mfd., 7/3; 8×8 mfd. 14/6; all 400v. working.

(This advertisement continued in third column.)

BLUE SPOT

The New

PICK-UP 33

With Wire Wound Volume Control

BLUE Spot Pick-up 33 enables you to obtain the true value from your gramophone records. Played and reproduced in any other way you are losing their real worth. Pick-up 33 recreates the original Artistes, bringing out the true quality, revealing the hidden beauty of many passages unobtainable before. It gives you a complete illusion of reality. This new Blue Spot model has many important and special features. Write for free catalogue. W.W.73.P.

BRITISH MADE

Have you had particulars of the new Blue Spot Moving Coils?

35/-

SOME SALIENT POINTS

Complete absence of minor resonance peaks ● Frequency response covers whole musical scale from 30 to well over 4,000 cycles, giving brilliancy without needle scratch ● Almost entire lack of surface noise ● Tracking as near perfection as possible ● Self-contained Wire Wound Volume Control ● Exceedingly light record wear ● Follows faithfully heaviest modern electrical recordings ● Head made of non-resonating material ● Mounted to metal plate ensuring perfect alignment and screening it from disturbances due to an electric motor Rotating head for needle changing.

Technical Data: D.C. Resistance 2,900 ohms. Impedance at 1,000 cycles 15,000 ohms. Average output 1 volt. R.M.S.

THE BRITISH BLUE SPOT COMPANY LTD. 94/96 Rosoman St., Rosebery Avenue, London, E.C.1

Distributors for N. England, Scotland, and Wales: H. C. RAWSON (Sheffield and London), Ltd., 100 London Road, Sheffield.

Components, etc., for Sale.—Contd.

(This advertisement continued from first column.)

SERADEX Glasswound Resistors.—G.125, 1¼ watts, 25-1,500 ohms, 9d.; 5,000 ohms, 1/-; 10,000 ohms, 1/3.

SERADEX G.250 2½ watts Resistors, 25-1,500 ohms 1/-; 5,000, 1/3; 20,000 ohms, 1/6.

SERADEX G.500 5 watts Resistors, 25-1,000 ohms, 1/3; 5,000 ohms, 1/6; 30,000 ohms, 1/9.

SERADEX G800 8-watt rating, 3d. increase on G500, made in values up to 50,000 ohms.

SERADEX G1.500 15-watt Resistors, from 2/3; G3000 30-watt type, from 2/9; all types supplied colour coded or labelled; few old type glasswound resistors available at half list.

SHOP Soiled Goods.—Few Seradex pentode chokes, 60H., 35 m.a., tapped, giving ratios 1:1, 1.3:1, 1.5:1, 2:1, 3:1, and 4:1, 10/6; ditto, 50H, 30 m.a., 8/6; Seradex Q.P.P. output chokes, ratios as above, 10/-.

SERADEX V.R.328 Charger, charges up to 200 D.T.G.s per week, output 28 volts 1.3 amps., complete; £3/2/6.

FEW Shop Soiled Experimental V.R.328s, perfect order, complete, 42/-; few ditto, without cases, 37/6.

COLOURED Connecting Wire, 10ft. 2d. per coil, Clix insulated plugs and sockets (used on metal panels); 1/3 per dozen.

TRICKLE Chargers.—Ferranti, 2-4-6 volts, 19/11; Philips, 6/11; Ekco, 12/6; Symphony, 9/11; Fel-Elec H.T. Westinghouse-rectified, 14/6; Seradex H.T. charger, Westinghouse-rectified, 200v. ¼ amp., 32/6.

SHOP Soiled Mains Transformers, with Westinghouse rectifiers L.T.2, 15/6; L.T.4, 18/6; L.T.5, 21/-; L.T.6, 25/-; H.T.6, 12/6; H.T.7, 15/-.

FEW More Seradex Super Type Transformers, guaranteed new, shop soiled only, super type, with terminals, heavy clamps, stripped types, with leads, super H.T.10, 12/-; ditto, with 2L.T.s, 13/11; stripped, no L.T., 9/11; ditto, H.T.7, 6/9; ditto, with L.T.s, 7/11; ditto super, 9/3; super 4V 5a, C.T., 6/9; H.T.6, with L.T.s, 7/6; ditto, stripped, 6/3.

SPECIAL Transformers, 400-0-400v 120 m.a., etc., suitable for 5 watt Monodial, listed 52/6, 22/6; ditto 230-0-230v. 120 m.a., with 3 L.T.s, 14/6; 500-0-500v. 120 m.a., with 3 L.T.s, 24/6; all above super type Primaries universal 200/260v.

SEE Advert, page 6, cols. 1 and 3, last week, for further bargains; goods must be cleared.

MAINS Transformers.—Savage 250-0-250v. 80 m.a., with L.T.s, 7/9; ditto, 4v. 5a., and (3) 4v. 1a., all C.T.'d, 7/9; Metrovick 250-0-250v. 4v. 2a., 8/6; Premier ditto, with 4v. 3a., 7/6; also quantity of transformers for U.5, etc., also 25c.; send requirements.

TREVOR PEPPER, 48, Wakegreen Rd., Birmingham, 13, guarantees the above goods to be in sound order. Money refunded if dissatisfied. [2607

HOYNE'S Transformers and Chokes.

250-0-250v. 60 m.a., 4v. 1-2a., C.T., 4v. 2-4a., C.T.; 10/-, post 9d.

250-0-250v. 60 m.a., 4v. 1-2a., C.T., 4v. 2-4a., C.T., 4v. 1a., C.T.; 12/6, post 1/-.

350-0-350v. 60-70 m.a., 4v. 2-3a., C.T., 4v. 3-4a., C.T., Ferrocart 111 model; 12/6, post 1/-.

350-0-350v. 70-80 m.a., 4v. 2-3a., C.T., 4v. 3-4a., C.T., 4v 1-2a., C.T.; 13/6, post 1/-.

350-0-350v., 120 m.a., 4v. 2-3a., C.T., 4v. 4-6a., C.T., 4v. 1-2a., C.T.; 16/-, post 1/-.

400-0-400v. 90 m.a., 4v. 2-3a., C.T., 4v. 3-5a., C.T., 4v. 1-2a., C.T.; 14/6, post 1/-.

500-0-500v. 140 m.a., 4v. 2-4a., C.T., 4v. 2-6a., C.T., 4v. 2a., C.T., 4v. 2a., C.T.; 27/6, post 1/3.

WESTINGHOUSE Model 0, 110, 135v. 90 m.a., 4v. 2-4a., C.T., suitable for H.T.6 or 7; 10/-; post 9d.

WESTINGHOUSE Model 0, 200, 240v. 200 m.a., 4v. 2-5a., C.T., 4v. 1-2a., C.T.; 14/6, post 1/-; suitable for H.T.8 or 9.

LINE Transformers (auto-wound), 0-100, 110, 200, 220, 240v., 60 watt, 8/-, post 9d.; 120 watts, 11/-, post 1/-; 180 watts, 15/-, post 1/3.

HOYNE'S Chokes, 20h. 70 m.a., 3/6, post 6d.; 30h. 60 m.a., 5/6, post 9d.; 30h. 120 m.a., 9/6, post 1/-; 40h. 150 m.a., 12/6, post 1/-.

CLASS B Transformer: ratio 1/1, inductance 60-25h, 0-15 m.a., secondary resistance 100 ohms each half, 11/6, post 9d.; output transformer: ratios 1/1, 1.5/1, 2/1, 11/6, post 9d.

PARALLEL Fed Nicol Iron Audio Transformers: ratio 3/1 or 5/1, primary inductance 80h.; 3/6, post 4d.

HOYNE'S Transformers are Used Exclusively by Well Known Set Manufacturers.

HOYNE'S Transformers for Perfect Insulation, regulation and reliability; all components are clamped in solid cast aluminium clamps, and fitted with well marked terminal strips; power transformer primaries are tapped and screened; better components are not available at any price; be safe and use Hoyne's guaranteed transformers.

HOYNE'S for the Quickest Service, all from stock.

HOYNE'S Transformers Built to Your Specifications.

M. J. HOYNE, Offices and Works, 8a, Gladstone Rd., Wimbledon, S.W.19. Tel.: Liberty 3303. [2537

MAYFAIR RADIO Offer Brand New Set Manufacturers' Surplus.

MAINS Transformers.—Tapped and screened primaries, all L.T. windings C.T., 500-0-500 at 120 m.a., 4v. 2a., 4v. 2a., 4v. 5a., 20/-; same with 4v. 2.5a., 4v. 5a., 18/-; 450-0-450 at 120 m.a., 4v. 2.5a., 4v. 2a., 4v. 5a., 19/-; 350-0-350 at 120 m.a., 4v. 2.5a., 4v. 2a., 4v. 5a., at 18/-; 400-0-400 at 120 m.a., 4v. 6a., 4v. 3.5a., 4v. 2a., at 24/-; 400-0-400 at 120 m.a., 4v. 2a., 4v. 4a., 15/-; 250-0-250 at 60 m.a., 4v. 1a., 4v. 1a., 4v. 3a., at 11/6; for H.T.9, with 4v. 3-4a., 9/-; for H.T.9, with 4v. 4-5a., 12/-; H.T.8 rectifier, 16/-; H.T.9 rectifier, 18/-.

SMOOTHING Chokes.—20 henries 30 m.a. (400 ohms), 5/-; 30 henry 60 m.a. (600 ohms), 7/6; 20 henry 120 m.a. (720 ohms), 9/3; 50 henry 60 m.a. (500 ohms), 8/6.

CONDENSERS.—C.E.C., 750 test, 1 mfd., 1/1; 2 mfd., 1/9; 4 mfd., 2/6; 1,500 test, 500 A.C., working 800, peak 1 mfd., 1/9; 2 mfd., 2/4; 4 mfd., 4/-; multiple blocks, 20 mfd. each, separate 4+4+2+2+2+2+2+1+1, 11/-; 11 mfd., 4+2+2+2+1 at 6/9; Dubilier 4 mfd. (2+2) at 4/-; 5 mfd. (2+2+1), 5/-.

ROTARY Converters.—Electro Dynamic, 2 only (shop soiled cases), with filter unit and silence cabinet, 90 watt model, list £14, at £7; 180 watt model, list £17/5, at 10 guineas.

MOVING Coil Speakers.—Rolas F.6 90-130 volts, 2,500 ohms, list 35/-, at 17/-; F.7, list 46/- (voltages as F.6), at 25/-; say if power or pentode transformer required; all carriage paid; cash with order or c.o.d.—Mayfair Radio, No. 31, George St., Hanover Sq., London, W.1. [2621

ELECTRADIX BARGAINS

—A DIX-ONEMETER—

The ideal of multi-range moving coil meters. Microamps to 20 amps, milli volts to 1,000 volts. 50 ranges on one meter. Two clear scales with mirror and knife edge pointer.

ONLY **60/-**

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INSTRUMENT IN CASE, 60/-

MULTIPLIERS, EACH, 6/6.

Complete Radio Outfit

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ALL A.C. users will find our NEW METER a boon. The **DIX-MIPANTA**

A First Grade Moving-iron A.C. Tester in Bakelite Case. Vest-pocket size. 3 volt ranges to 300 volts. Two m/A. ranges to 75 m/A. A 2-guinea set for **19/6** only

Get a GENEROMETER

BATTERY SUPERSEDER.—No H.T. Batteries needed even if you are *not* on the mains. An H.T. Battery run down is useless and you have to buy another..

The **GENEROMETER** makes H.T. from your L.T. 2-volt battery, rectified and smoothed. Gives 3 tappings **with output exactly suited to Class B Amplification** and lasts indefinitely. **Reduced from £3.15s. New and Guaranteed. 37/6**

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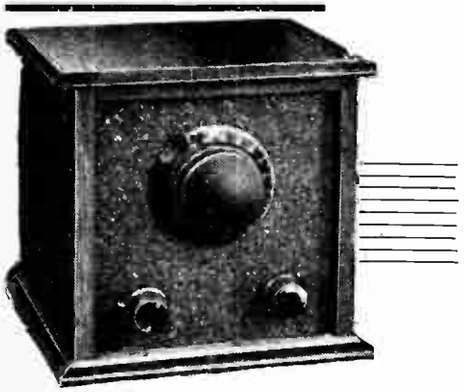
MAKE YOUR SET an ALLWAVE ★ RECEIVER



With an EELEX SHORT-WAVE CONVERTOR

HERE'S a wonderful instrument that will enable you to tune down as low as 14 metres with your present set. Adds a valve and makes your set an Allwave receiver without interfering with its present performance. If you are interested in long distance short-wave reception, you should certainly fit an Eelex Short-Wave Convertor, you can then receive America, Australia, New Zealand, Russia, etc. Ask your dealer to show you the Duplex model. Price **52/6** extra

FREE ★ If you are interested in short-wave reception, send for a copy of Eelex Short-Wave Booklet No. C43 to:

J. J. EASTICK & SONS,

EELEX HOUSE, 118, BUNHILL ROW, LONDON, E.C.1

'Phone: Metropolitan 0314 (6 lines).

Components, etc., for Sale.—Contd.

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.

WE Hold a Large Stock of First Class Radio Apparatus, meters, resistances, condensers, heavy chokes, etc., in addition to goods advertised.

VALVES, all guaranteed as new, full emission.—P.M.24D, 20/-; P.T.4, 6/-; P.M.22, 5/-; P.X.4, 10/-; A.C./P.1, 8/6; A.C./H.L., 6/6; M.H.F., 7/6; A.C./S2, 9/-; 84V.A., new, 12/-; M.S.4, 7/6; M.S.4B, 9/-; D.W.2, 7/6; 110, 7/6; D.W.3, 8/6; 164v., 7/6; P.V.4200, rect., 7/6. Following callers only: P.T.625, 5/-; P625, 5/-.

VARLEY S.P. Coil, 7/6; H.F., 5/-; Varley auto arm, 5/-; Atlas Q eliminator, new, £2; R. and A. 100P.M. speaker, 25/-; pair Varley P.P. transformer, 25/-; R.I. 20H, 250 m.a. choke, as new, 15/-; Varley 2,500 ohm power pots, 4/6.

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.

B.T.H. Universal Senior Gramophone Motors, A.C. or D.C., brand new, complete with auto stop and all fittings, 55/-; Radiophone 4 gang condensers, 12/6; Polar Uniknob 2-gang, 7/6.

TRANSFORMERS, Ferranti A.F.4, 8/-; A.F.6, 18/6; O.P.M.1c, 16/6; O.P.M.2, 13/-; O.P.M.4, 14/-; Igranic 7:1 G type, 7/6; B.I. choke, new, 14/-; O.P.M.4c, 16/-; A.F.5c, 21/6; A.F.5vc, 21/6.

B.T.H. 6in. Cone M.C. Plain 100v. and 6v., 17/6 each; Lewcos and Wearite superhet coils, 5/-.

SAVAGE Mains Transformer, 500v., tapped at 450v., 4 4v. windings, terminal type, 25/-; Bryce 350v., 2 4v., No. A.B.35, 17/6; R.I. Truvox output transformers, 4 ratio, 12/6; Polar Star 3-gang condensers, new, 16/6; with drive, 18/6.

IGRANIC Mains Transformers, 110 220v. input, 250v. 75 m.a., 4v. 1 amp., 12/-; 460v. 120 m.a., 7.5, 8v., 15v., 6 tapped at 15/-; ditto H.W., 550v., 60 m.a., 7.5v., 6/-.

RYALL'S RADIO, 33, Chancery Lane, London, W.C.2 (nearest Tube Chancery Lane; bus 67 passes door, or tram to Savoy St.). Holborn 3529. Open Saturday afternoon. Close 7 p.m., Thursdays 1 o'clock, Saturday 6 p.m.

R. [2606

MAINS RADIO'S Special One Week Offer, guaranteed set manufacturers' surplus; carriage paid.

T.C.C. Dry Electrolytics, 6.5 x 6.5 mfd., 200v. working, 1/-; T.C.C. blocks, 250v. working, 4 x 2 x 2 x 2 mfd., 4/6; T.C.C. 1 x 2 mfd., 250v. working, 1/3; Dubilier 2 mfd., 250v. working, 1/4.

PHILCO Pattern New Table Cabinets, walnut, 8/6; table radiogram cabinets, blue texture, 5/-.

VALVES, as new, M.H.4's, 6/3; A.C.S.2, 7/6; M.V.S.G., 10/-; 41M.S.G., 9/-; S.215, 8/-; M.S.4, 6/9. Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [2602

EVERYTHING for Movies and Talkies. 'Phone, write, or, better still, call and inspect immense stock of bargains.

ILLUSTRA ENTERPRISES, 159, Wardour St., London, W.1. Tel.: 6889 Gerrard. [1621

HIGHEST Allowances Made on Following Material in Part Exchange for New; transactions by mail to any part; enquiries, stamp, please!

MODERN High Grade P.M. and Energised M. Coil Units and Balanced Pairs, etc.; Ferranti and Weston M.C. meters; useful ranges.

HIGH Grade L.F. and P.P. Input and Output Transformers, Ferranti, Varley, etc., high grade electric gramophone motors, record changers, and pick-ups and arms.

ALL Types of Standard A.C. Mains Rectifiers and 2-volt Battery Valves, if late type and full emission.

LATE Model Westinghouse Rectifiers, high grade mains transformers for same, or high voltage mains transformers for 4v. rectifying valves, high grade L.F. chokes, Ferranti, Varley, etc., and electrolytic or fully screened ganged condensers.

APPLEBY'S, 109, Edgware Rd., Hyde Park, London, agents for all "worth while" radio equipment, and the originators of radio part exchange over fourteen years ago. [2626

LARGEST Stocks in Midlands of converters, generators, P.A. equipment, by leading makers. Radio Mart, 44, Holloway Head, Birmingham. [2598

CHAL-ELECTRIC Offer Brand New Set Manufacturers' Surplus Coils, Colvern Ferrocart (3), ganged and boxed (10 only), list 50/-, at 38/-.

VARIABLE Condensers, Polar Star, 1933 (3-gang .0005), complete with dise driving covers, escutcheon, knob, etc., in sealed cartons, list 30/6, at 17/-; J. B. NuGang 3-gang, fitted as above, at 15/-.

CONDENSERS, Multiple blocks, 1,500 D.C. Test, 500 A.C. working, 800 peak, separate tappings, 20 mfd. (4+4+2+2+2+2+1+1), 11/-; 11 mfd. (4+2+2+2+1), 6/9; Dubilier 4 mfd. (2+2), 4/-; 5 mfd. (2+2+1), 5/-.

MAINS Transformers for H.T.8, rectified 250 volts at 60 m.a., 4 volts 3-4 amps., 10/-; Westinghouse H.T.8 for same, 15/9; H.T.9, 300 volts 60 m.a., 4 volts 4-5 amps., 12/-; H.T.9 rectifier for this, 17/6; all carriage paid; cash with order or c.o.d.—Chal-Electric, 6, Conduit St., London, W.1. [2619

CLASS B Output Transformers, for high resistance speakers, ex G.P.O., guaranteed, 6/-; post 6d.—Wickham, 18a, Hercules Rd., Lambeth, S.E.1. [2599

UTILITY Screened 2-gang 0.0005 Condensers, complete with trimmers dise, dial, escutcheon, knob, 7/11 (listed 19/6); ditto, semi screened, with Uniknob, 8/6.

RADIOPHONE Radiopak 3-gang 0.0005 Condensers, screened, trimmers, 8/11; ditto, superhet, 4-gang, 9/11; (listed 45/-).

VARLEY or Pye H.F. Chokes, 2/6 (listed 7/6).

MAGNAVOX M.C. Speakers, 2,500 ohms, with transformer, 15/-; ditto Lamplugh Silver Ghost, 4,000 ohms, 14/6.

MAZDA AC/SGVM, 10/11; Cossor 41 MP, 7/6; as new.

FETTON, 93, New Rd., Chingford, E.4. Phone: Silverthorn 1427.) [2564

CONDENSERS, Formo 0.0005 extensers, 7/-; Telsen 0.0005 twin gang trimmer, 9/-; Telsen 0.0005 air spaced, 2/6; Dubilier 0.04, 9200, 1/6. C. Alderson, Poplar Rd., Solihull. [2595

BRITISH Radiophone Radiopak Super Het 4-gang, 0.0005, fully screened with trimmers; list 37/6, our price 9/11; c.o.d., postage paid. Kay, 167, City Rd., London, E.C.1. [2542

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MOVING COIL SPEAKERS

The Finest in The World in Each of Their Price-classes.

Ask your dealer or call for a demonstration at Exmouth House.

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INSTRUMENT and RESISTANCE WIRES

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Gripplesheil Aerial Brackets

are simple and economical to install and avoid unsightly poles. Write for leaflet to:—

PARTRIDGE WILSON & CO.,
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CRESSALL RESISTANCES

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

Please write for Lists

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

T.A. for P.A.

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Lists from

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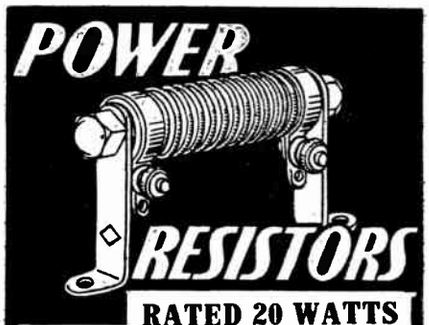

RATED 20 WATTS

FOR LARGE AMPLIFIERS.

Bulgin Power Resistors have been completely re-designed and improved. The compound wire element comprises a non-ferrous nickel-chrome resistance wire spiralled on a special heat-resisting core so that it retains itself on the grooved porcelain former, the tapping bands being only incidental to the actual connection. They can thus be moved if it is desired to adjust the resistor to a non-standard value. All values will comfortably dissipate the rated 20 watts.

300 to 5,000 ohms, **3/6** each.
7,500 to 40,000 ohms, **3/9** ,,
50,000 **4/-** 60,000 **4/6** ,,
75,000 **5/-** 80,000 **5/6** ,,
and 100,000 ohms, **6/-** ,,

Send 2d. postage for 80 p. Catalogue "W"

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The TERMINAL for all Serious Amateurs

Extremely robust and soundly made. Hexagonal shoulder, which, by being held with a spanner while the nut behind is made tight, greatly facilitates mounting.

Insulated and non-removable head. Provision for secure, solderless connection if desired. Clear markings, easily read.

CLIX PANEL TERMINALS

Type B - (illustrated) **4d.** Type A without Hexagonal Shoulder **2½d.**

CLIX SPADE TERMINALS Positive metal-to-metal wiring is fully protected from creeping acid by a specially designed collar making **Corrosion impossible.** Contact is perfect.

Large size: Nickel-plated or lead-coating **2d.**
Small size: Nickel-plated - - **1½d.**

CLIX "MASTER" PLUG Also has positive METAL-to-METAL wiring. Widely variable and non-collapsible prongs give firm grip and full contact with ANY battery socket. Specially curved ends for easy insertion. Clearly engraved. PRICE **1½d.**

Folder "W" gives full details of the whole CLIX range of Contact Components. Write for a copy.

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CHEAPEST PERFECT CONTACT

LECTRO LINX Ltd., 79a, Rochester Row, London, S.W.1

Components, etc., for Sale.—Contd.

KREXO, the new plug-in tone corrector and L.F. stabiliser, cuts out the hiss and improves the tone, plugs straight into your set; price 2/- each, post free.—Krexo Radio, 20, Union St., Jersey, C.I. [2586

MOVING Coil Milli-Ammeters, 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. [0355

PREMIER SUPPLY STORES Offer the Following Manufacturers' Surplus Brand 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).

SPECIAL Offer of Shrouded Transformers, input 200-250 volts, output 500-0-500v. 120 m.a., 4v. 1-2a., 4v. 2-3a., 4v. 2.5a., 4v. 3-5a.; 19/6, cost 50/-.

T.C.C. Electrolytic Condensers, 440v. D.C. working; 4 mfd. 3/-, 8 mfd. 3/6.

T.C.C. 1 mfd. 2,000v. Working Condensers, 3/-; 1×1×0.1×0.1 0.1×0.1×0.1×0.1 mfd., 250v. working, 2/-.

ROLA 2,000 ohms and 6,500 ohms type F.6 Moving Coil Speakers, 17/6; A.C. model 200-250v., 27/6; type F.5 permanent magnet, 20/-; type F.6 permanent magnet, 31/-.

DOUBLE Reading, moving iron, volt meters, read A.C. and D.C., pocket watch type, 0-120v. and 0-12v.; 5/-.

AMPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms (100 250v.), with output transformer, 12/6; ditto, 200-250v. A.C., 22/6.

WESTON Meters, projecting type ammeters, 0-4, 7/6; milliammeters, 0-5 and 0-100, 15/-.

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors, with 12in. turntable, 15/- complete.

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

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

WIRE-WOUND Potentiometers, 15,000 ohms, 1/6; Centralab potentiometer volume controls, 50,000 ohms, 2/-; wire wound Clarostat potentiometer, 50,000 ohms, 2/6.

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms quarter amp. and 500 ohms half-amp., 5/- each.

FOR Callers Only.—The following valves, guaranteed as new: P.T.625, M.P.-Pen., D.C.S.G., V.D.S., V.M.S., S4V.A., A.C.S.G., A.C.S.G.V.M., V.M.S.G., 41M.S.G., V.M.S.4, M.S.4B., U5, 904V., M.S.G.L.A., M.S.G.H.A., M.H.L.4, M.L.4, M.H.4, U14, S4V.B., D.W.3, P.T.4, D.S., D.S.B., M.S.4, 41M.L.S., M.V.S.G., A.C.H.L., at half list price.

THE Last Few Western Electric 4211-D Valves.—10v. 3a. filament, 750v.-1,000v. plate, 50-65 m.a., impedance 3,500 ohms, amplification factor 12; cost £5; to clear at 15/-.

500 Volt 125 milliamp Full Wave Rectifying Valves.—4v. 2a. filament, 7/6.

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

SMOOTHING Chokes for Series Connected Filaments from D.C. Mains, carry 1 amp., 5/-.

PREMIER Eliminators, input 200-250 volts, 40-100 cycles A.C., incorporating Westinghouse metal rectifiers, output 250 volts at 60 milliamps., 80- and 120-volt taps, 42/6; with 4 volts 4 amps., c.t., L.T., 7/6 extra.

PREMIER Eliminators, output 150 volts at 30 milliamps., 80- and 100-volt taps, with 4 volts 3-4 amps. c.t., L.T., 37/6; or with trickle charger, 42/6.

PREMIER Eliminators, output 120 volts at 20 milliamps., 80- and 100-volt taps, 27/6; with L.T. trickle charger incorporated, 35/-.

D.C. Eliminators, output 120 volts at 20 milliamps., 80- and 100-volt taps, 15/-; larger model, output 200 volts at 50 milliamps., 80- and 120-volt taps, 25/-.

ACCUMULATOR Chargers.—200-250v. A.C., all incorporating Westinghouse rectifiers: 2v. at half-amp., 8/6; 2, 4 and 6 volts at half-amp., 17/6; 2, 4 and 6 volts at 1 amp., 22/6; 12v. at 1 amp., 27/6; 6 or 12 volts at 2a., 35/-; 12v. at 1.5a., 30/-; 6v. at 3a, 39/6; 12v. at 3a., 52/6; three separate 12v. 1a. circuits, 75/-.

HIGH Inductance Chokes, resistance 2,500 ohms, 80 henrys, 60 milliamps., 5/6.

WESTINGHOUSE Metal Rectifiers.—120 volts at 20 milliamps., 6/6; 180 volts at 30 milliamps, 8/6; 250 volts at 60 milliamps., 10/-; 200 volts at 100 milliamps., 11/-; 300 volts at 60 milliamps, 11/-; 8 volts at half-amp., 6/6; 6 volts at 1 amp., 9/6; 12 volts at 1 amp., 12/6; 6 volts at 2 amps., 20/-.

T.C.C. Condensers, 250 volts working, 4×4×1 mfd., 5/-; 300 volts working, 4×4×2×2×2 mfd., 7/-; 375 volts working 6×4×2×2×2 mfd., 10/-; 300 volts working 4×4×2×1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. Condensers, 8/6; Western Electric, 400 volts working, 0.01 mfd., 1/-.

T.C.C. Condensers, 750 volts working, 2 mfd., 4/-; 750 volts working, 4 mfd., 6/-; 4 mfd. 400 volts D.C. working (300 volts A.C. working), 4/-.

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

PREMIER Guaranteed Mains Transformers, engraved terminal strips with terminal connections, input 200-250 volts 40-100 cycles, output 135 volts 80 milliamps., for voltage doubling, 8/6; 4 volts, 3-4 amps., c.t., L.T. 2/- extra; Westinghouse rectifier for above, giving 180 volts at 30 milliamps., 8/6.

PREMIER Mains Transformers, output 250-0-250 volts at 60 milliamps., 4 volts 1-2 amps., 4 volts 2-3 amps., and 4 volts 3-4 amps. (all centre tapped), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts at 100 milliamps., 4 volts 4-5 amps., and 4 volts 2.5 amps.; 15/-.

H.T.8 Transformers, 250 volts 60 milliamps, rectified, with 4 volts 3-5 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 25/-.

H.T.9 Transformers, 300 volts 60 milliamps, rectified, with 4 volts 3-4 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

H.T.10 Transformers, 200 volts 100 milliamps, rectified, with 4 volts 3-4 amps. c.t. L.T., with screened primary, 15/-; with Westinghouse rectifier, 26/-.

PREMIER Mains Transformers, 12 volts 1 amp., 7/6; 9 volts 1 amp., 7/6; 4 volts 4 amps., and 4 volts 2 amps., 8/6; 4 volts 3 amps., 7/6; 4 volts 5 amps., 8/6; 6 volts 2 amps., 7/6; 14 volts 4 amps., 12/6; 22 volts 1 amp., 10/-.

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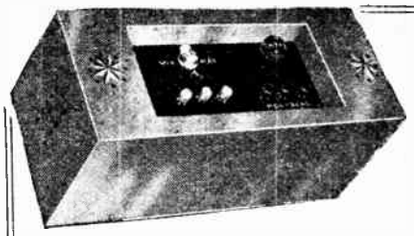

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How the B.B.C. has cured it.

In many ways a set is only as good as its loudspeaker. However selective it may be, however powerful, the final result can never be perfect, if the loudspeaker itself "booms" on the low notes and distorts speech.

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Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

MAINS Transformers, output 350-0-350 volts 99 milliamps., 4 volts 3 amps. (c.t.), and 4 volts 2 amps. (c.t.); 12/6.

AMPLION Mains Transformers, input 100-250 volts, output 350-0-350 volts 120 milliamps, 4 volts 5 amps., 4 volts 2 amps., and 6 volts 1 amp. (all centre tapped); 17/6

AUTO Transformers, 100/200-250 volts or vice versa; 60 watt 7/9, 100 watt 10/-, 180 watt 15/-.

SPECIAL Offer of Mains Transformers, manufacturers' type, any input, output 250-0-250 volts 60 milliamps., 4 volts 1 amp. (c.t.) and 4 volts 3 amps. (c.t.), 8/6; 180-0-180 volts 40 milliamps., 4 volts 1 amp. and 4 volts 2 amps., 4/6; 175 volts 50 milliamps., 4 volts 4 amps., and 4 volts 1 amp., 5/6; H.T.8, with 4 volts 3-4 amps., 8/6, with rectifier 18/6.

PYE Chokes, 20 or 32 henrys, 4/-; Multi-ratio output transformers, 6 taps, giving 15 different ratios, 7/6.

PREMIER Chokes, 40 milliamps, 25 henrys, 4/-; 65 milliamps, 30 henrys 6/-; 150 milliamps, 30 henrys, 10/6.

AMSCO 3-gang 0.0005 Condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 bakelite dielectric condensers, with knob, 1/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005, 10/-; Ormond all-brass 2-gang condensers, semi-shielded, 0.0005, 3/6.

BRITISH Radiophone 4-gang Condensers, with trimmers, fully screened, 16/-; Colverstats, logarithmically wound potentiometers, 6,000 ohms, 1/9.

ALL the Following Lines 6d. each or 5/- per dozen Assorted: Shielded S.G. or pentode leads, Polymet 0.01 condensers, 2ft. lengths of screened wire, 5-pin valve holders, Crabtree 5 amp. sunk switches, T.C.C. 0.1 mfd. condensers, 0.5 condensers.

ALL Orders to The 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. [2578

APPLEBY, London. Bargains, slightly used material to usual standard; prices quoted nett cash, carriage chargeable on orders under 20/- and bulky items; enquiries, stamp, please! Items are standard, in proper order, and not job line rejects.

TRANSFORMERS.—A.F.5, 18/-; A.F.6, 17/-; A.F.7, 19/6; A.F.5C., 20/-; A.F.3, 9/6; O.P.3C., 13/6; O.P.M.5, 16/6; Telsen Arc 5-1, 3/6; Radiogram 7-1, 7/-; Telsen Multi Ratio output, 7/-; Philips, 5/6; Lissen (small), Marconi Popular, 3/-; Varley Rectaphone, 10/-.

MOVING Coil Units.—Ferranti P.M. M.1, latest, 90/-; Baker P.M. De Luxe, 55/-.

CONDENSERS.—Utility De Luxe 4-gang, fully screened, 22/6; Polar Tub 2-gang, fully screened, 10/6; J.B. 4-gang, fully screened, disc drive, 18/6; J.B. 2-gang, fully screened, disc drive, panel trimmer, 13/-; Cyldon 2-gang Extenar, disc drive, 19/6; Cyldon S.W. series gap, 0.0001, 0.00002, 9/- each; Cyldon S.W., 0.0001, 0.0003, 5/-; J.B. 0.00015 S.W., 3/9; G.E.C. 0.0005 S.M., 5/6; Polar 0.0005 Log, 2/3; Cyldon 0.0005 dual, 7/-; Polar drum drives, 5/-; disc, 3/-; Ormond ultra S.M. dial, 4/6.

CHOKES etc.—G.E.C. Hiflux, 9/-; Pye 20H., 32H, 7/-; Telsen Power Grid, 3/6; Lewcos H.F., large, 4/-; M.H. binocular, 2/3; Eddystone or Bulgin H.F., 2/9; Bulgin whistle filter, 7/-.

ODD Bargains.—Wearite G.L.32 Super-Het unit, 34/6; Varley Sq. peak coils, 9/-; Extenser type, 8/6; Colvern K.S.W. coil, 5/6; Igranic S.W. coils, set 6/9; Ferranti M.I. voltmeter, 0-7.5, new, 18/9; R.I. P.W. Selector coil, 6/-; Igranic Potential Dividers, 7/6; Bulgin, 4/6; Harlie De Luxe pick-up, control, 17/6; B.T.H. pick-up, nickel, crankel, 16/9; Harlie tone selector, 2/6; Westinghouse H.T.7, 11/6; Lewcos Super-Het coils, set from 23/6; Lewcos I.F.T. 126 coils, 6/6; Ex. O.S.C. 126, 8/6; Wearite S.W. screened oscillator, 9/6; Wearite 8-way base, 4/6.

VALVES.—P.M.1D.G., Cossor 210 D.G., Osram D.G.2, Cossor S.G.215, metal or plain, P.M.12, P.M.22; all 8/6 each.

ALL Rigorously Tested Before Despatch.—Appleby's, 109, Edgware Rd., Hyde Park, London. [2627

CONDENSER Blocks 6d. per mfd., 650-volt test, in blocks of 6 mfd. upwards, wired in 2 mfd. units; 2 years' guarantee; send by return of post on 7 days' approval; cash with order.—Butlers Radio, Ltd., 191, Forest Rd., Walthamstow, E.17. 'Phone: 3134. [0396

GILBERT INDUSTRIES Offer a Further 200 A Parcels, containing one each of the following high grade components: 1 cadmium plated chassis, 1 heavy mains transformer, 350-0-350 at 60 m.a., 4 v. 4 a., C.T., 4 v. 2 a. rect., one H.M.V. 2-gang, with trimmers and 2 coils, one electrolytic 8 mfd., 435 working, one H.M.V. screened H.F. choke, one volume control, one smoothing choke, 50 h., 50 m.a.; complete parcel, post paid, £1.

250 B Parcels, containing one each of the following high grade components, suitable for building Class B or straight 30 m.a. 150-180 v. A.C. eliminators; One Westinghouse rect., voltage doubler; one transformer; one condenser pack, 4+4+2+1+1; one choke, 50 h. 50 m.a., 4 resistances; complete parcel, post paid, £1, by return.—Gilbert Industries, 519, London Rd., Westcliff-on-Sea, Essex. [2575

SOUTHERN RADIO Wireless Bargains; set manufacturers' guaranteed surplus. Ready Radio constructors' kits; 303 3-valve battery kit, less valves, 18/6, with three Mullard valves (P.M.1H.F., P.M.2D.X., P.M.2), 36/- each (list 70/-); Meteor screen grid 3-valve kit, less valves, 26/-, with three Mullard valves (P.M.12a, P.M.2D.X., P.M.2), 49/- each (list £5/7/6); Meteor screen grid 3-valve "A" kit, including cabinet, Celestion permanent magnet speaker and kit of parts, less valves, £3/7/6, with three valves as above, £4/12/6 (list £8/17/6); Mullard Radio for Million 3-valve A.C. kits, complete, with three Mullard valves (P.E.N., 4v., 354v., 84v.), £3/12/6 (list £6/10); please note all kits advertised by us are brand new, and contained in original sealed cartons; the valves advertised with these kits are the manufacturers' specified valves.

CELESTION Permanent Magnet Soundex Speakers, brand new and boxed, 16/- each (list 27/6); Cyldon three-gang condensers, 0.0005, shrouded and trimmers, 8/9 each (list 32/-); genuine Amplion loud speaker units, 2/9 each (list 12/6); screened chokes (H.M.V.), 1/- each; condensers: 4 mfd., 2,6 each; 2 mfd., 1/9; 1 mfd., 1/- each, all 750 volt test; blocks, 12 mfd. (2+2+2+2+2+1+1), 6/9 each; 10 mfd. (2+2+2+2-1+1), 6/3 each; all 1,500 volt test; mains transformers, all capacities, in stock, and specials quoted for; all goods guaranteed in every way and carriage paid.—Southern Radio, 323, Euston Rd., London, N.W.1 (near Warren St. Tube). 'Phone: Museum 6324. [2535

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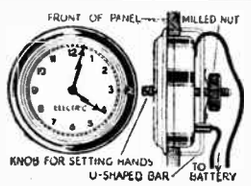

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Models from 35/- to £15. List FREE.

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MULTITONE, 4-1 and potr., 13/6; Ferranti A.F.5c, unused, 22/-; D.O.25, 16/-; M.H.4, 7/6; 354V, 5/-; Colvern T.G.S.C. and T.G.S.R. screened coils (2), 3/6 each; Colvern double 50,000 potr., 5/6; McMichael binoc. choke, 2/6; R.I. dual-astatic choke, 3/6; Ferranti 750 m./ampmeter, glass cracked, 15/6; A.C.P., unused, 10/6. —Bateson, 13, Rochester Sq., N.W.1. [2580

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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

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PATENT AGENTS.

A. MATHISEN, B.Sc. (Elect. Eng.), specialist, patents for radio inventions.—First Avenue House, High Holborn, London. [1832

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PATENTS.

THE Owners of Patent No. 287,098 are Desirous of Arranging by Way of Licence or Otherwise, on reasonable terms, for the commercial development in Great Britain of this invention, which relates to the production of electric radiating elements, particularly electron emitting elements for electric discharge devices.—For particulars address H. Douglas Elkington, Chartered Patent Agent, 20 to 23, Holborn, London, E.C.1. 2588

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MAINS Transformers, any make or condition, accepted in part exchange for new; generous allowances.—The Sturdy Electric Co., Derwent View, Dipton, Newcastle-on-Tyne. 2425

YOUR Old Set or Apparatus Accepted in Part Payment for New Set or Apparatus; easy payments are granted if your order amounts to £5 or over, taking your goods as deposit; send lists.—Bostock and Stonhill, 1, Westbourne Terrace, S.E.23. 2630

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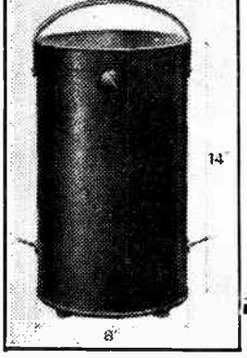

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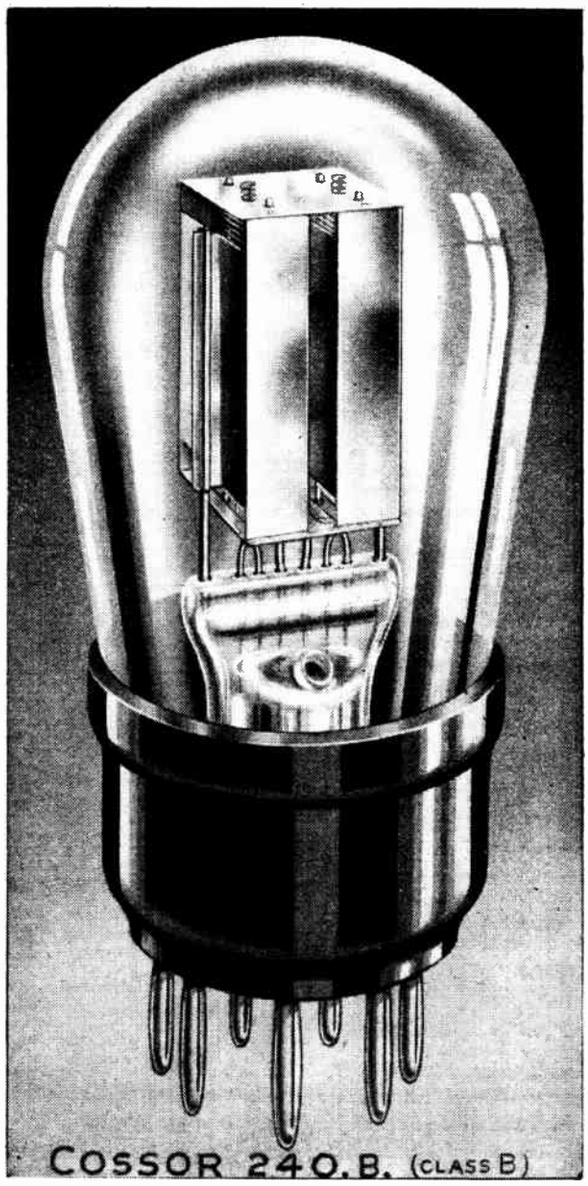

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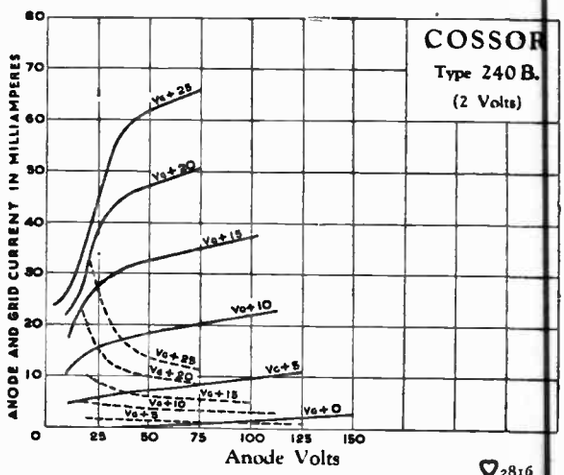

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PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Act 3 of "Siegfried" (Wagner), from the Royal Opera House, Covent Garden.
LONDON REGIONAL	London Music Festival concert from the Queen's Hall.
NORTH REGIONAL	"Pomp and Circumstances, our Hysterical Pageant," a satirical sketch by Raymond Burns.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Orchestral concert.
BELFAST	Orchestral concert from Stranmillis.

ABROAD

BARI	8.40 p.m. Vocal and instrumental concert.
BERLIN (Witzleben)	8.40 p.m. Concert of operatic music.
BORDEAUX LAFAYETTE	8.30 p.m. Lecocq concert.
BUDAPEST	8 p.m. Liszt International competition for pianists.
COPENHAGEN	8.1 p.m. Ballet music from opera.
HAMBURG	8 p.m. Opera: "Die Königskinder," by Humperdinck.
LEIPZIG	10.40 p.m. The Leipzig Symphony Orchestra.
PRAGUE	4.10 p.m. Concert in honour of the Norwegian National Festival.
STUTTGART	9.40 p.m. String Quintet No. 2 in G. (Op. 111), by Brahms.
VIENNA	8 p.m. A German Requiem, by Brahms.

ATHLONE

725 kc/s, 413 metres; 60 kW; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Talk in Gaelic. **7.15,** German Lesson. **7.39,** Time Signal. **7.31,** 'Cello and Pianoforte Recital by M. Jephson and M. Mulcahy. **8.0,** Contralto Solos by Nora Finn. **8.20,** Forgery—a Drama by Elizabeth Young and Company. **8.50,** The Station Orchestra. **9.15,** The Nono Brothers in Variety. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Escalas Orchestra. **11.0,** Programme of Industry and Art. In the interval at **12 Midnight,** News. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 p.m.,** Programme for Children. **6.0 to 6.30,** Light Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.40** (approx.), Chamber Music. Soloists: Franco Ruggero (Pianoforte), Enza Motti Messina (Soprano) and N. Delle Foglie ('Cello). Overture, Maryké (Crisenolo); Pianoforte Solos: (a) Villanella (Anon), (b) Gagliarda (Galilei-Respighi); Soprano Solos (Brahms): (a) An einen Veilchen. (b) Ständchen; Pianoforte Solo: Papillons (Schumann); Soprano Solos: Two Songs (Mussorgsky); Violin, 'Cello and Pianoforte: (a) Adagio from the Pathetic Sonata, Op. 13 (Beethoven), (b) Serenade (Widor); Overture, Le donne cerlose (Usiglio); Soprano Solo: La lavanaia di S. Giovanni (Tommasini); Melody for Pianoforte (Paderevsky); 'Cello Solos (Cassado): (a) Spanish Serenade, (b) Lo fluviol el Titit y l'Escarbat, (c) Complanta; Soprano Solos: (a) Le Flageolet (Casella), (b) Filomela's Second Song (Malipiero); Prelude, Choral and Fugue for Pianoforte (C. Franck). In the interval, Theatre Notes. **10.30,** Variety Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**3.0 p.m.,** Gramophone Records of Light Music. **3.30,** Recital of Folk Songs. **4.0,** Gramophone Records (contd.). **5.0,** Medical Talk. **6.55,** Time and Programme Announcements. **7.0,** Concert by the Radio Orchestra: Overture (Zaje); From My Homeland (Mokranjatz); Song, The Swallow (Hristic); Italian Suite (Kostal). **8.0,** See **Vienna. 10.0,** News.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert of Light Music. **3.0,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Reading (Emil Strauss). **4.0,** See **Hamburg. 5.0,** Talk: Industrial Changes of the Age. **5.30,** String Quartet No. 2, Op. 22 (Max Trapp), by the Dessau String Quartet. **6.0,** A Poem. **6.5,** Folk Songs for Mixed Choir: Ich fahr dahin; Du sollst an mich gedenken; Mein Mädel hat einen Rosenmund; Die Linde im Tal; Aennchen von Tharau; Das braune Maidelein; Der Jäger und die Nixe; Jan Hinnerk; Sandmännchen; Schlaf, du mein kleines Bübchen. **6.35,** Wireless Technical Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Concert of Springtime Music: La Primavera—for Solo Violin and Strings (Vivaldi); Gabriel's Recitative and Aria from The Creation (Haydn); On Hearing the First Cuckoo in Spring (Delius); Wonnevoller Mai (Gluck); Das Dorf (Reger); Flieder (Reger); Er ist's (Wolf); Italian Serenade (Hugo Wolf). **8.45,** By their Deeds shall ye know them—A Satirical Radio Sequence (on Gramophone Records). **9.30,** Dance Music. **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Concert by the Pachaly-Hennersdorf Trio: Pianoforte Trio in D (Haydn); Pianoforte Trio in G (Mozart). **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.5,** Announcement. **8.10,** Folk Songs. **8.40,** Concert of Modern Operetta Music by the Berlin Wireless Choir and the Berlin Wireless Orchestra, conducted by Dr. Rudolf von Schmidtseck; Soloists: Margarete Slezak, Marianne Meewes, Franz Baumann, and Reinhold Danske. **10.0,** Weather, News, and Sports Notes, followed by Dance Music from the Europa Pavillon. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News and Market Prices. **7.40,** Dramatic Criticism. **7.55,** Lottery Results. **8.0,** Agricultural Report. **8.15,** News Bulletin. **8.30,** Lecocq Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**5.0 p.m.,** Organ Recital by Prof. A. Ledvina, relayed from the Franciscan Church. **5.35,** Programme for Children. **5.45,** Light Music on Gramophone Records. **5.55,** Hungarian Transmission: Talk, Recitations, and Pianoforte Recital by Ilona Magyarová: Ballad in G Minor (Chopin); Jardins sous la Pluie (Debussy); Waltzes, Op. 39 (Brahms); Rondo (Béla-Bartok). **7.0,** See **Prague. 7.10,** See **Brno. 7.30,** See **Moravská-Ostrava. 8.5,** 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.—1.10 p.m.,** Gramophone Concert of Music from Well-known Operas. **1.45,** Time, Weather, News, and Exchange. **2.5,** Gramophone Concert of Spanish Music. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Programme for Women. **4.0,** Flute Recital by Theo Kmust: Andante in D (Tartini); Sonata for Flute and Basso Continuo, from Der getreue Musikmeister (Teleman); Sonata No. 111 in G (Handel); Sonata No. II in A (Handel). **4.30,** Book Review. **4.50,** Talk: Physical Exercise and Country Sports. **5.10,** Agricultural Prices. **5.15,** Orchestral Concert, conducted by Emil Gielnik: March, Morgenröte (Jessel); Waltz, Die Hydropathen (Gungl); Potpourri, Musikalische Trümpfe (Noack); Intermezzo, Zwischen Don und Dniester (Leuschner); Impression, Es war an der alten Mühle in Parle von Saussonei (Niel); Waltz, G'schichten aus dem Enns-Tal (Pachernegg); Potpourri, Hallo, hier Wien! (Morena); March, Soldatenliebe (Aibout). In an interval at **5.40** (approx.), Agricultural Prices. **6.15,** Review of the May Number of Der Oberschlesier. **6.50,** Weather for Farmers, News, and Market Prices. **7.0,** Transmission for all German Stations: The Glatzer Gebirge—Scenery, Inhabitants, and Customs—a Radio Sequence. **8.0,** Peter Dörfler reads from his own Works. **8.30,** Request Concert by the Station Orchestra, conducted by Franz Marsalek; Soloist: Hellmuth Hallendorf (Tenor). In an interval at **9.10,** News. **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.20,** Wireless Technical Talk. **10.30,** Talk: Tickets please! A Day in the Life of a Tram Conductor. **10.50,** Dance Music, relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News, Talk for Workers, and Talk on Technocracy. **7.0,** See **Prague. 7.10,** Man and his Work—a Report. **7.30,** See **Moravská-Ostrava. 8.5,** Spring in Czechoslovakian Music—Concert by the Station Orchestra, conducted by Bakala; Soloist, M. Bakalova (Songs). **8.40,** See **Prague. 10.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert, relayed from the Grand Hotel, Antwerp. Conductor: André Fellemann. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert. **5.0,** Sonata Recital. **5.30,** Gramophone Concert. **6.0,** Talk: Aesthetics. **6.15,** Gramophone Records: Descriptive Symphony (Berlioz); Fantasia in C Minor for Organ (Bach). **6.30,** Messages of Welsh Children. **6.35,** Gramophone Concert: Overture, Bronwen (Holbrooke); Variations on a Theme of Corelli (Tartini-Kreisler); Fire Dance (Falla); Selection from La serva padrona (Pergolesi); Badinerie (Camus); Overture, Semiramis (Rossini). **7.15,** Talk: André Souris — The Belgian Musician. **7.30,** Medical Talk. **8.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Overture, The Bartered Bride (Smetana); Siegfried Idyll (Wagner); Concerto No. 5, for Violin and Orchestra (Vieuxtemps). **8.45,** The Narcotic—Sketch (Bernard). **9.0,** Concert by the Station Symphony Orchestra (contd.). Songs by Armand Crabbé. La Mer (Gilson). **10.0,** Le Journal Parlé. **10.10,** Popular Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Gramophone Concert. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert of Light Music, relayed from the Grand Hotel, Antwerp. **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **6.15,** Talk: The Life of the Codfish. **6.30,** Recital of Lieder by Gustav Mahler (died May 18th, 1911), by M. Theo Mercier. Ich bin der Welt abhanden gekommen; Revelge; Liebst du um Schönheit; Um Mitternacht. **6.45,** Gramophone Concert; Valse Caprice (Rubinstein); Scènes alsaciennes (Massenet). **7.15,** Talk on Proverbs. **7.30,** Le Journal Parlé. **8.0,** Gramophone Concert: Hyde Park (Julowicz); Selection from The Mikado (Sullivan). **8.30,** Concert of Light Music, relayed from the Grand Hotel, Antwerp. **9.0,** Recitations. **9.15,** Concert (contd.). **10.0,** Le Journal Parlé. **10.10,** Concert (contd.).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra: Spanish March (O. Gyldmark); Overture, Carnival (Dvorak); Waltz from Eugène Onegin (Tchaikovsky); Selection from Lakmé (Delibes); Potpourri of Grieg Music (Urbach); Honeymoon (Frederiksen); Scandinavian Peasant Dance (Zanella); Russian Dance No. 4 (Bullerian). In the interval at **6.0,** Radio Journal. **7.0,** Talks. **7.40,** Light Music on Gramophone Records. **8.0,** See **Vienna.**

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres from 8.10 p.m. to 12 Midnight.—5.30 p.m.,** Dance Music by the Bachmann Band, relayed from the Rajnapark. Soloist: Paul Fekete. **6.0,** Italian Lesson. **8.30,** Concert by the Sándor Bura Cigány Band. **7.30,** Talk. **8.0,** Liszt International Competition for Pianists, relayed from the Academy of Music. Racing Results in the interval. **10.0,** News Bulletin. **10.15** (approx.), Concert by the Karl Bura Cigány Band from the Ketter Restaurant **11.0,** Talk in Italian.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Max Skalka String Ensemble, relayed from the Hotel d'Angleterre. **2.0 to 3.0,** Interval. **3.0,** Gramophone Concert. **3.30,** Concert by the Station Orchestra, conducted by Emil Reesen: Overture, The Carnival of Venice (Thomas); Hungarian Harvest Festival (Dohnányi); Hungarian Children's Scenes (Dohnányi); Selection from The Girl of the Golden West (Puccini); Song and Dance from Pictures from Valencia (Chavarri); The Queen's Entry and Processional March from The Queen of Sheba (Goldmark); Overture, The Water Carrier (Cherubini); Pestherwalzer (Lanner); Ballet Music from The Cid (Massenet); Selection from The Tales of Hoffmann (Offenbach); Saltarella, from Les Brigands (Offenbach). In the interval at **4.15** (approx.), Talk on Educational Problems. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk. **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Agricultural Talk. **8.0,** Chimes from the Town Hall. **8.1,** Concert of Ballet Music from Opera, by the Station Orchestra, conducted by Launy Grondahl. March from Idomeneo (Mozart); Gavotte from Iphigenia in Aulis (Gluck); Bacchanale from Samson and Delilah (Saint-Saëns); Three Dances from The Bartered Bride (Smetana); Waltz from Eugene Onegin (Tchaikovsky); Ballet Music from Othello (Verdi). **8.50,** Talk on Finance. **9.20,** Jazz Music for Two Pianofortes by Viktor Fischer and Svend Hansen. **9.40,** Talk and Readings: Sport in English Literature. **10.10,** News. **10.25,** String Quartet in A Minor, Op. 29, for Two Violins, Viola, and 'Cello (Schubert). **11.0,** Dance Music by the Teddy Petersen Band, relayed from the Wivex Restaurant. In an interval at **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.30 a.m. (Thursday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C.; Announcers: T. St. A. Ronald, C. Danvers-Walker, and B. McNabb. **5.30,** Orchestral and Vocal Concert of Light Music for Portsmouth and Southsea Listeners: Air de Ballet; Songs: (a) The Shepherd's Serenade, (b) Charming; Try a Little Tenderness; Songs: (a) I remember you from Somewhere, (b) West Wind; Chinese Fantasy; Songs: (a) My Darling, (b) I'm just a Vagabond Lover, (c) Excuse me Lady; Selections from Rigoletto (Verdi); Waltz, Roses from the South (Joh. Strauss). **6.15,** Trio Concert and Violin Solos for Isle of Wight Listeners: Un peu d'amour (Silesu); Friend o' Mine (Sanderson); Violin Solo: Larghetto (Weber); Chanson triste (Tchaikovsky); Love's Old Sweet Song (Molloy); Violin Solo: Au mois d'avril (Adlington); Mia bella Rosa; Cavatina (Raff); Violin Solo: Valse Bluette (Drigo); Pizzicato, from Sylvia (Delibes); Toréador et Andalouse (Rubinstein); Selection from Cavalleria rusticana (Mascagni). **7.0,** Radio Gazette. **7.20,** Local News. **7.30,** Listeners' Half-Hour and News. **8.15,** Simplice in his répertoire. **8.30,** Sponsored Concert. **9.0,** Concert, relayed from **Le Tréport. 10** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ibcolians: I love a Parade; Lullaby of the Leaves; I do like to see a Game of Football; Underneath the Arches; Listen to the German Band; Paradise; The Clouds will soon roll by; Round the Marble Arch; Just another Dream of you; It ain't no fault of Mine; They all start whistling Mary; Love me

SUN. MON. & TUES. PROGRAMMES

To-night; Happy-go-lucky you; While we danced at the Mardi Gras. **11.0,** Club Concert for Woking and Weybridge Listeners: Dixieland Selection (arr. Stodden); Songs: (a) Absent Minded (Summers), (b) Girl of a Million Dreams (Gay); Selection from Splinters (Gibbons); Songs: (a) The Song of the Clock (Burchell), (b) If I were King (Henry); The Song of the Nightingale (Ailbout); Duet: River stay 'way from my Door; You're the One I care for; The Musical Clock of Madame Pompadour (Noack); Song, Darby and Joan (Molloy); Song, My Treasure (Trevalsa); Waltz, Wiener Blut (Joh. Strauss). **12 Midnight,** Military Band Concert: Naval Patrol (Williams); Amorettentänze (Gungl); Old Panama (Alford); Turkish Patrol; Praeludium (Järnefelt); Light of Foot (Latann); A Frangesa (Costa); Here, there and Everywhere (Bose). **12.30 a.m. (Thursday),** Vocal Duets and Saxophone Solos: Old New England Moon; Songs I heard at Mother's Knee; Sing you Sinners; Saxophone Solo, I need you more each Day; Dancing with Tears in my Eyes; The Journey's End (Hewett); If I had a Girl like you; Saxophone Solo, Valse Marguerita. **1.0,** Accordion Music and Songs: Javanette; Volante March; Bertina Waltz; Songs: (a) I'm in the Market for you, (b) Just like in a Story Book; The Waltz that made you Mine; Señorita; Lullaby of the Leaves. **1.30,** Songs: I'm so used to you; Leave the Rest to Nature; Ma Curly Headed Babby; Trio: (a) Old Time Jigs and Reels, (b) Turkey in the Straw; Kiss by Kiss; If I have to go on without you; Indian Love Call. **2.0,** Dance Music by the Dicolians: Puttin' on the Ritz; I don't wanna go Home; When I passed the Old Church Door; With you; Lazy Louisana Moon; Rolling Along; Meet me in my Dreams To-night; Get Happy; When it's Sleepytime down South; Three Little Times; Kisses in the Dark; A Faded Summer Love; Home-Desert Lover. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—6.0 p.m.,** Talk: Traces of Old Germanic Customs in Modern Times. **6.25,** Topical Programme. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Concert by the Station Orchestra, conducted by Reinhold Merten. Overture, Frau Luna (Lincke); Selection from Das süsse Mädel (Reinhardt); Waltz, Erste Liebe (Reinhardt); Spanish Comedy Overture (Kéler-Béla); Selection from Der Sterngucker (Lehar); Waltz, Am himmelblauen See (Millöcker); March, Schönes Persien (Lincke). **9.0,** A Conversation between Wilhelm Müller-Scheld and Walter Oertel: With the 76th Reserve Division through Transylvania and Romani. **9.35,** Chamber Music by the Schulze-Priska Quartet: Quartet in F Minor, Op. 95 (Beethoven); Quartet Movement in C Minor (Schubert); Quartet in C, Op. 33, No. 3 (Haydn). **10.20,** Time, News, Weather and Sports Report. **10.45,** See **Munich. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.,** Mozart Concert by the Station Orchestra, conducted by Eugen Papst: Serenade in D No. 7, Symphony in B Flat, No. 33. **5.0,** Mecklenburg Humour from Laurenberg to Wossido—Talk, Recitations and Songs. **5.30,** Hamburg, Lübeck and Bremen—Report on Events in the Senate and House of Burgesses of the Hanseatic Free Cities. **6.0,** Recital of North German Folk Songs by Käthe Paradies Richard Germer and the Station Male Voice Quartet. **6.40,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Die Königskinder—Opera in Three Acts (Humperdinck), relayed from the Municipal Theatre. In the intervals at **9.5** (approx.), Announcements and at **10.0,** Time, Weather, Announcements, Sports Notes and Police Report. **11.15,** Topical Talk. **11.25,** Gramophone Concert. Overture, The Gipsy Baron (Joh. Strauss); Hungarian Rhapsody (Liszt); Symphonic Dances (Grieg). Waltz, The Arabian Nights (Joh. Strauss); York March (Beethoven).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW; and **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. In an interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Records. **3.0,** Agricultural Prices and Exchange. **3.20,** Talk for Housewives. **3.30,** Programme for Children. **4.0,** Talk for Parents. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, The Barber of Seville (Rossini); Im Rosenpavillon (Siede); Sérénade à Graziella (Desprez); Waltz, Hofballtänze (Lanner); Selection from A Waltz Dream (O. Straus); Czardas (Michiels); Strauss-Millöcker-Suppé Potpourri (Komzák). **5.45,** Bridge Lesson. **6.15,** Agricultural Prices. **6.25,** Song Recital by Mia Neusitzer-Thoenissen. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.5,** Concert of Music by Reznicek by the Königsberg Opera House Orchestra, Conductor: Erich Seidler. Introductory Talk by Dr. Hubert Gerigk. **9.35,** News. **9.40,** Reading of Poems by Heinrich Anacker, Karl Bülow, Goswin P. Gath, Herybert Menzel and Heinz Rusch. **10.5,** News and Sports Notes. **10.15** (approx.), Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Michel Angelo (Gade); Norwegian Dances Nos. 1, 2 and 4 (Grieg); Norwegian Rhapsody, No. 3 (Svendsen); Selection from La Bohème (Puccini); Suite No. 3 (de Micheli); Tanzwalzer (Busoni); Overture, Euryanthe (Weber). **12 Midnight** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by De Notenkrakers, conducted by D. Wins. **12.25 p.m.,** Song Recital by Mlle. Stella Seemer. **12.40,** Concert by De Notenkrakers (contd.): National Dances (Mamfred); Der Spielmann (Wilczinsky); Valse triste (Berger); Dance from Havana (Marbot); Spanish March (Dreyer). **1.10,** Song Recital (contd.). **1.25 to 1.40,** Interval. **1.40,** Programme for Children. **5.10,** Concert by De Fierefluiters, conducted by J. van de Horst. **6.10,** Jewish Programme by the Rotterdam Jewish Choir, conducted by N. Stranders, and Leo Fuld (Songs). **6.40,** Talk. **7.0,** Concert, M. Weissbach (Tenor), M. Jong (Organ), and J. Vogel and J. Jong (Two Pianofortes); Tenor Solos: (a) Immer wenn ich glücklich bin, muss ich schrecklich weinen (Kaper-Jurmann), (b) Die kleinen Mädchen mit dem treuen Blick (Wachsmann), (c) It shall be a Secret (Prince-Wills), (d) In 24 Stunden kann soviel geschehen (Kaper-Jurmann); Organ Solo: Selection from Show Boat (Kern); Tenor Solos: (a) Gruss und Kuss Veronika (Wachsmann), (b) Ein Brief von deiner Hand (Snyder), (c) Du kommst für mich in Frage (Rainger), (d) Uns macht das gar nichts aus (Marbot). **7.39,** S.O.S. Messages. **7.40,** Talk. **8.0,** Light Music on Gramophone Records. **9.0,** Dramatic Programme. **9.40,** Organ Recital by J. Jong. **9.55,** News. **10.10,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Overture, Poet and Peasant (Suppé); Ballet Music from Lakmé (Delibes); The Dream from William Ratcliff (Mascagni); Secrets of the Adige (Carena); Melody (Strauss); Bahn frei (Ed. Strauss); Selection from The Land of Smiles (Lehár). **10.55,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—**11.55 a.m.,** Gramophone Concert of Variety Music. **12.40 p.m.,** Gramophone Concert of Light Music. **12.55,** Organ Recital. **1.40,** Agricultural Talk. **2.25,** Programme to be announced. **2.40,** Reading. **3.10,** Concert by the Hague Trio: Trio, Op. 7, for Violin, 'Cello and Pianoforte (Wolf-Ferrari); Sonata for Violin and Pianoforte (Respighi); Soprano Solos: (a) Nuit d'étoiles (Debussy), (b) Core 'ngrato (Cardillo); Siciliana burlesca for Trio (Casella); Two Pieces (Fernandez-Arbos): (a) Seguidillas, (b) Bolero. **4.40,** Programme for Children. **5.40,** Talk on Communism. **6.10,** Programme arranged by the Department of Buildings and Roads. **6.40,** Police Notes. **6.55,** News. **7.10,** Talk on the League of Nations. **7.25,** Talk by Heer Amelink. **7.40,** Salvation Army Meeting, relayed from **Harlingen**—Programme of Addresses and Music. **9.10,** Concert by the Hekster Quartet: Serenade for Violin, Viola, and 'Cello, Op. 8 (Beethoven); Two Arias for Soprano from The Magic Flute (Mozart); Quartet, Die Jagd (Mozart). **10.10,** News. **10.20,** Gramophone Concert: Concerto No. 2 in F Minor, Op. 21 (Chopin); Symphony No. 6 in G Minor, Op. 42 (Widor); Two Sacred Songs; Song for Male Voice Quartet (Abt). **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusements' Guide, News, Financial Notes, and Racing Results. **8.10,** Talk on Science. **8.30,** Concert of Popular Music. **9.0,** News. **9.15,** Popular Concert with Commentary by Jean Stan. **12.0 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12.0 Midnight,** Songs and Orchestral Music; Songs: (a) Springtime reminds me of you (Carter), (b) Goodnight Vienna (Posford), (c) Close your Eyes (Carter); Stardust (Carmichael); Songs: (a) Just Friends (Klenner), (b) I'll always be true (Benatzky), (c) Save the Last Dance for me (Spitalny); Trees (Rasbach). **12.30 a.m. (Thursday),** Dance Music; Miss Elizabeth Brown; What more can I ask; River stay 'way from my Door; Brighter than the Sun; Betty Co-ed; I may never pass your way again; Tap your Feet; A Boy and Girl were dancing. **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.10 p.m.,** Announcements and Popular Music on Gramophone Records. **7.20,** See **Warsaw. 10.35,** Talk in Esperanto, relayed from **Cracow, 959 kc/s, 312.8 metres. 10.55,** See **Warsaw. 11.0,** The Letter Box, in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 358.1 metres.—6.15 p.m.,** Esthonian Lesson. **6.40,** Talk. **7.5,** Concert by the Station Choir. **7.25,** A Play (Lauri Haarla). **8.0,** Concert by the Station Orchestra, conducted by Erkki Linko: March, Dem Lenz entgegen (Blankenburg); Overture, Poet and Peasant (Suppé); Waltz, Wiener blut (Strauss); Melodies from The Czarevitch (Lehár); Hungarian Dance No. 1 (Brahms). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert conducted by Eysoldt. **12.50 p.m.,** Weather, Time, and Announcements. **1.0,** Concert conducted by Wolf: Overture, Banditenstreiche (Suppé); Bauern-Suite (Ailbout); Selection from The Miracle (Humperdinck); The Butterfly Chase (Keler-Bela); Waltz, Traumideale (Fucik); Potpourri, Musical Soap Bubbles (Urbach); Spring Serenade (Lacombe); Gallop, Durchs Ziel (Translateur). In an interval at **2.0** (approx.), Announcements. **2.30,** Sponsored Programme with Gramophone Records. **3.10,** Talk by Edmund Josef Müller. **3.30,** Economic Notes and Time Signal. **3.50,** Programme for Young People. **4.30,** Concert conducted by Eysoldt. Soloist: Jakob Braun (Violin): Overture, Donna Diana (Reznicek); Symphonic Poem, Orpheus (Liszt); Adagio from the Violin Concerto in G Minor (Bruch); Caprice italien (Tchaikovsky); Suite, Chinesischer Bilderbogen (Mausz). **5.50,** Book Review. **6.0,** Natural History Talk. **6.25,** Italian Conversation Lesson. **6.45,** Weather, Time, Economic Notes, and Sports Results. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Announcements. **8.5,** Extracts from Bismarck's Speeches, with Introductory Talk. **8.30,** Concert by the Station String Quartet. Soloists: Hansen (Soprano), Guermanova (Contralto), Woeke (Baritone), and Strienz (Bass). **10.0,** Announcements and Sports Notes. **10.45,** Serenade, conducted by Wolf.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather and Time. **12.5 p.m.** (approx.), Concert by the Dresden Philharmonic Orchestra, conducted by Herbert Nerlich. Soloist: Josef Kirner (Clarinet). In the interval at **1.0,** News. Second News after the Concert. **3.0,** Recital of Pianoforte Duets by Gerhard Burgert and Friedbert Sammler: Sonata in B Flat (Schubert); Kleine Suite, Op. 12 (Fritz Müller-Rehrmann). **3.35,** Exchange Quotations and Market Prices. **4.0,** Programme for Young People: A Radio Play followed by Choral Concert of Folk Songs. **5.10,** Talk: The German Folk Dance, with Illustrations. **5.50,** Economic Notes, Weather and Time. **6.0,** Review of Books. **6.20,** Talk: The Middle Classes in Industry and Society. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Gramophone Concert. Wilhelm Backhaus (Pianoforte): (a) Zueignung (Schumann-Liszt), (b) Serenade from Don Giovanni (Mozart); Enrico Caruso: (a) Divine Aïda, from Aïda (Verdi), (b) Aria from Cavalleria rusticana (Mascagni); Pablo de Sarasate (Violin): (a) Prelude (Bach), (b) Tarantella (Sarasate); Barbara Kemp (Soprano): Two Arias from Carmen (Bizet); Hans Bottermund ('Cello): (a) Largo (Handel), (b) Adagio from the Concerto in A Minor (Schumann); Heinrich Schlusnus (Baritone): (a) Epiphanias (Hugo Wolf), (b) Ständchen (R. Strauss); Prof. Joseph Pembauer (Pianoforte) Mephistowalzer (Liszt). **9.0,** News. **9.15,** Es brennt an der Grenze—Radio Play (Hans Kyser). **10.30,** News. **10.40** (approx.), Serenade by the Leipzig Symphony Orchestra, conducted by Willy Steffen: Overture, Jessonda (Spohr); Symphony No. 28 in C (Mozart); German Dances (Reger); Variations on the Thuringian Folk Song, Ach, wie ist's möglich dann (Raff); Three Pieces for Orchestra (Carl Reinecke): (a) Romance from King Manfred, (b) Idyll, (c) Dämmerung. **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C., F. Miklavcic announcing; International Broadcasting Club Concert: Foxtrot, For you Rio Rita; Foxtrot, Sweet Amanda; Waltz, Why be so unkind to me? Comedy Foxtrot, We all wanna know why; Foxtrot, In a Shanty in Old Shanty Town; Foxtrot, This is my Love Song; Slow Foxtrot, Silver Hair and Heart of Gold; Comedy Foxtrot, The Oi Song. **6.0,** Gramophone Concert of Popular Music. **6.30,** Talk: Contemporary Heroes. **7.0,** Russian Lesson. **7.30,** Literary Programme. **8.0,** See **Vienna. 9.30,** Weather and News. **9.5,** Light Music on Gramophone Records. **10.30** (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.5 p.m.,** Miscellaneous Items. **7.20,** See **Warsaw. 8.0,** See **Vienna. 10.0,** See **Warsaw. 10.15,** Baritone Song Recital by Adam Baczewski. **10.35,** Talk in Esperanto. **10.55,** See **Warsaw. 11.0,** Dance Music, relayed from the Bagatela Theatre. **12 Midnight,** Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—**7.30 p.m.,** Radio Gazette. **8.30,** Music Hall Programme. After the Programme, News.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.2 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal and Request Gramophone Records. **9.25,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal and Political Review. **10.45** (approx.), El Amor musico—Play in Three Acts (Barbarin). **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.10 p.m.,** Marionette Play. **6.5,** Agricultural Report. **6.10,** Light Music on Gramophone Records. **6.15,** See **Prague. 6.25,** Zither Recital by Josef Franz. **6.40,** Recital of Children's Songs. **7.0,** See **Prague. 7.10,** See **Brno. 7.30,** Village Band Concert. **8.5,** Radio Play. **8.40,** See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—**6.30 p.m.,** Dance Music. **9.0,** Talk in English: Higher Education in the U.S.S.R. **9.55** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.—4.5 p.m.,** Programme for Children. **5.0,** Concert by the Otto Reiter Orchestra: Overture, Das Nachtlager von Granada (Kreutzer); Waltz, Die ersten Gedanken (Lanner); Weber Potpourri (Urbach); Potpourri, Wien bei Nacht (Komzák); Song, Ein Brief aus Sorrent (Zerkowitz); Potpourri, Mit vereinten Kräften (Richter); March, Treue Freunde (Holzmann). **6.5,** Talk on the New East Mark Museum in Passau. **6.25,** Talk for Women. **6.45,** Time, Weather, and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0** (from **Nürnberg**), Concert by the Noris Mandoline and Guitar Society, conducted by Stefan Leidenberger: March, Unter dem Bundesbanner (Henze); Marionetten (Ritter); Waltz, Verschmähte Liebe (Lincke); Herzen und Blumen (Czibulka-Ritter); March, Freiheitsgeist (Bahlmann). **8.25,** Dauerwelle Rokoko—Humorous Musical Radio Play (Eichhorn-Hartung). **9.30,** Josef Maria Lutz talk about his Writings. **9.45,** Concert by the Small Station Orchestra; Soloists: Maria Grün (Soprano), Hugo Reker (Violin), and Erich Kloss (Pianoforte). **10.20,** Time, Weather, News, and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.30 a.m.,** Procession of Children before the Royal Family outside Oslo Castle, with Music and Norwegian Songs. **12.10 p.m.,** Unveiling of the Statue of the Historian Munch in the University Square. **12.30,** Songs by a Students' Choir. **2.0,** Unveiling of the Roald Amundsen Monument at Tonsberg. **4.30 p.m.,** Programme for Children. **5.30,** Concert of National Music by Mme. Grave Norlund (Songs) and the W. Schubert

Ensemble, with Songs by M. Torp and M. Kittelsen. **7.15,** Weather and News. **7.30,** Festival Concert by the Station Orchestra, conducted by Hugo Kramm. Soloist: Erling Krogh (Tenor). Talk by Mr. Knut Liestöl, Recitations by M. Odd Froff. Norwegian Rhapsody No. 1 (Halvorsen); Suite from Sigurd Jorsalfar (Grieg); Tenor Solos: Norwegian Songs; Norwegian Rhapsody No. 4 (Svendsen); Saeterjentens Sönding (Bull); Tenor Solos: Songs (Teilman); Rustle of Spring (Sinding); Crescendo (Lasson); Four Dances (Hjelleno); Medley of Norwegian Melodies (Haland). **9.40,** Weather and News. **10.0,** Dance Music and Popular Music. **11.30,** Relay from a Theatre.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Report, and Giornale radio. **8.20,** Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Variety Concert. Soloists: Pollicino (Tenor) and Rosa Alfano (Harp). Overture, Coriolanus (Beethoven). Tenor Solos: (a) Bimba (Silvestri), (b) Canzone (Laurenti); Movement from the Suite for Harp (Tedeschi); Talk; Tenor Solos: (a) Piangi (Tronchi), (b) Cavatina, from Othello (Verdi); Alba triste (Zandonai); Concert Etude for Harp (Snoer); Gigue (Martucci). **10.0,** Popular Songs; Waltz, Tiempe luntane (Figarola); Waltz (Stolz-Reisch-Robinson); Rumba delle Antille (Marazitl-Martelli); Waltz (Szokoll-Di Leo); Passa la nave mia (Buongiovanni); Caterinette (Ravasini-Frati). **10.55,** News Bulletin.

PARIS

EIFFEL TOWER (Call FLE), 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres** at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Talk on Music, with Songs by Schumann. **7.0,** Le Journal Parlé. **8.30,** Concert of Sacred Music for Orchestra, conducted by M. Flamant, a Choir, and Soloists. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Popular Music on Gramophone Records. **8.0,** Talk on Economics. **8.15,** Interval. **8.30,** Concert by the Pupils of the Bach School of Pianoforte Music and the Lamoureux Concert Society Orchestra, relayed from the Hall of the Conservatoire. Conductor: M. Albert Wolff. Concerto in D (Bach); Concerto in E (Bach); Concerto in F (Bach); Concerto in A (Mozart); Concerto in D minor (Mozart); Concerto in F minor (Chopin); Concerto in E minor (Chopin). **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc s, 1,725 metres; 75 kW. **12.15 p.m.,** Orchestral Concert: Selection from The Nuremberg Doll (Adam-Gauwin). **12.30,** Organ Recital by G. T. Desserre, relayed from the Gaumont Palace: Prelude (Rachmaninov); Quand vous chantez (Desserre); Selection from La Bohème (Puccini); Melody (Rainger). **1.0,** Exchange, News and Weather. **1.5,** Orchestral Concert (contd.): Overture, Les deux vieilles Gardes (Chabrier); Selection from Aphrodite (Février-Menton); Selection from Arsène Lupin Banquier (Lattes); Selection from The Blue Mazurka (Lehár-Bailly); Selection from Les Travaux d'Hercule (Terrasse). In the interval at **1.30,** Exchange. **2.0,** Exchange. **6.10,** Agricultural Report. **6.50,** German Lesson. **7.0,** Medical Talk. **7.20,** Concert of Old Time Music: Valse des brunes (Ganne); Cadet March (Sousa); Waltz, Wienerblut (Joh. Strauss); Tu-ra-ri-houm-de-ay (Turlet); Reverie d'automne (Ganne); La Czarine (Ganne); Romance (Lecocq); Mariska (Michiels). **7.50,** Commercial Prices and News. **8.0,** Fashion Review by Mlle. José. **8.15,** Concert by the B.B.C. Symphony Orchestra, relayed from **London.**

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.20 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from **New York.** **8.45,** Microphone Melody Makers. **9.0,** Teaberry Baseball Scores. **9.5,** Mid-week Musicale, from **New York.** **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Programme to be announced. **11.15,** Time Signal. **11.16;** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reder. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 3.15 a.m. (Thursday) New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15 a.m.,** The Townsend Murder Mystery. **12.30,** String Symphony. **1.0,** Eno Crime Clues. **1.30,** Tastyeast Jesters. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Adventures of Sherlock Holmes. **2.30,** Woodbury Programme—Donald Novis and Leon Belasco's Orchestra. **3.0,** Time Signal and Revellers' Quartet.

POREGRUND.—See **Oslo.**

MAY 17th WEDNESDAY *continued*

POZNAN

896 kc s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** See **Warsaw.** **6.50,** Press Review. **7.5,** Miscellaneous Items and News. **7.23,** Time Signal. **7.35,** See **Warsaw.** **8.0,** See **Vienna.** After the Programme, Sports Notes and News from Warsaw. **10.0,** See **Warsaw.** **10.15,** Time Signal, Sports Notes, and Police Notes. **10.30,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

PRAGUE

614 kc s, 488.6 metres; 120 kW.—**4.10 p.m.,** Concert by the Station Orchestra in Honour of the Norwegian National Festival, conducted by Otakar Parik: Carnaval à Paris (Svendsen); Little Norwegian Suite (Schjelderup); Norwegian Rhapsody No. 1 (Halvorsen); Norwegian Dances Nos. 2 and 3 (Grieg). **5.0,** Talk on Economics. **5.10,** See **Moravská-Ostrava.** **6.5,** Agricultural Talk. **6.15,** Talk for Women. **6.25,** News in German. **6.30,** German Transmission: Talk for Workers, Talk on Liberty and Labour Market Report. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** See **Brno.** **7.30,** See **Moravská-Ostrava.** **8.5,** Almost a Novel!—Variety Programme by the Station Orchestra, conducted by Otakar Parik. Soloists: J. Krepelka and L. Uhlir (Songs). **8.40,** The Development of the Pianoforte Sonata—Recital by Jan Herman, with Explantaory Notes by Dr. J. Brauberger. **9.0** (in the interval), Time Signal. **9.15,** Reading. **9.30,** Ludomir Rozycki Concert by the Ondricek Quartet: Aria from Beatrix Cenci; Four Songs and Waltz from Casanova; Pianoforte Quintet in C Minor, Op. 35. **10.0,** Time Signal. **10.15,** News Bulletin. **10.30,** News in French for Foreign Listeners. **10.45** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc s, 760 metres.—7.0 p.m.** (from **Lausanne**), Agricultural Talk. **7.30** (from **Lausanne**), Programme for the Seventy-fifth Anniversary of the Unions cadettes romandes: Songs and Address. **8.0,** Concert by the Station Orchestra. **8.50** (from **Geneva**), The Week's Review. **9.0** (from **Geneva**), Concert by the Thoyerbuebe Vodelling Club, an Accordion Band and Mme. Martha Renbi (Songs). **9.50,** News and Weather Forecast. **10.0** (from **Geneva**), Talk: The Work of the League of Nations. **10.10** (from **Geneva**), Dance Music by the Broadcasting Serenaders. **11.0** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**5.0 p.m.,** Orchestral Concert of Operetta Music, conducted by A. Parups: Overture, Franz Schubert (Suppé); Waltz, Du und du (Joh. Strauss); Selection from The Merry Widow (Lehár); Waltz from Die Bajadere (Kálmán); Selection from The Flower of Hawaii (Abraham). **6.0,** English Lesson. **6.30,** Agricultural Talk. **7.0,** Weather Report. **7.5,** Orchestral Concert of German Music, conducted by J. Medins. Soloist, Eduards Vinerts (Violin): Divertissement No. 2 (Mozart); Concerto in E Minor for Violin (Mendelssohn); Overture, Rosamunde (Schubert). **9.0,** News. **8.20,** Aria and Song Recital by Biruta Jurjans: Aria from I Puritani (Bellini); Widmung (Schumann); Petrarch Sonnet (Liszt); Canzonetta from Salvator Rosa (Gomez). **8.40,** Orchestral Concert of Latvian Music, conducted by J. Medins. In the interval at **9.0,** Weather and News. **9.30,** Dance Music. **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.—1.10 to 2.15 p.m.,** Orchestral Concert: Uno, due, tre (D'Anzi); Selection from Where the Lark sings (Lehar); Song (Wallace); A Wedding Trip (May); Vorrei morire (Tosti); Marilena (Tagliferri); Piano fobbricitante (Escobar); Serenita (Petralia); Carovana (Amadei); I casi sono tre (Mariotti). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange, Report of the Royal Geographical Society, and Giornale Radio. **5.30 to 6.15,** Orchestral Concert: La belle unghcrese (Ros Rot); Ottobrata (Giampietro); Selection from Clo Clo (Lehár); Pianoforte Solo, Valzer capriccio (Napoli); Let's be good friends (Roland); Caccia (Longo); Scherzo (Martucci); Mi piacerebbe, ma (Ravasini). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **6.57,** Report of the International Institute of Agriculture (in Italian and Spanish). **7.10,** Tourist Report. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Gramophone Records of Light Music. **8.15,** Medical Talk. **8.30,** Giornale Radio and Sports Notes. **8.45,** Siberia—Opera in Three Acts (Giordano). In the intervals, Talk: The Miracles at Lourdes, and Theatre Notes. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.43 metres** and by **W2XAD** on **19.56 metres.—8.0 to 9.0** (approx.), **New York** Relay. **8.0,** Pop Concert. **8.30,** Texas Cowgirl. **8.45,** Charis Musical Review. **11.45,** Stock Reports. **12 Midnight to 1.15 a.m. (Thursday), New York** Relay. **12 Midnight,** Royal Vagabonds. **12.30,** Woodbury Programme. **1.0,** Band of Famous Brands. **1.15,** Rocking Chair Memories. **1.30,** General Electric Programme. **2.0 to 3.0 a.m.** (approx.), **New York** Relay. **2.0,** Corn Cob Pipe Club of Virginia. **2.39,** Dance Hits of Yesterday, followed by Programme Resumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m.,** Time Signal from Neuenburg Observatory and Weather. **12.5 p.m.** (from **Berne**), Popular Music on Gramophone Records. **12.30,** News Bulletin. **12.40** (from **Berne**), Concert. **1.25** (from **Berne**), Exchange, Time, and Weather. **1.30 to 5.0,** Interval. **5.0** (from **Berne**), Programme for Children. **5.30** (from **Berne**), Variety Music on Gramophone Records. **6.30** (from **Zürich**), Talk: Ferdinand Hodler, on the Twenty-fifth Anniversary of his Death. **7.0** (from **Zürich**), Time, Weather, and Market Prices. **7.10** (from **Zürich**), Popular Music on Gramophone Records. **7.30** (from **Zürich**), English Lesson. **8.0** (from **Zürich**), Concert by the Swiss Radio Orchestra. **9.0,** Weather and News. **9.10** (from **Zürich**), Programme to be announced. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Accordion Music. **5.45,** Popular Music on Gramophone Records. **6.45,** With Navigation Chart and Compass—a Sketch (Sigurd Sternvall). **7.15,** Weather and News. **7.30,** Talk: Sweden's Commercial Relations with Foreign Countries. **8.0,** Concert by a Salvation Army Band. **9.0,** Talk: The Rocks and Islands on the Coasts of Sweden. **9.20,** Song Recital by Ester Berggren. **9.45,** Weather and News. **10.0,** Dance Music by the Enders Orchestra, 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 Classical Music. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Gramophone Concert of Light Music. **2.0 to 4.45,** Interval. **4.45,** Talk in German: The Electrical Apparatus most commonly used. **5.0,** Orchestral Concert, conducted by Roskam: March, Granada (Garcia); Waltz, The Wedding of the Winds (Hall); Minuet, Gracieux page (Delannay); Overture, Haydée (Auber); Selection from La Favorita (Donizetti); Serenade, Il Bacio (Micheli); Dance Suite (Pierné); Selection from Lilac Time (Schubert). **6.0,** Trio Concert, relayed from **Lille, 1,130 kc s (265.4 metres).** **7.0,** Legal Talk in French. **7.15,** Light Music on Gramophone Records. **7.30,** Time and News. **7.45,** See **Paris (Eiffel Tower).** **8.15,** Press Review in German and Lottery Results. **8.30,** Concert by Pupils of the Conservatoire, relayed from **Metz**: Piece in B Flat for Oboe (Busser); Rhapsody No. 11 for Pianoforte (Liszt); Concerto for Violin (Bruch); Fantasia for Flute (Fauré); Air from Sappho (Massenet); Impromptu for Trombone (Bizet); Romance for Viola (Bruch); Impromptu for Cornet (Monquet); Ballad for Bassoon (Bachelet); Concerto for Pianoforte (Mendelssohn); Concerto No. 3 for Violin (Vieuxtemps); Larghetto for Horn (Chabrier); Aria from Lucia di Lammermoor (Donizetti); Fantasia for Clarinet (Lefèbrev); Fantasia in F for Pianoforte (Chopin); Spanish Symphony (Lalo). In an interval at **9.30** (approx.), Press Review in French. **11.0,** Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc s, 570 metres.—12 Noon,** Gramophone Concert. **1.15 p.m.,** Time, News, Weather and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0,** Programme arranged by the Post Office, with Gramophone Records. **2.0 to 2.15** (from **Freiburg**), Programme arranged by the Post Office, with Gramophone Records. **4.0,** Programme for Children. **5.0,** See **Munich.** **5.50,** Time, Weather and Agricultural Notes. **6.0,** Talk: The Trouble in the Far East. **6.25,** Talk: Modern Italy—the Agrarian Plan. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Breslau.** **8.0,** See **Frankfurt.** **9.0,** Alle Vögel sind schon da—A May Programme arranged by Martin Lang. **9.40,** String Quintet No. 2 in G, Op. 111 (Brahms) by the Wendling Quartet, and Professor Wendling (Pianoforte). **10.10,** Time, News, Weather and Programme Announcements. **10.45,** See **Munich.** **12 Mid night** (approx.), Close Down.

SUNDSVALL. See **Stockholm.**

TOULOUSE

779 kc s, 385 metres; 8 kW.—Transmissions irregular owing to fire. **7.30 p.m.,** Operatic Music: Selections from Tannhäuser (Wagner) and Boris Godounov (Mussorgsky), and The Tales of Hoffmann (Offenbach). **7.45,** Music by a Viennese Orchestra. **8.15** Operetta Music: Melodies from Le Comte Obligado (Moretti); La Péricholе (Offenbach) and La Poupe (Audran). **8.30,** Hawaiian Guitar Solos. **8.45,** Operatic Music. **9.0,** Concert by the Philharmonic Society. Light Music in the intervals. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Popular Melodies. **11.15,** Bal musette. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. Choral Concert: Grand Opera Favourites; Selection from The Maid of the Mountains (Fraser-Simson); Selection from Marigold (Mayerl); Song of the Dawn, from The King of Jazz; Ol' Man River, from Show Boat (Kern); Selection from Bitter Sweet (Noel Coward). **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m.** (Thursday), Orchestral Music. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW.—**5.10 to 6.10 p.m.,** Vocal and Instrumental Concert; Soloists: Lydia Bulaich-Zeller (Violin) and Gemma Baruch (Mezzo-soprano): Concerto in A for Violin with String Accompaniment (Lolli); Sento nel core (Scarlatti); M'ha preso alla sua ragna (Paradies); Songs (Schumann): (a) Lied der Braut, (b) Widmung; Violin Solo: Air on the G String (Bach); Songs: (a) Der Tod dass ist die kühle Nacht, (b) Three Songs from Notturni (Nacamuli). **6.35** till Close Down, See **Turin.**

TRONDHEIM—See **Oslo.**

TURIN

1,096 kc s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc s, 331.5 metres; Genoa, 959 kc s, 312.8 metres;** and **Florence, 599 kc s, 500.8 metres.—5.10 to 6.10 p.m.,** Soprano and Tenor Song Recital. **6.35,** Giornale Radio Agricultural Report and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Songs on Gramophone Records. **7.20,** Giornale Radio. **7.45,** Popular Music on Gramophone Records. **8.0,** Announcements, Giornale Radio, and Weather. **8.15,** Medical Talk. **8.30,** A Comedy in Three Acts. After the Comedy, Popular Music on Gramophone Records. **11.0,** Giornale Radio. **11.5 to 11.30 (Florence),** Dance Music Relay.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc s, 352.1 metres; Innsbruck, 1,058 kc s, 283 metres; Klagenturt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc s, 218.5 metres.—6.30 p.m.,** Medical Talk: Care of the Feet. **7.0,** Talk for Workers. **7.25,** Solution of the Prize Competition of Saturday, April 15: Who is the Author? **7.30,** Reading: Eine Phantastische Seegeschichte (Paul Jakob). **7.50, Time,** Weather Forecast, Alpine Weather and Programme Announcements. **8.0,** Brahms Festival, relayed from the Music Society's Hall: A German Requiem, Op. 45; Conductor: W. Furtwängler. The Vienna Symphony Orchestra and the Gesellschaft der Musikfreunde. Soloists: Adelheid Arnhold (Soprano), H. H. Nissen (Baritone), Franz Schütz (Organ). **9.45,** News, Weather Forecast and Market Prices. **10.0,** Concert by a Schrammel Trio and Soloists, from the Hotel Krantz-Ambassador.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather. **1.25,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.30,** Scout Report. **3.35,** Programme for Children. **4.0,** Light Music on Gramophone Records. **4.40,** Reading. **5.0,** Popular Music on Gramophone Records. **5.40,** Talk on Insurance for Business People. **5.55,** Programme Announcements. **6.0,** Violin Recital by Ede Zathureczky. In an interval, News. **6.50,** Miscellaneous Items. **7.10,** Agricultural Correspondence. **7.20,** Recitations. **7.35,** Radio Journal. **7.45,** Talk on Brahm's Requiem. **8.0,** See **Vienna.** **10.0,** Topical Talk. **10.15,** Popular Music on Gramophone Records. **10.35,** Talk in Esperanto, relayed from **Cracow, 959 kc/s (312.8 metres).** **10.55,** Aviation Weather Report and Police Report. **11.0,** Dance Music, relayed from the Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

MAY THE EIGHTEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	"The Bottle Imp," a play from the story by R. L. Stevenson.
LONDON REGIONAL	Act 2 of "Parsifal" (Wagner), from the Royal Opera House, Covent Garden.
MIDLAND REGIONAL	Worcester City Schools' Musical Festival.
NORTH REGIONAL	"A Dose of Physic," a comedy by Margaret Cropper.
WEST REGIONAL	Three Valleys Festival, from the Pavilion, Mountain Ash.
SCOTTISH REGIONAL	The Foundations of Scottish Poetry: Sir David Lyndsay.
BELFAST	Orchestral concert: The Music of Leslie Stuart.

ABROAD

BRESLAU	8.45 p.m. Acts 2 and 3 of "Tannhäuser," by Wagner.
BUDAPEST	8.15 p.m. Finals of the Liszt international competition for pianists.
HILVERSUM	8 p.m. Requiem by Fauré.
LANGENBERG	4.30 p.m. German chamber music.
PALERMO	9.45 p.m. Comedy: "Nicoline and Nicoletta," by Tiranti.
PRAGUE	8.15 p.m. Programme commemorating the First Broadcast from the Prague Station.
STRASBOURG	8.45 p.m. The Municipal Orchestra, conducted by E. G. Munch.
TURIN	8.30 p.m. Opera: "Germania," by Franchetti (relayed by **Florence, Genoa, Milan, and Trieste**).
VIENNA	9 p.m. Modern German music.

ATHLONE

725 kc/s, 413 metres; 60 kW; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.40,** News and Dublin Cattle Market Report. **7.0,** French Lesson. **7.15,** Talk: The Glass Dancers of Sunastra. **7.30,** Irish Music by the Station Orchestra. **7.50,** Anglo-Irish Songs by P. J. O'Toole (Tenor). **8.5,** Traditional Fiddle Solos by S. O'Mathghamhna. **8.20,** Duets for Two Violins by E. G. Buckley and Jeanne Russell. **8.40,** Songs from Light Operas by Mabel Thrift (Soprano). **8.50,** Selection from Musical Comedy by the Station Orchestra. **9.10,** Musical Comedy Songs by Mabel Thrift (Soprano). **9.20,** Light Opera Selection by the Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Educational Talk in Catalan, relayed from the University. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra. **10.30,** Recital of Flamenco Songs. **11.0,** Es mi Hombre—Play in Three Acts (Arniches). In the interval at **12 Midnight,** News. **1.0 a.m. (Friday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 p.m., Talk for Women. 6.0 to 6.30,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.40** (approx.), Military Band Concert, conducted by Salvatore Rubino: Overture, The Barber of Seville (Rossini); Selection from A Masked Ball (Verdi); Selection from L'Historie d'un Pierrot (Costa); Symphonic Intermezzi, Agamemnone (Pizzetti); Selection from Tosca (Puccini); Symphonic March, Gloria d'eroi (La Rotella). In the interval, Literary Notes. **10.30,** Concert, relayed from the Grand Hotel Moderno. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.30 p.m.,** Orchestral Concert Yugoslav Music. **6.25,** Time and Programme Announcements. **6.30,** Dialogue in French. **7.0,** Light Music on Gramophone Records. **7.30,** Talk. **8.0,** See **Ljubljana. 10.0,** News, followed by Concert from the Imperial Hotel.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.5 p.m.,** Descriptive Pieces on Gramophone Records, followed by Weather for Farmers. **12.55,** Time Signal. **1.45,** News. **2.0,** Variety Music on Gramophone Records. **2.45,** Programme for Children. **3.10,** Radio Report from the Zoological Gardens. **3.30,** Weather and Exchange. **3.45,** Reading (G. Britting). **4.0,** Popular Music on Gramophone Records. **4.30,** Concert from **Berlin (Witzleben). 5.0,** Talk for Women. **5.10,** Talk: Crime and Heredity. **5.35,** Trio in G Minor for Clarinet, 'Cello, and Pianoforte (Berger). **6.0,** A Poem. **6.5 p.m.,** Folk Songs to the Lute by Emil Kühne. **6.30,** Agricultural Talk. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Stuttgart. 8.50,** Agricultural Talk. **9.15,** See **Stuttgart. 10.10,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Langenberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by the Ferdy Kauffmann Quintet: Minuet (Schubert); Two Duets: (a) Wo wahr die Sonne scheinet, (b) Schön Blumélein (Schumann); Serenade for two Violins and Pianoforte (Ottmar Gerster); Duets: (a) In Sternennacht, (b) Verratene Liebe (Peter Cornelius); Abendlied (Willi Lautenschläger); Duets: (a) Wiegenlied, (b) O wunderbares Menschenherz (Peter Voelkner); German Dances (Reger). **5.10,** Pianoforte Sonata in G Minor, Op. 22 (Schumann), by Gerd Nette. **5.30,** Dialogue: Through Berlin—German Destiny as portrayed in the Museum for Marine Research. **5.50,** Concert by the Ferdy Kauffmann Quintet (contd.): Two Pieces (Friedrich Herrmann): (a) Canzonetta, (b) Scherzo for three Violins; Duets (Hanns Herrmann): (a) Blätterfall, (b) Wellen; Waltz, Die Romantiker (Lanner); Madrigalett (Hans Bullerian); Two Pieces from Hansel and Gretel (Humperdinck). **6.30,** Talk on Magdeburg. **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations—Neurode—a Radio Play (Kurt Heynicke). **8.5,** Announcement. **8.10,** Concert of Old Berlin Dance Music by the Otto Kermbach Band and Soloists. In the interval: Music of the Streets. **10.0,** Weather. News and Sports Notes, followed by Light Music from the Tiergarten. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.40 p.m.,** Talk arranged by the International Labour Bureau. **7.55,** Lottery Results. **8.0,** Talk on Wine. **8.15,** News Bulletin. **8.30,** Le trouble-fête—Play in Three Acts and an Epilogue (Fleg).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.40 p.m.,** Light Music on Gramophone Records. **6.55,** Talk for Women. **7.0,** See **Prague. 7.10,** Talk on Art. **7.25,** See **Moravská-Ostrava. 8.0,** See **Prague. 10.15,** See **Brno. 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.—11.30 a.m.,** Concert by the Silesian Philharmonic Orchestra, conducted by Hermann Behr. **1.10 p.m.,** Weather for Farmers. **1.15,** Concert by the Silesian Philharmonic Orchestra: Overture, The Thieving Magpie (Rossini); Polka, Herzenseintracht (Suppé); Rondo (Kaun); Waltz, Roses from the South (Joh. Strauss). **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Concert of Music by Verdi. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Tourist Talk: The Annaberg. **3.50,** Book Review: Young People seen in Novels. **4.10,** Songs of Spring, arranged by Käte Schmitz. Käte Mann (Soprano), Käte Schmitz (Lute), Bruno Janz (Violin), Otto Scholz (Viola), Karl Greulich ('Cello), R. Schicke (Flute), R. Graund (Clarinet), and R. Birke (Oboe). Wir tanzen im Maien (c.1780); O der schöne Maienmond (Reichardt); Seht den Himmel, wie heiter (Schulz); Two Pieces for Lute: (a) Tourdion (Attaignaut), (b) Saltarello (Gerle); Alle Wiesen sind grün (Silesian Folk Song); Heut soll das grosse Flachsernten sein (Swedish Folk Song); Instrumental Piece (Schmitz); Mein jung frische Herz ist hoch erfreut (16th Cent.); Wach auf, mein Herzens Schöne zart (c. 1555). **4.40,** Programme for Children. **5.0,** Concert by the Station Orchestra, conducted by Franz Marszalck: Overture, Martha (Flotow); Sextet from The Bartered Bride (Smetana); Waltz, Nilflüten (Jos. Strauss); Potpourri of the Music of Wagner (Morena). **5.40,** Talk: Religious Feeling in the Poetry of Novalis. **6.5,** Programme to be announced. **6.20,** Reading. **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** 'Cello Recital by Carl Greulich. **8.45,** Acts II and III of Tannhäuser—Opera (Wagner), relayed from the Municipal Theatre. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Talk: Wireless Announcers needed! **10.50,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by Janota. Soloist: Hynek Kaslik (Flute); Concert Overture No. 3 in D; Calm Sea and Prosperous Voyage (Mendelssohn); Scherzo in B flat (Schubert); Concerto for Flute and Orchestra, Op. 98 (Hofmann); Prelude in C (de Massij; Polka and Festival March (Modr); Waltz-Boston (Provaznik); Spanish Intermezzo, Señorita (Friml); March (Volanek). **5.10,** News for Young People. **5.20,** Programme for Children. **5.50,** Talk: Students' Spring Festivals. **6.0,** Literary Review. **6.15,** See **Prague. 6.25,** German Transmission: News, and Talk. **7.0,** See **Prague. 7.25,** See **Moravska-Ostrava. 8.0,** See **Prague. 10.15,** Schrammel Concert. **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 P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Light Music on Gramophone Records. **5.0,** Gramophone Records of Sound Film Music: Extracts, the Dreigroschenoper (Weill), and Il est charmant (Moretti). **5.30,** Programme for Children. **6.0,** Cookery Notes. **6.15,** Gramophone Records: Aria (Lotti); Navarra (Albéniz); Legend (Wieniawsky); Etude in F Minor (Liszt); Renonce à ton rêve orgueilleux from Les Saltimbanques (Ganne); Allelnia from Mam'zelle Nitouche (Hervé); L'adjutant et sa monture from Le cœur et la main (Lecocq); Parmi tant d'amoureux and Cours mon aiguille from Les Noces de Jeannette (Massé); Chorus and Cortège from Act Four of Carmen (Bizet); Sketches (Bach-Laverne): (a) A propos d'clous, (b) Chez le magnétiseur, (c) Au garage, (d) Chez le x pédicure, (e) Boulou-boulou, (f) Le fanfare de Mouillepot. **7.15,** Talk for Workers. **7.30,** Sports Notes. **8.0,** Concert by the Station Symphony Orchestra, conducted by Arthur Meulemans. Part I—Wagner Programme. Overture, The Mastersingers; Siegfried Idyll; The Ride of the Valkyries. **8.45,** Talk. **9.0,** Concert. Part II—Massenet Programme. Overture, Phèdre; Scènes napolitaines; Interlude by Jean Charlier; Gavotte and Minuet from Manon; Extracts from Hérodiade. **10.0,** Le Journal Parlé. **10.15,** Gramophone Concert. Part I—Operetta Music. Selection from Dédé (Christiné); Duet from Miss Decima (Audran); Selection from The Merry Widow (Lehár); Aria from Le Grand Mogol (Audran); Selection from Rose Marie (Friml). Part II—Ultra-Modern Music.

BRUSSELS (No. 2)

N.I.R., 887 kc s, 338.2 metres; 15 kW.—**12 Noon,** Tchaikovsky Concert on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **5.0,** Concert by the Station Orchestra, conducted by Charles Walpot. Soloist: J. Sterbens (Tenor). Waltz Suite (Tellam); Overture, The Merry Wives of Windsor (Nicolai); Four Indian Love Lyrics (Woodforde-Finden); Songs (Beethoven): (a) Adelaïde, (b) Aria from Fidelio; Melody (Gervasio); Violin Solo: Czardas (Monti); Turkish March (Mozart). **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: J. Sterkens (Tenor). Norwegian Dances (Grieg); Aria from The Magic Flute (Mozart); Potpourri, Mosaic (Zimmer); Liebestraum (Liszt); Minuet (Mozart); Finale from Le Carnaval des animaux (Saint Saëns). **7.15,** Film and Book Review. **7.30,** Talk for Women. **8.0,** St. Elisabeth—Oratorio (Jos. Haas), by the Symphony Orchestra, Choirs and Soloists. **10.15,** Evening Prayer. **10.20,** Le Journal Parlé. **10.35,** Die Fledermaus—Opera (Joh. Strauss)—Concert Version on Gramophone Records.

BUCHAREST

761 kc s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Dinico Orchestra. In the interval at 6.0, Radio Journal. **7.0,** Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Saxophone Solos by Sigismund Seidmann. **8.30,** Talk. **8.45,** Sonata for Violin (Franck). **9.15,** Sonata in B minor for Pianoforte (Chopin). **9.45,** Radio Journal.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **6.40 p.m. to 12 Midnight.—5.30 p.m.,** Song Recital by Gisella Goda. **6.0,** Talk. **6.30,** Talk with Gramophone Illustrations: Asia. **7.45,** Talk. **8.15,** Finals of the Liszt International Competition for Pianists. Racing Results in the interval. **10.15,** News Bulletin. **10.30** (approx.), Orchestral Concert conducted by Otto Berg: Overture, Susanna's Secret (Wolf-Ferrari); Suite (Radnai); Valse triste (Sibelius); Ukrainian Pictures (Akimenko); Wedding March (Szeremi); Overture (O. Straus); Potpourri (Szabados). **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 3.0,** Interval. **3.0,** Concert by the Station Orchestra, conducted by Launy Grondahl. Soloist: Otto Malherbes Jensen (Violin). **5.0,** Programme for Boys. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: How to protect the Home against Fire. **6.20,** English Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on the Unemployed. **8.0,** Chimes from the Town Hall. **8.5,** Concert of Finnish Music, relayed from the Axelborg Studio. The Station Orchestra, conducted by Dr. Toivo Haapanen. Finnish Rhapsody (Linnala); Folk Melody for Strings (Madetoja); Symphonic Poem, The Swans (V. Ranta); Concertino for Strings and Pianoforte (S. Ranta); Selection (Klami); Two Folk Melodies for Strings and Pianoforte (Klami); Largo misterioso (Merikanto); Tone Poem, En Saga (Sibelius). **9.20,** A Visit to Rosenborg Castle—a Radio Sequence. **9.50,** Gramophone Concert: Lotte Lehmann: Desdemona's Aria from Othello (Verdi); Beniamino Gigli: Cavatine from the Third Act of Faust (Gounod); Emmi Leisner: Delilah's Aria from the Second Act of Samson and Delilah (Saint-Saëns); Tancredi Pasero: Mephistopheles' Aria from Mephistopheles (Boito); Figaro's Cavatina from the First Act of The Barber of Seville (Rossini). **10.10,** News. **10.25,** 'Cello Recital of Offenbach Music by Rudolf Dietzmann and Volmer Norup; Duo concertant in D, Op. 34, No. 1, Andante-Scherzo from the Duo Concertant in A, Op. 34, No. 3. **10.55,** Dance Music, relayed from the Arena Etablissement. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.30 a.m. (Friday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0,** Programme in English by the I.B.C., T. St. A. Ronald, C. Danvers-Walker, and B. McNabb announcing. **5.30,** Pianoforte and Song Recital for Worthing and Littlehampton

Listeners: Rustle of Spring (Sinding); The First Waltz (Durand); Alice where art thou? Songs: (a) McLeod's Galley (Kennedy-Fraser), (b) O Whistle and I'll come to you (Stephen); Wasps (Holbrooke); Romania (Holbrooke); Songs: (a) Ave Maria (Mascagni), (b) Song (Coleridge-Taylor); Liebestraum (Liszt); In the Gloaming (Harrison); Prelude in C Sharp Minor (Rachmaninov). **6.15,** Concert for Brighton and Hove Listeners: Selections from Shows: Wonder Bar (Katscher); Selection from The Show Boat (Kern); Airs from The Maid of the Mountains (Fraser-Simson): (a) Live for To-day, (b) A Bachelor Gay; Selection from (a) Waltzes from Vienna (Joh. Strauss), (b) White Horse Inn (Stolz-Benatzky); The Night was made for Love, from The Cat and the Fiddle (Kern); Selection from The Dubarry (Millocker-Mackeben). **7.0,** Radio Gazette. **7.20,** News. **7.30,** Light Music on Gramophone Records. **7.45,** The Listeners' Half-Hour and News. **8.30 till 10.0,** Programme relayed from the Town Hall, **Rouen.** **8.30,** Book-keeping Lesson and Literary Review. **8.45,** Vocal and Instrumental Concert. **10.0,** Dance Music by the Ibcolians: Say it isn't so; Wanderer; How'm I doin'? Let's all sing like the Birdies sing; The Old Man of the Mountains; Try a Little Tenderness; Let's put out the Lights; When the Morning rolls around; Let's all dance the Polka; We will always be Sweethearts; Hummin' to Myself; What would you do? How are you? Night shall be filled with Music. **11.0,** Organ Recital: Overture, Poet and Peasant (Suppé); Bells across the Meadow (Ketelbey); To a Wild Rose (MacDowell); Minuet antique (Watling); Le cygne (Saint-Saëns); Waltz Suite No. 3 (Coleridge Taylor); Schön Rosmarin (Kreisler). **11.30,** Vocal Concert: My Ain Folk (Lemon); Silver Threads among the Gold (Danks); Three Fishers went Sailing (Traditional); Quartet, Molly on the Shore (Grainger); On the Banks of Allan Water (Horn); Love's Old Sweet Song (Molloy); Caller Herrin' (Traditional); Quartet, Cherry Ripe (Traditional). **12 Midnight,** Club Concert for Sutton and Surbiton Listeners: The Mad Major (Alford); Songs: (a) Wonderful you, (b) When the Lilac blooms again; Magic Notes (Steininger); Duets: (a) Paradise, (b) Keeping out of Mischief; The Whistler and his Dog (Pryor); Songs: (a) Every little Kindness, (b) Try a Little Tenderness; Happy Feet; Duets: (a) A Paradise for Two (Fraser Simson), (b) My Life is Love (Fraser Simson); Selection from San Toy (Monckton). **1.0 a.m. (Friday),** Banjo Solos: Medley of Popular Airs; Heather Bloom; The Buffoon; The Wedding of the Painted Doll; Vocal Duets: (a) Adeline, (b) Sweeping the Clouds away; Riverside; Selection from Faust. **1.30,** Songs and Pianoforte Duets; The First Week-end in June (Ellis); I'm in the Market for you (Hanley); Sweet Temptation (Young); Pianoforte Duets; Selection from Bow Bells (Sullivan); I fell for you (Walker); Just like in a Story Book (Hanley); Who Cares? (Hackworth); Pianoforte Duet: Selection from The Cat and the Fiddle (Kern). **2.0,** Dance Music by the Ibcolians: Two Little Blue Little Eyes; That's when I learned to love you; I love you, believe me I love you; Gipsy Dream Rose; My Heart belongs to the Girl who belongs to Somebody Else; The Moon is Low; Beside an Open Fireplace; Kitty from Kansas City; Reminiscing; My Cigarette Lady; I still remember; It must be you; Mary I love you; If I had a Girl like you; Just a little closer. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m.,** Concert by a Nazi Band: Birthday March (Kühnle); Procession to the Minster from Lohengrin (Wagner); Ein Blütenkranz (Weber); Aufzug der Stadtwache (Jessel); Deutscher Sang (Hannemann); Badenweilermarsch (Fürst). **5.50,** Economic Notes. **6.0,** Talk: Goethe and the French Revolution. **6.30,** Talk: Hunting Wild Horses in Germany. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** See **Stuttgart. 9.15,** Popular Music on Gramophone Records. **10.0,** A German Almanac. **10.15,** Time, News, Weather, and Sports Notes.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **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. **6.40,** Talk for Country Women. **6.45,** Frankfurt Exchange. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0** (from **Hanover**), Ehrn Sackmann predigt!—Radio Scenes from the Life of the Strange Hanoverian Preacher, Jobst Sackmann (1718). **9.10** (from **Hanover**), Lower Saxony in Music—Concert by the Symphony Orchestra of Unemployed Musicians: Overture, Waldleben (Kücken); Was mir der Wald erzählte (Leonhard); Geheimnisvoller See (Schroeder); Scherzo, Sonnenkind und Wolkenmann (Clemns); Weserwogen-Walzer (Meyer-Stolzenau); March, Wo der Böhme Fluten rauschen (Ritzau). **10.10,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.20,** Topical Talk. **10.30,** Concert of Folk Music by the Erisch voran Mandoline and Guitar Orchestra and the Station Chamber Orchestra. Soloist, Heinrich Niederlitz (Concertina); Potpourri of Modern Viennese Folk Music (Komzak); Mandoline and Guitar Orchestra: Selection from Boccaccio (Suppé); Concertina Solo, Einzug der Frühlingskinder (Niederlitz); Mandoline and Guitar Orchestra: Waltz, Twilight (Sartori); Concertina Solo, Tanz der Kobolde (Niedertitz); Mandoline and Guitar Orchestra: March, Junges Blut (Blum); Three Bavarian Dances (Pachernegg).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW; and **Danzig, 622 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. In the interval at **1.20** News. **2.30 to 3.0,** Interval. **3.0,** Agricultural Prices and Exchange. **3.30,** Programme for Young People. **4.0,** Book Review. **4.20,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. Overture, Le roi d'Yvetot (Adam); Träumerei (Schumann); Schlummerlied (Schumann); Faust Waltz (Gounod); Rhapsody No. 9 (Carnaval de Pesth (Liszt); Serenade, Op. 7 (R. Strauss); Ländler (Pachernegg). **5.45,** Talk: The Prevention of Blindness and the Education of the Blind. **6.15,** Agricultural Prices. **6.25,** Agricultural Talk. **6.50,** Weather. **7.0,** Transmission for all German Stations: relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Elbing Mandoline and Guitar Society. **8.30,** Gallische Hörner—Radio Play (D'Haussonville and Ludwig von Wohl). **9.25,** Recital of Old German Folk Song Duets by Käthe Grundmann (Soprano); and Toni Scholtz (Contralto). **9.50,** Elementary English Lesson. **10.15,** News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep. **11.41 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep. **12.40 p.m.,** Good Will Day Celebration Programme. **1.0,** Orchestral Concert (contd.): In the Mystic Land of Egypt (Ketelbey); March (Becker); Selection from Les Saltimbanques (Ganne); Elfengeflüster (Rhode); Pavlova (Meyer-Helmund); Selection from Lilac Time (Schubert-Berté); Quand l'amour meurt (Crémieux); March, Stars and Stripes (Sousa). **1.55,** Interval. **2.10,** Violin and Pianoforte Recital by Boris Lensky and Egbert Veen: Sonata in B Sharp Minor (Borghi); Serenade from Frasquita (Lehár); Les graces naturelles (Comperin-Flesch); Sicilienne (Paradis-Dushkin); Gavotte (Glück-Flesch). **2.40,** Dressmaking Lesson. **3.25,** Popular Music on Gramophone Records. **3.40,** Programme for Hospitals. **4.10,** Song and Pianoforte Recital by Henriette van Breemen and Etty Nichoister: Des Fischers Liebesglück (Schubert); Der Nussbaum (Schumann); Träume (Wagner); Ständchen (R. Strauss); Elegy (Dupare); Au pays où se fait la guerre (Dupare); Mandoline (Debussy). **4.40,** Programme for Children. **5.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, Die schöne Galathée (Suppé); Selection from The Pearl Fishers (Bizet); Am stillen Herd (Wagner); Hofballtänze (Lanner); Elegy (Filipucci); Evening Festival in Havanna (Siede); Chinese Street Serenade (Siede); In the Shadows (Finck); Trepak (Bullérian); Variations on 's kommt ein Vogel geflogen (Reckteuwald); Gavotte Caprice (Bortkievicz); Selection from Les cloches de Corneville (Planquette); March, Spring (Blon). In an interval at **6.10,** Sports Talk. **7.5,** Intermezzo. **7.10,** Talk on Advertising. **7.40,** Time and News. **7.45,** Talk. **8.0,** Requiem (Fauré), by the Utrecht Municipal Orchestra, Choir, and Soloists. **8.55,** Radio Play. **9.40,** Concert of Light Music by Kovacs Lajos and his Orchestra. Soloist: Bob Scholte (Songs). In an interval at **10.40,** News. **11.40** (approx.), Close Down.

HORBV.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**10.20 a.m. to 1.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **10.20,** Gramophone Records of Variety Music. **11.10,** Religious Address. **11.40,** Police Notes. **11.55,** Concert by the K.R.O. Orchestra, conducted by M. van 't Wond. **1.40** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **1.40,** Handicraft Lesson. **2.40,** Gramophone Records of Variety Music. **3.10 to 3.40,** Interval. **3.40,** Bible Reading. **4.40,** Violin Recital: Sonata da camera (Nardini); On Wings of Song (Mendelssohn); Gramophone Records; Andalusian Romance (Sarasate); Polonaise in D (Wieniavsky). **5.25,** Handicraft Lesson for Young People. **5.55,** Talk. **6.25,** Dressmaking Lesson. **6.40,** Police Notes. **6.55,** Religious Notes. **7.10,** Press Review. **7.40,** Concert of Popular Music. **8.40,** Talk. **9.10,** Concert of Orchestral and Organ Music: Festival Overture (Lentner); Suite, Quintessenzen (Morena); Waltz, Tales from the Vienna Woods (Strauss); Potpourri, Hallo Hallo Hier Wien (Morena); The Mill in the Black Forest (Ellenberg); Donausagen (Fucik); Heil Europa (Blon); Fantasia, Dream Pictures (Lumbye). In an interval from **10.0 to 10.10,** News. **10.40,** Gramophone Concert of Popular Music. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusements Guide, News, Financial Notes, and Racing Results. **8.10,** Talk on Fashions. **8.30,** Radio Concert. **9.0,** News. **9.15,** Radio Concert (contd.). **12 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Vocal and Orchestral Concert: Songs: (a) Vienna, City of my Dreams (Lockton), (b) I feel you near me, (c) Kathleen Mavourneen (Cranford); Grasshoppers' Dance (Buzzalossi); Songs: (a) The Song of Songs (Moya), (b) A Pair of Blue Eyes, (c) Killarney (Balfe); The Wedding of the Rose (Jessel). **12.30 a.m. (Friday),** Dance Music: Stevedore Stomp; Misty mornin'; The Dicty Glide; Saratoga Swing; I'm so in love with you; Washboards get together; Shout 'em Aunt Tillie; Kazoo. **12.57 a.m.,** I.B.C. Good-night Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.—6.15 p.m.,** Talk. **6.40,** Sonatina for Violin (Kunla). **7.5,** Talk. **7.30,** Concert by the Station Orchestra. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12.50 p.m.,** Weather, Time, and News. **1.0,** Concert conducted by Eysoldt. Soloist: Friedel Schröder (Soprano). In the interval at **2.0** (approx.), News. **2.30,** Sponsored Programme with Gramophone Records. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **3.50,** Notes on the Broadcasts for Schools. **4.0,** Educational Talk: Geography. **4.30,** Concert of Modern German Chamber Music. Angela Litterski (Soprano), Martin H. Steinkrüger (Pianoforte), and Paul Richartz (Violin): Pianoforte Solos (Haas): (a) Selection from Hausmärchen I, Op. 35, (b) Elegy No. 1 from Alte unnennbare Tage, Op. 42; Songs (Haas); (a) Eingang, and Schnen abends, from the Christuslieder, Op. 74, (b) Leises Lied, and Ständchen, from the Heimliche Lieder der Nacht, Op. 54; Heimat—Eight Pieces for Violin and Pianoforte (Schmid); Pianoforte Solos (Reger): (a) Gavotte from Aus meinem Tagebuch, (b) Air from the Träume am Kamin, Op. 143; Songs from Schlichte Wiese, Op. 76 (Reger): (a) Mittag, (b) Maiennacht, (c) Mein Schätzelein; Suite in A Minor, Op. 103a, for Violin and Pianoforte (Reger). **5.50,** Recitations. **6.0,** Talk: Fritz Renter's Westphalian Friend, Hermann Grashof. **6.25,** French Conversation. **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** News. **8.5,** Radio Report from the Münster Recruiting Office (on Gramophone Records). **8.30,** Brahms Concert by the Station Orchestra, conducted by Buschkötter. Soloist: Edwin Fischer (Pianoforte): Pianoforte Concerto in B Flat; Symphony No. 2 in D. **10.5,** News and Sports Notes. **10.30,** Serenade and Dance Music, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather and Time. **12.5 p.m.,** Song Recital on Gramophone Records. **1.0,** News. **1.15,** Concert of Operetta Music, on Gramophone Records, followed by News. **2.0,** Film Review. **2.40,** Zither Recital by Paul Renk. Serenade in G, Op. 65 (Haustein); Minnelied No. 4 (Albert); La Mulinconia (Albert); Gavotte in A Minor, Op. 54 (Haustein). **3.0,** Handwork for Children. **3.35,** Exchange Quotations and Market Prices. **4.0,** Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen. Festlicher Marsch (von Vignau); Overture, Il ritorno di Tobia (Haydn); Selection from The Merry Wives of Windsor (Nicolai); Talk: Touring in the Rennsteg District; Overture, Aladdin (Reinecke); Two Intradas for Strings (Hassler); Seven Dances (Frischenschlager); Overture, Der faule Hans (Ritter); Rigaudon in F Minor (Wachs); Carnaval à Paris (Svendsen). In the interval, Reading of Thuringian Stories. **5.50,** Economic Notes, Weather and Time. **6.0,** Talk for Taxpayers. **6.10,** Talk: Employees' Insurance. **6.45,** Programme to be announced. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Topical Talk. **8.10,** Jery und Bätely—a Play (Goethe) with Incidental Music by Erwin Dressel. **9.25,** News. **9.35,** Sonata for 'Cello. **10.50,** News and Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Italian Lesson. **7.30,** The Letter Box. **8.0,** Violin Recital by M. Rupel. **8.45,** Concert by a Vocal Quintet. **9.30,** Accordion Recital by M. Pilih. **10.0,** Weather and News. **10.15,** Vocal Quintet Concert (contd.). **11.0** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette. **8.30,** Symphony Concert, conducted by Pierre Lorraine; Soloist: Yves Darnes (Baritone): Ballet russe (Luigini); Baritone Solo, Evocation (Blanc-Dauphin); Andante (Missa); Aria from The Magic Flute (Mozart); Orchestral Suite, Muguette (Missa); Goodwill Day Transmission—Message from the Children of Wales to the Children of other Lands; Turkish March (Mozart); Baritone Solo, La Procession (Franck); Violin Solo, The Rain (David); Baritone Solo (Schubert); In the Harbour of Port Said (Armandola). After the Concert, Light Music and News.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, and Programme for Children. **9.15,** News Bulletin and Political Review. **9.30 to 10.0,** Interval. **10.0,** Lingnaphone English Lesson. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Spanish Celebrities before the Microphone—Laura Pinillos and Lino Rodriguez, followed by Violin Recital by Manuel Perez Diaz and Dance Music. **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.30 p.m.,** German Transmission: Two Talks. **7.0,** See **Prague. 7.25,** Programme of Silesian Folk Music. **8.0,** See **Prague. 10.15,** See **Brno. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Symphony Concert from the Radio Theatre. **9.0,** Weekly Review and Answers to Correspondence in French. **9.55,** Time Signal. **10.5,** News Bulletin.

MDTALA.—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, conducted by Erich Kloss: Overture, Prinzess Goldschuh (Rust); Irmelin Rose (Wolff); Suite, Finnish Lyric (Palmgren); Gärten im Frühling (Niemann); Waltz, Frühlingsbotschaft (Fucik); Selection from Paganini (Lehár); Serenade, Amalfi (Becce); March, Im Fluge der Zeit (Brückner). **5.45,** Agricultural Talk. **6.5,** Hansel and Gretel—Play (Wilhelm Busch) with Music by Rudolf Semler. **6.45,** Time, Weather and Agricultural Report. **7.0,** Transmission for all German Stations relayed from **Berlin (Witzleben). 8.0,** Recital of Brahms' Songs by a Vocal Quartet. **8.20** (from **Nürnberg**), A Soldier's Life—Humorous Programme. **9.15,** Symphony Concert by the Station Orchestra, conducted by Hans Winter. Soloist: Richard Staab (Pianoforte). Symphonic Burlesque, Wolkenkuckuckscheim (Beer-Walbrunn); Pianoforte Concerto in A (Liszt); Till Eulenspiegel's Merry Pranks (R. Strauss). **10.20,** Time Signal, Weather Report, News and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s,**

MAY 18th **THURSDAY** *continued*

447.1 **metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres; 5.0 p.m.,** Concert of Popular Music by the Station Orchestra, conducted by Hugo Kramm. **6.0,** German Lesson. **6.30,** Divine Service. **7.0,** Announcements, Weather and News. **7.30,** Chopin Pianoforte Recital by Rolf Brandt Rantzau. **8.0,** Time Signal. **8.1,** Agricultural Talk. **8.30,** Song Recital by Mme. Tibell Brekke. **9.0,** Reading. **9.20,** Sponsored Programme. **9.40,** Weather Forecast and News Bulletin. **10.0,** Topical Talk. **10.15** (from **Fredriksstad**), Choral Concert. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Agricultural Report and Giornale radio. **8.20,** Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Popular Songs. **9.45,** Nicolino and Nicoletta—One Act Comedy (Tiranti). After the Comedy, Songs. **10.55,** News Bulletin.

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 Review. **7.0,** Le Journal Parlé. **8.30,** Gramophone Concert. Part I—Mozart Programme: Concerto for Pianoforte and Orchestra; Sonata in C for Organ and Orchestra; Turkish March. Part II: Selection from Les Cloches de Corneville (Planquette); Melodies from No, No, Nanette (Youmans); Du und du (Strauss); Pluie d'or (Waldteufel); In a Pagoda (Bratton); Morena (Silesu); Potpourri of Marches (Ciere). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Le Journal Parlé. **7.0,** Programme for Children. **7.30,** Light Music on Gramophone Records. **8.0,** Agricultural Talk. **8.15,** Interval. **8.30,** Sponsored Programme. **8.45,** Interval. **9.0,** The Circle—Play (Somerset Maugham) adapted by M. de Carbuccia. **11.0,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**12 Noon,** Protestant Address: The First Page of the Bible. **12.30 p.m.,** Orchestral Concert: Request Programme: Overture, Figaro (Mozart); Romance in F for Violin (Beethoven); Gramophone Records: Songs from (a) Les Dragons de Villars (Maillart), (b) La Fille de Madame Angot (Lecocq), (c) La Mascotte (Audran), (d) Monsieur Beaucaire (Messager); Selection from Werther (Massenet); Barcarolle, from The Tales of Hoffmann (Offenbach); Gramophone Records by Georges Chepfer: (a) La Bonne Hôtesse, (b) Noces de campagne; Le Sabotière from Hans the Flute-Player (Ganne); Selection from Louise (Charpentier); Ballet égyptien (Luigini). In the intervals at **1.0,** Exchange, News, and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Records. **6.45,** Legal Talk. **7.0,** Talk: French Poetry after 1870—the Second Generation of Symbolists, 1900-1910. **7.20,** Orchestral Concert: Aubade (Mouguet); Selection from Rhodopé (Ganne); Trois Airs de Ballet (Dubois). **7.45,** Commercial Prices, News, and Review of the German Press. **8.0,** Jeanne—Play (Duvernois). In the intervals at **8.30,** News and Weather, at **8.40,** Review by Christophe, and at **9.15,** Press Review and News. **10.0,** Gramophone Concert: Selection from Le Coq d'or (Rimsky-Korsakov); Aria from The Magic Flute (Mozart); Prelude and March from the Algerian Suite (Saint-Saëns).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—7.20,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.55,** Care of the Garden, by Alfred C. Hottes. **8.0,** Betty and Bob, from **New York. 8.15,** Radio Troubadours. **8.30,** Radio Sky Pilots. **8.45,** State Federation of Pennsylvania Women. **9.0,** Teaberry Baseball Scores. **9.5,** Thursday Special, from **New York. 9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Programme to be Announced. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be Announced. **10.15,** Dick Daring, from **New York. 10.30,** Singing Lady, from **New York. 10.45,** Little Orphan Annie. **11.0,** Programme to be Announced. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Vick's Song Weavers. **11.35,** Riggs and Moke. **11.45 to 3.15 a.m. (Friday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** A. and P. Programme. **12.30,** Concert Footlights. **12.45,** Merle Thorpe Talks. **1.0,** Captain Diamond's Adventures. **1.30,** Rin Tin Tin Thrillers. **1.45,** Thurston, the Magician. **2.0,** Death Valley Days. **2.30,** Wayne King's Orchestra, with Lady Esther. **3.0,** Time Signal and Green Brothers' Musical Varieties.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW. **4.10 p.m.,** See **Brno. 5.10,** Talk on Economics. **5.20,** See **Brno. 5.50,** Talk. **5.55,** Gramophone Records. **6.5,** Agricultural Talk. **6.15,** Talk: The American Worker To-day. **6.25,** News in German. **6.30,** German Transmission: Review of New Books, and Agricultural Talk. **7.0,** Chimes and News. **7.10,** Advanced English Conversation. **7.25,** See **Moravska-Ostrava. 8.0,** Talk on the following Transmission. **8.15,** Programme in memory of the First Broadcast from the Prague Station on May 18th, 1923: Ruzena Topinkova (Soprano), Josef Hasek (Violin), Emil Cermak (Cornet), and Frantisek Vozenilek ('Cello). **8.45,** Talk by Mr. E. Svoboda: How we began Ten Years Ago. **9.0,** Time Signal. **9.2,** Concert by the Station Orchestra, conducted by Prof. Karel B. Jirak: Festival Overture in C, Op. 70 (Foerster); Symphonic Poem, Vysehrad (Smetana), Symphonic Poem, Zaboj, Slavoj and Ludek (Fibich); Overture, Op. 67, The Hussites (Dvorak); Sokol March (Suk). **10.0** (in the interval), Time Signal. **10.10,** News, Announcements, and Sports Notes. **10.25,** Concert from **Brno. 11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc/s, 760 metres.—5.0 p.m.,** A Message to the Children of Wales from the Schoolchildren of French Switzerland. **7.0** (from **Geneva**), Talk. **7.30** (from **Geneva**), Weather, News, and Announcements. **8.0** (from **Lausanne**), L'Autre Fils—Comedy in Three Acts (Decourcelle). **9.50,** News and Weather. **10.0** (from **Lausanne**), Concert of Popular Songs on Gramophone Records. **10.30,** Talk: The Work of the League of Nations. **10.50** (approx.), Close Down

RIGA

572 kc/s, 525 metres; 15 kW.—**6.30 p.m.,** English Lesson. **7.0,** Weather Report. **7.5,** Concert of Chamber Music. Soloist: Nina Karins (Songs). Trio for Pianoforte, Violin and 'Cello (Arensky); Songs (Duparc): (a) Soupir, (b) Le manoir de Rosemonde, (c) Extase; Three Songs (Pierre Weill); Divertissement for Wind Orchestra (Bernard). **8.5,** News. **8.20,** Orchestral Concert, conducted by J. Medins. Midsommarvaka (Alfvén); Introduction to The Ruby (E. d'Albert); Selection from La Bohême (Puccini); Selection from The Czarevitch (Lehár). **9.30** (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.—1.0 p.m.,** Humorous Talk. **1.5 to 2.15,** Concert of Variety Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Concert. Soloists: Nilde Pignatelli (Violin), Margherita Cossa (Soprano). Violin Solos: (a) Andante in E Flat (Mulè), (b) Allegretto (Boccherini-Kreisler); Songs: (a) Aria from William Tell (Rossini), (b) Serenata indiana (Castelnuovo-Tedesco); Syncopated Music: Soprano Solos: (a) Aria from Melenis (Zandonai), (b) Giorno per giorno (Alfano), (c) Tuscan Song (Del Valle de Paz); Violin Solos: (a) Andante con moto (Casavola), (b) Presto (Clementi). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.10,** Tourist Report. **7.20,** Giornale Radio. **8.0,** Time and Announcements. **8.15,** Gramophone Records of Light Music. **8.30,** Giornale Radio and Sports Notes. **8.45,** Concert of Variety Music and Dance Music. In the interval, Talk on Literature and Art. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.—11.45 p.m.,** Stock Reports. **12 Midnight to 3.0 a.m. (Friday), New York** Relay. **12 Midnight,** Fleischmann Hour, with Rudy Vallee's Orchestra. **1.0, a.m.,** Capt. Henry's Show Boat. **2.0,** Lucky Strike Hour, followed by Programme Résumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—10.20 a.m.** (from **Basle**), Broadcast for Schools. **10.50 to 11.59,** Interval. **11.59,** Time Signal from Neuenburg Observatory and Weather. **12 Noon** (from **Basle**), Cinema Organ Solos on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.40** (from **Basle**), Concert by the Kremo Orchestra, conducted by Siegfried Kremo. **1.25** (from **Basle**), Weather and Exchange. **1.30 to 5.0,** Interval. **5.0** (from **Zürich**), Orchestral Concert. **6.0** (from **Berne**), Popular Music on Gramophone Records. **6.30** (from **Basle**), Reading. **7.0** (from **Basle**), Time, Weather, and Traffic Report. **7.15** (approx.), Light Music on Gramophone Records. **7.30** (from **Basle**), Italian Opera Music on Gramophone Records. **8.0** (from **Basle**), Italian Lesson. **8.30,** Concert by the Basle Mandoline Quartet. **9.0,** Weather and News. **9.10** (from **Basle**), Chamber Music—Concert by the Benz Quartet. **9.55,** Concert by the Swiss Radio Orchestra. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Talk: The Way to Peace. **5.30,** Programme for Children. **5.45,** Popular Music on Gramophone Records. **6.45,** Elementary English Lesson, relayed from **Jönköping, 1,490 kc/s, 201.3 metres. 7.15,** Weather and News. **7.30,** Talk: The Swedish Coast Now and in Past Times. **8.0,** The Lysistrata—Play (Aristophanes), translated and arranged for Radio by Ivar Harrie and Hjalmar Gullberg. **9.30,** A Visit with the Microphone. **9.45,** Weather and News. **10.0,** (from **Boden**), Military Band Concert, conducted by Einar Raberg. Marcia sinfonica (d'Orzi); Czardas from Der Geist des Wojewoden (Grossmann); Waltz, Moonlight on the Alster (Fetras); Selection from La Gioconda (Ponchielli); Crescendo (Lasson); Potpourri, Välkommen i de' gröna (Olsson); March (Sundgren). **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,** Jazz Music, conducted by Roskam. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Orchestral Concert, conducted by Maurice de Villers. **2.0,** Programme for Children. **3.0 to 4.15,** Interval. **4.15,** French Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux-Lafayette. 6.0,** Talk in German: The French Renaissance. **6.15,** Talk for Women: The Social Work of the Red Cross. **6.30,** Orchestral Concert, conducted by Maurice de Villers: Overture, Gil Blas (Trémisot); Symphonic Poem, Fatum (Trémisot); Selection from La Gioconda (Ponchielli); Suite brève (Büsser); Golliwog's Cake Walk (Debussy). **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Popular Music on Gramophone Records. **8.45,** Concert by the Municipal Orchestra, relayed from the Orangery Restaurant; Conductor: E. G. Munch; Soloist: G. Drillon (Violin): Overture, Light Cavalry (Suppe); Waltz, Les sirènes (Waldteufel); Ballet Music from Ali-Baba (Cherubini); Overture, Les dragons de Villars (Maillart); Violin Solo: Aubade à Ninon (Lacombe); Gavotte (Lacombe); Orchestral Suite, Bouton d'or (Pierné). In an interval at **9.30** (approx.), Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg; 527 kc/s, 570 metres.—12 Noon,** Concert of Viennese Operetta Music, relayed from **Pforzheim;** The Pforzheim Symphony Orchestra, conducted by Julius Schröder. **1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Gramophone Concert of Viennese Waltzes; Wiener Blut (Joh. Strauss); Wiener Herzen (Translateur); Wiener Praterleben (Translateur); Wiener Madln (Ziehrer); The Blue Danube (Joh. Strauss); Wiener Zugvögel (Translateur); Wiener Frauen (Joh. Strauss), Wiener Bonbons (Joh. Strauss). **2.0,** Programme arranged by the Post Office, with Gramophone Records. **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30,** Programme for Young People: A Spring Ramble. **4.30,** See **Frankfurt. 5.50,** Time, Weather, and Agricultural Notes. **6.0,** Talk: The Family, the Nation, and the State. **6.25,** Talk: The Alemanni and their Dominions. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Orchestral Concert, conducted by Otto Seyfert: Overture, Fra Diavolo (Auber); Selection from A Masked Ball (Verdi); Overture, Donna Juanita (Suppé); Waltz, Wo die Zitronen blühn (Joh. Strauss); Selection from Schön ist die Welt (Lehar); Waltz from Intermezzo (R. Strauss); A Comedy Overture (Reznicek). **9.15,** Whitsun 1933—Swabian Programme for Germans in all Parts of the World—The Baltic, Transylvania, the Banat, Carinthia, South America, and North America. **10.0,** Time, News, Weather, and Programme Announcements. **10.20,** Pianoforte Pieces, Op. 76 (Brahms), by Dagmar Benzinger. **10.50** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**7.30 p.m.,** Accordion Solos. **7.45,** Orchestral Music: Entr'acte from Carmen (Bizet); Selection from Samson and Delilah (Saint-Saëns); Prelude to Werther (Massenet). **8.0,** Light Music. **8.15,** Programme by a Viennese Orchestra. **8.45,** Extracts from Le Jongleur de Notre Dame—Opera (Massenet). **9.15,** Music by a Symphony Orchestra. **9.45,** Concert: Pleurez mes yeux, from Le Cid (Massenet); Aria from Faust (Gounod); Aria from The Fair Maid of Perth (Bizet); Military Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Orchestral Music. **11.15,** Chansonnettes. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Military Band Concert: Selection from San Toy; A Voyage in a Troopship; Piccolo Solo: La Grive; Ballad Memories; The Empire March. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

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

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.—5.10 to 6.0 p.m.,** Concert of Variety Music. **6.15,** Giornale Radio, Agricultural Report, and Dopolavoro Notes. **7.0,** Time, Tourist Report, and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Popular Music on Gramophone Records. **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records of Variety Music. **8.20,** Introductory Talk on the following Transmission. **8.30,** Germania—Opera in Three Acts (A. Franchetti). In the intervals, Talk and Literary Review.

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; 15 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.—5.15 p.m.,** Concert of Music by Franz Mittler, played by the Prix Quartet. The Composer at the Pianoforte. Quartet in A Minor; Variations on a Childish Theme; Capriccio Ostinato; Spieluhr. **6.0,** Theatre Review. **6.10,** Talk: The Vienna Congress of the International Board of Trade. **6.35,** Everyday Impersonations. **7.0,** Concert by the Oscar Jascha Orchestra. Overture, Josephine Gallmeyer (Knepler); Selection from Manon (Massenet); Waltz, Bei uns z'Haus (Joh. Strauss); Song, Traumerschnte (Loewe-Jascha); Selection from The Dance of the Dragonflies (Lehar); Das war die Zeit der Blüten (Sieczinski); Intermezzo, Pierrots Liebeswerben (Ippisch); Barataria March (Komzak). In the interval at **7.30,** Time, Weather Forecast, Alpine Weather, and Programme Announcements. **8.15,** Talk: The First International Flight over the Austrian Alps. **8.20,** Topical Talk. **8.35,** Talk: The Life and Achievements of the Germans in the East. **9.0,** Concert of Music by Contemporary German Composers, by the Symphony Orchestra, conducted by Oswald Kabasta. Soloist: Christa Richter (Violin); Violin Concerto in B minor, Op. 34 (Pfitzner); Symphony in B minor, Op. 15 (Max Trapp). In an interval at **9.35** (approx.), News and Weather Forecast. **10.30,** Market Prices. **10.35,** Gramophone Concert of Light Music.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **12.30,** Weather Report. **12.35,** Twenty-seventh Concert for Schools by the Warsaw Philharmonic Orchestra, relayed from the Philharmonie. **2.0,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Light Music on Gramophone Records. **3.35,** Review of Women's Newspapers. **3.50,** Popular Music on Gramophone Records. **4.25,** Intermediate French Lesson. **4.40,** Talk. **5.0,** Variety Music on Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Concert of Light Music and Dance Music. In the interval, News. **7.0,** Miscellaneous Items. **7.20,** Agricultural Notes. **7.30,** Reading. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by St. Nawrot; Soloist: St. Miller (Songs). In the interval, Sports Notes and Radio Journal. **9.30,** Introductory Talk to the following Transmission. **9.35,** Caesar and Cleopatra (Norwid), Music arranged by Nawrocki. **10.15,** Dance Music. **10.55,** Aviation Weather Report. **11.0,** Dance Music from the Gastronomia.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MAY THE NINETEENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	London Music Festival concert, from the Queen's Hall.
LONDON REGIONAL	W. C. Pepper's White Coons, a concert party show.
MIDLAND REGIONAL	Requests: Orchestral programme.
NORTH REGIONAL	Ballad concert.
WEST REGIONAL	"Gaffer and Gavotte," a West of England programme.
SCOTTISH REGIONAL	"Fiction and Fact," a revue of contrasts.
BELFAST	"Masquerade in Moonlight," a romance by H. W. McMullan.

ABROAD

BARI	8.45 p.m. Concert of operatic music.
BELGRADE	8 p.m. Brahms' Quintet, Op. 115.
BERLIN (Witzleben)	8.30 p.m. Concert of operatic music.
BRUSSELS (No. 2)	9.5 p.m. Mendelssohn concert by the Station Orchestra.
HEILSBERG	8.10 p.m. Rossini's and Verdi's "Othello," a comparison, by the Heilsberg Opera House Orchestra.
LANGENBERG	8.5 p.m. Operetta: "Love's Awakening," by Künneke.
OSLO	8.1 p.m. Symphony concert by the Philharmonic Orchestra.
PALERMO	8.45 p.m. Opera: "La Wally," by Catalini.
VIENNA	7 p.m. Song recital by Adelheid Armhold.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gardening Talk. **7.15,** Literary and Dramatic Talk. **7.30,** Time Signal. **7.31,** The Station Orchestra. **7.50,** Soprano Solos by Violet Pearson. **8.0,** The Station Orchestra. **8.10,** Soprano Solos by Violet Pearson. **8.20,** Lecture Recital by Grace O'Brien: Dance Rhythm in Modern Music. **8.50,** The Station Orchestra. **9.10,** Opera Songs by W. G. McLaughlin. **9.30,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ 1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Concert. **8.30,** Exchange Quotations. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **10.10,** Concert by the Station Orchestra: March (Ackermans); Selection from Der Rosenkavalier (R. Strauss); Overture, Prince Igor (Borodin). **10.20,** Modern Dance Music. **11.0,** Vicent Diez de Tejada reads from his own Works. **11.15,** Orchestral Concert, relayed from the Café Espanol. In the interval at **12 Midnight,** News. **1.0 a.m. (Saturday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 to 6.30 p.m.,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes. Tourist Talk, and Dopolavoro Notes. **8.20,** Giornale Radio and Weather Forecast. **8.30,** Time Signal and News. **8.45,** Concert of Operatic Music; Soloists, M. de Santis Bruno (Soprano), Michele Fiore and D'Angelo (Bass): Carnival (Ragni); Bass Solo from L'Elisir d'amore (Donizetti); Selection from Loreley (Catalani); Soprano Solo from L'amico Fritz (Mascagni); Bass Solo from The Barber of Seville (Rossini); Selection from La Gioconda (Ponchielli); Overture, Le Femme litigiose (Cardoni); Bass Solo from Don Pasquale (Donizetti); Soprano Solo from La Sonnambula (Bellini); Intermezzo from Act II of Adriana Lecouvreur (Cilea); Bass Solo from The Secret Marriage (Cimarosa); Soprano Solo from Carmen (Bizet); Selection from I Compagnacci (Riccitelli). In the interval, Reading. **10.30,** Popular Music on Gramophone Records. **10.55,** News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Light Music on Gramophone Records. **7.20,** Talk. **8.0,** Quintet for Clarinet, two Violins, Viola, and 'Cello, Op. 115 (Brahms). **8.30,** A Radio Play. **9.15,** Concerto for 'Cello (Saint-Saëns). **10.15,** News, followed by Concert from the Ratnicki Dom.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**12 Noon,** Weather for Farmers. **12.2 p.m.,** Gramophone Concert. After the Concert, Second Weather for Farmers. **12.55 p.m.,** Time Signal. **1.45,** News. **2.0,** Popular Music on Gramophone Records. **3.0,** Talk for Girls. **3.30,** Weather and Exchange. **3.45,** Review of Periodicals. **4.0,** Concert from **Leipzig. 5.0,** Educational Talk. **5.25,** Topical Talk. **5.35,** Song Recital by Else Hinkel: Widmung (Schumann); Meinhardt (Brahms); Wie Melodien zieht es (Brahms); Die Nacht (R. Strauss); Morgen (R. Strauss); Traum durch die Dämmerung (R. Strauss); Frühlingssonne (Trunk); Nachtgesang (Trunk). **6.0,** A Poem. **6.5,** Pianoforte Recital by Romauld Wikarski: Moment musical (Schubert); Scherzo (Schubert); Gavotte (Reger); Wut über den verlorenen Groschen (Beethoven); Rondo alla turca (Mozart). **6.25,** Talk: Roman Law and German Law. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** See **Langenberg. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Frankfurt. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.0 p.m.,** Gossip over the Coffee cups—a Variety Programme with Eugen Rex. **6.30,** Hints for the Week-end. **6.40,** The Witzleben Station Informs its Listeners. . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.5,** Announcement. **8.10,** Three Short Dialogues on Written and Spoken German. **8.30,** The Path of Opera—a Musical Picture for Soloists, Choir and Orchestra (Hans Tessner-Manfred Gurlitt). **9.30,** Tanzliturgie, Op. 83 (Hugo Hermann), by the Station Orchestra, conducted by Eugen Jochum. **10.0,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music, relayed from the Roof Garden of the Café Berlin. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News Bulletin. **7.40,** Educational Report. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News Bulletin. **8.30,** Vocal and Orchestral Concert.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.15 p.m.,** Recital of Czech Songs by Zofie Napravilová. **6.40,** Sports Notes. **6.55,** Talk for Women. **7.0,** See **Prague. 7.10,** Concert by the Station Orchestra, conducted by F. Dyk; Soloist, Jan Polák (Violin): Violin Concerto in D (Paganini); Suite, Roma (Bizet). **8.10,** See **Brno. 10.10,** See **Prague. 10.25** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.—1.10 p.m.,** Gramophone Concert of Variety Music. **1.45,** Time, Weather, News and Exchange. **2.5,** Gramophone Records of the Berlin Philharmonic Orchestra. Prelude to Lohengrin (Wagner); Hymn from Alessandro Stradella (Flotow); Persian March (Joh. Strauss); Prelude from the First L'Arlésienne Suite (Bizet); Presto Agnus die, dona pacem from the Missa Solemnis (Beethoven); Adagio from the Moonlight Sonata (Beethoven); March Potpourri, Fridericiana. **2.45,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Dialogue for Young People. **4.10,** Concert by the Fritz Wollner Orchestra, relayed from the Vaterland Café. **5.10,** Natural History Talk. **5.30,** Agricultural Prices. **5.35** (approx.), Programme to be announced. **6.0,** Concert by the Silesian Philharmonic Orchestra, conducted by Ernst Prade. Soloist: Albert Müller-Stahlberg ('Cello); Comedy Overture (Rezniczek); 'Cello Solo: Serenade, Op. 69 (Volkmann); German Forest Idyll (Niemann); Overture, Carnival in Rome (Joh. Strauss). **6.50,** Weather for Farmers, News and Cattle Market Prices. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Symphony No. 4 in E Minor, Op. 98 (Brahms), by the Silesian Philharmonic Orchestra. **9.0,** Announcements. **9.10,** Gen Ostland wollen wir reiten—a Radio Sequence of Yesterday and Tomorrow. **10.10,** Time, Weather, News, Sports Notes and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by Bakala: Festival March (Cni); Mozartiana (Tchaikovsky); Overture to a Marionette Play (Kricka); Ballet Music (Moor); Picturesque Intermezzo (Kocian); Serbian Dances (Sistek). **4.55,** Theatre Review. **5.5,** See **Prague. 6.5,** Talk: Creative Art. **6.15,** Talk for Workers. **6.25,** German Transmission: News, Sports Notes, and Dramatic Programme. **7.0,** See **Prague. 7.10,** Reading. **7.25,** Concert by the Slapanice Village Orchestra. **7.55,** Talk. **8.10,** Marysha—Play of Moravian Village Life in Four Acts (Alois and Vilem Mrstik). **10.10,** See **Prague. 10.25** (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 P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Records: Selection from Lakmé (Delibes); Selection from Hamlet (Thomas). **2.0,** Broadcast for Schools. **5.0,** Concert by the Station Symphony Orchestra, conducted by J. Kumps: Symphony in C (Mozart); Petite Suite (Debussy); Ballet Music from Les Erynnies (Massenet). **6.0,** Talk: The Motor Car and the Amateur Driver. **6.15,** Gramophone Record: Elegy (Fauré). **6.25,** Trois Cents Marches—Radio Sketch (L. Stengers-Hovine). **6.45,** Gramophone Concert. **7.15,** Talk: Convalescence. **7.30,** Legal Talk and Literary Review. **8.0,** Concert by the Station Orchestra, conducted by Franz André: Soloist: Mlle. Colon (Songs); Egyptian March (Strauss); Selection from The Merry Widow (Lehár); Song (a) Aria from Sappho (Massenet), (b) Song from Messaline (de Lara), (c) Melody (Rabeau); Russian Songs and Dances (Shirman); Padilla Potpourri (Salabert). **8.45,** Medical Talk. **9.0,** Concert (contd.): Soloist: Mme. Saey (Songs); Estudiantina (Waldteufel); Potpourri (Morena): Minuet (Boccherini); Tambourin (Rameau); Songs: Elsa's Dream (Wagner); The Lark (Granier); Mélodie des baisers (Massenet); Old French Songs (Broustet); Selection from La Mascotte (Andran); Danse des tulipes (Van Oost); Air de Ballet (de Taeye); Norwegian Dances (Grieg). **10.0,** Le Journal Parlé. **10.10,** Wireless Notes. **10.25,** Concert of Light Music on Gramophone Records. **11.0** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Gramophone Concert. **1.0** p.m., Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **2.0,** Broadcast for Schools. **5.0,** Concert of Light Music by the Station Orchestra, conducted by Franz André. **5.45,** Pallieter Programme. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: March (Berry); Melody (Jessel); Selection from Der Teufelsreiter (Kálmán); Selection from La Périchole (Offenbach); Tarantella (Solazzi); Song from One Hour with You (O. Straus); 1933 Radio Potpourri (André and Candrix). **7.15,** Talk: The Part played by Netherlanders in the Development of Medicine. **7.30,** Le Journal Parlé. **8.0,** Brahms Centenary Concert, by the Station Symphony Orchestra, conducted by J. Kumps, with Commentary by J. Horemans: Academic Festival Overture; First Movement from the Fourth Symphony, in E Minor; Songs on Gramophone Records: (a) Guten Abend, gute Nacht, (b) Feldeinsamkeit, (c) Wie bist du, meine Königin. **9.0,** Announcements. **9.5,** Mendelssohn Concert by the Station Symphony Orchestra, conducted by J. Kumps: Overture, Fingal's Cave; Selection from A Midsummer Night's Dream; Pianoforte Solos on Gramophone Records: (a) Scherzo, (b) Rondo capriccioso, (c) Spinning Song; First Movement from the Scottish Symphony; Overture, Nisereistille und glückliche Fahrt. **10.0,** Le Journal Parlé. **10.10,** Gramophone Records: The Moonlight Sonata (Beethoven); Bonne Nuit (Van Rennes). **10.25,** Dance Music on Gramophone Records.

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,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Song Recital by Mlle. Stella Simionesco: Foletta (Marchesi); La Zingara (Donizetti); Aria from Les Huguenots (Meyerbeer); Aria from Dinorah (Meyerbeer); Song (Dragoi). **8.20,** Symphony Concert by the Station Orchestra, conducted by Th. Rogalsky: Ballet Suite (Gluck-Mottl); Haffner Serenade (Mozart); Symphony No. 1 in C (Beethoven). In the interval at **9.0,** Talk. **9.45,** Radio Journal. **10.0,** Talk: The Spas of Romania.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **6.40 p.m. to 12 Midnight.—5.0 p.m.,** Concert by the Laci Raez Cigány Band No. 36. **5.45,** Shorthand Lesson. **6.10,** Humorous Programme. **6.40,** The Hungarian Folk Song—Lecture Recital by Bela Bartok (on Gramophone Records). **7.25,** Violin Recital by Sandor Vegh: Fugue from the Violin Sonata No. 5 (Bach); Andantino (Martini-Kreisler); La capricieuse (Elgar); La ronde des lutins (Bazzini); Valse caprice (Zsolt). **8.0,** Marriages are made in Heaven—Comedy in Three Acts (Csatho). **10.0,** News Bulletin. **10.15** (approx.), Concert by the Bela Bodrics Cigány Band from the Café Patria. **11.30,** Dance Music from the Café Patria. Soloist: Gyula Szantho. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.15 p.m.,** German for Schools. **12.45,** String Ensemble Concert, relayed from the Bellevue Strandhotel. **2.0 to 3.0,** Interval. **3.0,** Concert by Mogens Hansen's Instrumental Ensemble; Soloist: Svend Eberlein (Songs). **5.0,** Programme for Children. **5.35,** Exchange and Fish Market Prices. **5.50,** Talk: Hans Andersen's Works. **6.20,** German Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on Social Reform. **8.0,** Chimes from the Town Hall. **8.5,** Russian Song Recital by Karen Hjorth, with 'Cello and Pianoforte Accompaniment. **8.20,** Uncle Vanya—Play in Four Acts (Tchekov). **9.50,** Original Theme and Variations, Op. 19, for Pianoforte (Tchaikovsky), played by Folmer Jensen. **10.5,** Reading. **10.15,** News. **10.30,** Trio Concert: Alberto Bracony (Mandoline), Kai Mortensen (Mandola), and Gunnar Frederiksen (Lute); In the Moonlight (Monti); Barcarolle (Calace); Ballgeflüster (Meyer-Helmund); Melody (Paderevsky); Serenade (Moszkowsky); Military Scherzo (Marucelli); Hungarian Scene (Pietrapertosa). **11.0** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. T. St. A. Ronald, C. Danvers-Walker and B. McNabb Announcing. **5.30 p.m.,** Concert of Light Music for Southampton and Winchester Listeners: Orchestra, Reconciliation (Drigo); Song of the Flea (Mussorgsky); The King went forth to War (Koeneman); Poem (Fibich); Pianoforte Solo: Rondo Capriccioso (Mendelssohn); Il Bacio (Arditi); Villanelle; Pianoforte Solo: Minuet in G (Beethoven); On Wings of Song (Mendelssohn); Two eyes of Grey (McGeogh); Frühlingstimen (Joh. Strauss); Babes in Toyland (Herbert). **6.15,** Special Request Programme for Bournemouth and Weymouth Listeners: Valse des Alouettes (Drigo); Song, Onaway, awake beloved (Cowen); Pomp and Circumstance (Elgar); Try a little tenderness (Woods); Parade of the Tin Soldiers (Jessel); Selection from H.M.S. Pinafore (Sullivan); Brother can you spare a Dime? (Harburg); I'm playing with Fire (Berlin); Grasshopper's Dance (Bucalossi); Silvered is the Raven Hair (Sullivan);

MAY 19th **FRIDAY** *continued*

Narcissus (Nevin). 7.0, Radio Gazette. 7.20, Local News. 7.30, Light Music on Gramophone Records. 7.45, Agricultural Notes. 8.0, Gramophone Records and News. 8.30, Concert, relayed from **Le Havre.** 10.0 **p.m.** till Close Down, Programme in English by the I.B.C. 10.0 **p.m.,** Dance Music by the Ibcolians: Looking on the Bright Side; Marta; Please don't mention it; Shadows on the Window; Just Hummin' along; Long Ago; The King was in the Counting House; Don't tell a soul; When the rest of the Crowd goes Home; What makes you so adorable; By the Fireside; Moonlight on the River; Sing Brothers; Goodnight little girl, Goodnight. 11.0, A Half-Hour with Wagner: Overture, Rienzi; Walther's Prize Song from The Mastersingers; Selection from Tannhäuser; Träume; Pilgrim's Chorus from Tannhäuser; Swan Chorus from Lohengrin; March from Tannhäuser. 11.30, Vocal Concert: Chorus, Come to the Fair (Easthope Martin); Song, Garden of Happiness (Haydn Wood); Demande et Réponse (Coleridge Taylor); Chorus, Ye Banks and Brues (Traditional); Poupée valsante (Poldini); Song, Rose in the Bud (Forster); Chorus, Bells of St. Mary's; Orchestra: Waltz, Trés Jolie (Waldteufel). 12 **Midnight,** Club Concert for Godalming and Haslemere Listeners: Country Dance from the Nell Gwynn Suite (German); Song, Little Green Heaven; Chorus, You will remember Vienna; Song, A Mother's Kiss; Morris Dance from Henry VIII (German); Song, With You (Berlin); Song, Have a little faith in me (Warren); Cherry Ripe (Traditional); Song, Hoein' (Richards); The Empire (Tulip); Introduction and Valse Lente from Coppélia (Delibes); Songs: (a) For you alone (Geehl), (b) I hear a Thrush at Eve (Cadman); Tales from the Vienna Woods (Joh. Strauss). 1.0 **a.m. (Saturday),** Pianoforte Solos and Songs: Popular Melodies on a Piano (Ray); One Night alone with You (Jeffreys); Selection from The King of Jazz (Whiteman); Song, Lazy Lou'siana Moon; Selection from Puttin' on the Ritz (Berlin); Song, Melancholy; More Popular Melodies (Ray). 1.30, Vocal Trios: Bubbling over with Love; Painting the Clouds with Sunshine; A Bench in the Park; Waltz, My Florence; Laughing at the Rain; A Pair of Blue Eyes; I'll always be true; Mazurka, Lido Lady. 2.0, Dance Music by the Ibcolians: On a little Balcony in Spain; Belle of Barcelona; The One Man Band; Fiesta; How's your Uncle; Carolina Moon; Pardon Madame; I'd like to find the Guy that wrote the Stein Song; Bathing in the Sunshine; Whistling in the Dark; Choo, Choo; You're twice as nice as that Girl in my Dreams; Sweet and Lovely; How about me? Goodnight. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—4.30 p.m.,** see **Stuttgart.** 5.50, Economic Notes. 6.25, Talk: Industry on the Trier Frontier and the Versailles Decree. 6.0, See **Stuttgart.** 6.50, Time Signal, Programme Announcements, Weather Report, and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0, Recital of Pianoforte Duets. 8.30, Gramophone Concert of Popular Music. 9.0, A German Almanac. 9.10, See **Breslau.** 10.10, Time Signal, News, Weather Report, and Sports Notes. 10.45, Orchestral Concert, conducted by Dr. Reinhold Merten: Overture, Dream Music and Ballet Music from Alcina (Handel); Overture, Die Grossfürstin (Flotow); Comedy Overture, Mariotta (Gade); Overture, Die Heideschacht (Holstein); Overture, The Taming of the Shrew (Goetz); Waltz Potpourri (Fetras); March Potpourri (Recktenwald). 12 **Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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. 6.40, Frankfurt Exchange and Hamburg Market Prices. 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0 (from **Hanover**), Brunswick—a Portrait of a National Socialist State. 9.40, Choral Concert relayed from the Christuskirche, Bremen; Soloists, Heinz Kosten (Organ), and Kurt Wassmann (Tenor): Toccata in D Minor for Organ (Bach); Choir, Wende dich zu mir und sei mir gnädig (Palme); Tenor Solo, Allmacht (Schubert); Cantilene from the Sonata No. 11 for Organ (Rheinberger); Choir, Sehnsucht nach dem Himmel (Rosenmüller); Tenor Solo from The Creation (Haydn); Agitato from the Sonata No. 11 for Organ (Rheinberger). 10.30, Time and News. 10.40, Topical Talk. 10.50 (from **Kiel**), Orchestral concert, conducted by Hans Döring: Overture, La Sirène (Auber); Hirtenknabe (Grieg); An den Frühling (Grieg); Selection from Le Bourgeois Gentilhomme (R. Strauss); Serenade (Kark); Geburtstagsständchen (Klose); Suite, Am Golf von Neapel (Ellenberg); Waltz Song from The Cousin from Nowhere (Künnecke); Waltz, Transaktionen (Jos. Strauss); Die Fahne ruft (Siede).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW.; and **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert: Overture. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Agricultural Prices and Exchange Rates. 3.30, Programme for Children. 4.0, Talk for Women. 4.30, Concert from **Leipzig.** 5.45, Talk: The Population Question in Germany from a Political Point of View. 6.15, Agricultural Prices. 6.25, Pianoforte Recital by Ernst Rudolph: Moments musicaux, Op. 94, in C, A Flat, and F Minor (Schubert); Ländler, Op. 171 (Schubert); Kinderszenen, Op. 15 (Schumann). 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0, News. 8.10, A Comparison of the Last Acts of Rossini's and Verdi's Versions of Othello: Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. Soloists: Josef Poerner and Elisabeth Hallstein. Introductory Talk by Dr. Herbert Gerigk. 9.25, News Bulletin. 9.30, Josef Martin Bauer reads from his own Works. 10.0, Weather, News, and Sports Notes. 10.15, Johann Friedrich Reichardt as a Violinist—Recital by Prof. Hermann Diener (Violin) and Prof. Josef Müller-Blattau (Harpsichord). Introductory Talk. Music by Reichardt's Teachers: (a) Extracts from the Caprices (Benda), (b) Adagio from a Sonata (Veichtner); Sonata in E Flat for Violin (Reichardt); Sonata in B Flat for Violin and Harpsichord (Reichardt).

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.).—11.40 a.m. to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 11.40, Gramophone Records of Light Music. 12.10 **p.m.,** Concert of Light Music by Kovacs Lajos and his Orchestra. Songs by Bob Scholte. 1.40, Talk. 2.10, Concert by the Wireless Orchestra, conducted by Nico Treep: March (van Duinen); Overture, Die Frau Meisterin (Suppé); Ballet Suite from Sylvia (Delibes); Türkische Scharwache (Michaelis); Einzug des Schneekönigs (Noack); Light Music on Gramophone Records; Selection from Falstaff (Verdi); Frühlingsbotschaft (Fucik); Potpourri of Eysler's Music (Hruby). 3.40 **to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). 3.40, Trio Concert: Overture, La Fille de Madame Angot (Lecocq); Selection from a Suite (Pierné); Selection from L'Enfant prodigue (Debussy); Souvenir (Drdla); Poupée valsante (Poldini-Kreisler); Selection from Der Opernball (Heuberger); Danza esotica (Mascagni); La canzone della sorgente (Amadei); Torch Dance of the Brides of Kashmir (Rubinstein). 4.40, Programme for Children. 5.10, Concert of Light Music by De Notenkrakers. 5.55, Gramophone Records of Light Music. 6.10, Organ Recital: Round the World in Thirty Minutes. 6.40, Talk: An Address to the Jewish Refugees from Germany in Holland. 7.0, Concert by the Small Station Orchestra, conducted by de Groot: Melody (Gauwin-Daris); Serenade (Padilla); Song (Richards); In Holland (Kriensd); Selection from Carmen (Bizet); Selection from Le petit Duc (Lecocq). 7.40 **to 10.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Talk. 8.10, Concert. 8.40, Talk. 9.10, Concert (contd.). 9.40, Religious News. 9.45, News. 9.55, Recitations. 10.25, Variety Music on Gramophone Records. 10.40 till Close Down, Programme of the V.A.R.A. Popular Concert on Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). 11.55, Concert by the K.R.O. Boys, conducted by P. Lustenhouwer: Soloist: J. Mossel (Songs). 1.25 **p.m.,** Interval. 1.40, Organ and Song Recital by G. Nieland and Mia van der Eyden. 2.40, Pianoforte Recital by W. Visser: Prelude, Choral and Fugue (Franck); Three Preludes (Chopin); Two Arabesques (Debussy); Chansonette (Scott); Serenade (Albeniz); Courante (Albéniz). In an interval at 3.0, Recitations. 3.35, Recitations. 4.0, Light Music on Gramophone Records. 4.10, Concert by the K.R.O. Orchestra, conducted by H. Hermans: Overture, Figaro (Mozart); Military Symphony (Haydn); Overture, The Italian Girl in Algiers (Rossini); Suite algérienne (Saint-Saëns); Canzonetta (Pierné); Selection from Carmen (Bizet); Turkish March (Mussorgsky); Concert Waltz (Glazunov); Selection from Prince Igor (Borodin); Reverie (Vieuxtemps); España (Chabrier). In the intervals at 4.40 and 5.40, Talks. 6.40, Police Notes. 6.55, Talk on Astronomy. 7.15, Popular Music on Gramophone Records. 7.40, Concert by the Harmonie Royale Orchestra and the Gero Male Voice Choir. In an interval at 8.10, News. 9.40, Concert by Dita Schmetterling and her Orchestra. In an interval at 10.10, News. 11.10, Popular Music on Gramophone Records. 11.40 (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusements Guide, News, Financial Notes, and Racing Results. 8.10, Esperanto Lesson. 8.30, Radio Concert. 9.0, News. 9.15, Radio Concert (contd.). 12 **Midnight** till Close Down, Programme in English by the I.B.C., H. I. Hitchcock Announcing. 12 **Midnight,** Negro Songs: Nobody knows the trouble I've seen; I got a Home in dat Rock; Carry me back to Old Virginny; Orchestra: Uncle Pete; Every time I feel de spirit; Sometimes I feel like a Motherless Child; I know de Lord's laid his Hands on me; 'Way down yonder in the Cornfield; Suite Americana. 12.30 **a.m. (Saturday),** Dance Music: Dip your Brush in the Sunshine; Leave a Little for me; Let a little Pleasure interfere with Business; How do you do, Mr. Brown?; Harlem Fuss; How are you?; The Minor Drag; Let's all dance the Polka. 12.57 **a.m.,** I.B.C. Good-night Melody. 1.0 (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.0 p.m.,** Talk: Do Animals Suffer? 7.15, Announcements, followed by Light Music on Gramophone Records. 7.30, See **Warsaw.** —**11.0,** The Letter Box in French.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.** Programme in Swedish.—**6.15 p.m.,** Talk. 6.35, Concert by the Station Orchestra, relayed from **Helsinki.** 7.5, Talk. 7.25, Songs by the Station Quartet. 7.45, Talk. 7.55, Concert by the Station Orchestra, conducted by Erkki Linko: Melody from Ein Herbstmanöver (Kálmán); Overture, William Tell (Rossini). 8.25, Recitations. 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12.50 p.m.,** Weather, Time and News. 1.0, Concert conducted by Eysoldt. In the interval at 2.0, News. 2.30, Sponsored Programme with Gramophone Records. 3.30, Economic Notes and Time. 3.50, Talk for Young People. 4.30, Concert conducted by Wolf. Soloist: Eugen Hey (Songs to the Lute). 5.50, Readings. 6.0, Talk: The Biological Foundations for the Theory of Heredity. 6.25, English Conversation. 6.45, Weather, Time, Economic Notes and Sports Report. 7.0, Transmission for all German Stations, Cologne Cathedral—Radio Sequence (H. Lützeler), relayed from **Cologne.** 8.0, News. 8.5, Love's Awakening—Operetta in Three Acts (Künneke). 10.15, News and Sports Report. 10.30, Serenade conducted by Wolf. 12 **Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12.5 p.m.,** Concert of Light Music by the Crimmitschau Municipal Orchestra. In an interval at 1.0, News. After the Concert, News. 2.0, Notes on Art. 2.30, Weather and Time. 2.35, Spring, May and Sunshine—Gramophone Concert. 3.15, Programme for Country Women. 3.35, Economic Notes. 4.0, Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloist: Hans Diener von Schönberg (Pianoforte): Overture, Genoveva (Schumann); Concerto in B Flat for Pianoforte and Orchestra (Mozart); Symphonic Suite (Hans Hauss); Extracts from the Small Serenade for Strings (Trunk); Overture, Susanna's Secret (Wolf-Ferrari); Selection from The Veil of Pierrette (Dohnanyi). In an interval at 5.0, Book Review. 5.50, Economic Notes, Weather, and Time. 6.0, Talk: Saxony as a Frontierland. 6.20, Talk: The Feeding of Schoolchildren. 6.45, Reading. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0, Talk: The Intellectual Upheaval of the Age. 8.30, Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffan: Soloist: Kurt Gudian (Guitar); Overture, L'isola disabitata (Haydn); Guitar Solos: Prelude and Minuet (Bach); Kleine Ballade for Strings (Duon); Guitar Solos (Schubert): (a) Wiegenlied, (b) An den Mond, (c) Litanei; Guitar Solos: Etude and Rondo (Sor); Elegiac March (Rheinberger); Guitar Solos: (a) Minuet (Mozart), (b) Gavotte (Gluck); Serenade for Strings, Op. 20 (Elgar); Cradle Song (Fortea); Memories of the Alhambra (Tarrega); March Potpourri, Alle mit uns (Rotrecht). 10.5, News. 10.10 (approx.), Concert of Wilhelm Berger's Music: Soloists: Charlotte Dauthe (Mezzo-Soprano) and Theodor Blumer (Pianoforte); Serenade in F for Two Flutes, Two Oboes, Two Clarinets, Four Horns, and Two Bassoons; Songs: (a) Ach, wer das doch könnte, Op. 30, No. 7 (b) Pfingstlied, Op. 88, No. 1; Pianoforte Solos: Romance and Impromptu, Op. 105; Folk Songs: (a) Kein Feuer, keine Kohle, (b) Es steht ein Lind', (c) Gottvertrauen. 11.30 (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. 7.0, French Lesson. 7.30, Talk on Geology. 8.0, Talk on Music. 8.30, Concert of Chamber Music. 9.30, Weather and News. 9.45, Light Music on Gramophone Records. 10.30 (approx.), Close Down.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Literary Talk. 7.15, Miscellaneous Items. 7.30, See **Warsaw.** 12 **Midnight,** Close Down.

LYONS

LA DOUA; 644 kc/s, 465.8 metres; 1.5 kW. —**7.30 p.m.,** Radio Gazette. 8.30, La Belle Marinière—Play (Achard). After the Programme, News.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.5 metres; 2 kW.—**9.15 p.m.,** News Bulletin and Political Review. 9.30 **to 10.30,** Interval. 10.30, Chimes, Time Signal and Political Review. 10.45 (approx.), Symphony Music on Gramophone Records. 12.45 **a.m. (Saturday),** News Bulletin and Programme Announcements for Listeners Abroad. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.25 p.m.,** Concert of Dance Music by the Station Orchestra, conducted by J. Plichta. 7.55, See **Prague.** 8.10, See **Brno.** 10.10, See **Prague.** 10.25 (approx.), Close Down.

MOSCOW

TRADES UNION; 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert from the Conservatoire. 9.0, Weekly Review and Answers to Correspondence, in English. 9.55, Time Signal. 10.5, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres. —4.30 p.m.,** See **Stuttgart.** 5.45, Talk. 6.5, Talk: Bismarck's Work—The Foundation of the Empire. 6.25, Song Recital by Hanna Eschenbrücher (Soprano) and E. K. Haase (Baritone): Der verspätete Wanderer (Pfitzner); Das Alter (Pfitzner); In der Frühe (Wolf); Morgenhymne (Wolf); Weckruf (Pfitzner). 6.45, Time Signal, Weather Report and Agricultural Notes. 7.0, Transmission for all German Stations, relayed from **Langenberg.** 8.0, Concert by the Station Orchestra, conducted by Karl List. Soloist: Gerda Heuer (Soprano). Overture, Titus (Mozart); Andante con moto from the Symphony in C (Schubert); Aria, Ah Perfido (Beethoven); Scherzo in C (Schumann); Donna Anna's Aria from Don Giovanni (Mozart); Eine Kleine Nachtmusik (Mozart). 9.5, Topical Talk. 9.20, Bavarian Flags—Radio Sequence (Alfons von Czibulka). 10.20, Time Signal, Weather Report, News, Sports Notes and Traffic Report.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.15 p.m.,** Song and Violin Recital by M. Egil Nordsjö and Mlle. Helga Lökke. **6.0,** French Lesson. **6.30,** Talk. **7.0,** Announcements, Weather and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Symphony Concert by the Philharmonic Orchestra, conducted by Oivind Fjeldstad and the Choir of the Workers' Society; Norwegian Artists' Carnival (Svendsen); Invitation to the Waltz (Weber); Rhapsody, Midtsommarvaka (Alfvén); Overture, Tannhäuser (Wagner); Norwegian Rhapsody (Reidarson); The Captive (Selmer); Three Pieces (Grieg). **9.30,** Agricultural Talk and Weather Forecast. **10.0,** Topical Talk. **10.15,** Talk. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** La Wally—Opera in Three Acts (Catalani). In the interval, Talk: Churches and Preachers in Palermo. After the Opera, 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 Talk: Le Journal Parlé. **8.30,** Musical and Literary Programme for Young People. **9.15,** Symphony Concert, conducted by M. Flament: Violin Solo from Gipsy Love (Lehár); Slav Dances (Dvorák); Suite funambulesque (Messager). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Talk. **7.10,** Light Music on Gramophone Records. **7.55,** Review of the Week. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Concert of Music by Alfred Bruneau and Alexandre Georges. The Station Orchestra, conducted by M. Théodore Mathieu. Soloist, Mme. Marie Tissier (Songs). Extracts from L'Attaque du moulin (Bruneau); Romance for Horn (Bruneau); Symphonie Entr'acte from Messidor (Bruneau); Prelude to Naïs Micoulin (Bruneau); Overture and Le Paradou dans la vie, from La Faute de L'Abbé Mouret (Bruneau); Les Chansons de Miarka (Alexandre Georges). **10.30** (approx.), Close Down.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 75 kW.—**12 Noon,** Jewish Talk. **12.30,** Gramophone Concert. Overture, Don Pasquale (Donizetti); Aria from William Tell (Rossini); In the Steppes of Central Asia (Borodin); Song of the Flea (Mussorgsky); Scherzo-valse (Chabrier); Prelude (Pugnani-Kreisler); Turkish March (Mozart); Fantasie-Impromptu (Chopin); Forest Murmurs, from Siegfried (Wagner); Petite Suite (Debussy); Invitation au voyage (Duparc); Scheherazade (Rimsky-Korsakov). In the intervals at **1.0,** Exchange, News, and Weather; and at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Report. **6.30,** Gramophone Records: Cadet March (Sousa); First Waltz (Durand); Extase (Gaunc); Jazz dans la nuit (Roussel); Hawaii; Inch'alla (Padilla). **6.50,** Insurance Societies' Report. **7.0,** Talk. **7.20,** Gramophone Concert: Overture, William Tell (Rossini); Moment musical (Schubert); The Flight of the Bumble Bee (Rimsky-Korsakov); First Norwegian Dance (Grieg). **7.45,** Commercial Prices and News. **8.0,** Talk: Famous Romantic Actors—Paul Monnet. **8.30,** News and Weather. **8.40,** Les Cloches de Corneville—Operetta (Planquette), relayed from the Théâtre de la Porte St. Martin. In the interval, Gastronomic Review.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.45,** Utility Hall Programme. **8.0,** Betty and Bob, from **New York.** **8.15,** International Sunday School Lesson by Rev. S. S. Lappin. **8.30,** John Dunlap, Tenor. **8.45,** Programme to be announced. **9.0,** Teaberry Baseball Scores. **9.5,** Hotel Cosmopolitan Orchestra, from **New York.** **9.15,** S.A.I. Musicale (Carnegie Tech Chapter). **9.30,** Weather Report. **9.31,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Muskingum College Music Clubs. **10.15,** Dick Daring. **10.30,** The Singing Lady from **New York.** **10.45,** Little Orphan Annie. **11.0,** Programme to be announced. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Vick's Song Weavers. **11.35,** Riggs and Moke. **11.45,** To-day's News, by Lowell Thomas, from **New York.** **12.0 (Midnight),** Pepsodent Amos 'n' Andy, from **New York** **12.15 a.m. (Saturday),** A & P Programme. **12.30 to 3.15, New York** Relay. **12.30,** Five Star Theatre Charlie Chan. **1.0,** Nestle's Programme. **1.30,** Adventures in Health. **1.45,** Howard Thurston, the Magician. **2.0,** The First Nighter. **2.30,** Armour Programme. **3.0,** Time Signal and Music is my Hobby.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** Physical Training Report. **6.15,** Light Music on Gramophone Records. **6.30,** Talk: The Foundations of Modern Poland. **6.45,** Talk on Polish Topography. **7.0,** Miscellaneous Items and News. **7.28,** Time Signal. **7.30 to 10.40,** See **Warsaw.** **10.40,** Time Signal, Sports, and Police Notes. **10.45,** See **Warsaw.** **10.50,** Announcements. **11.0,** Dance Music from the Esplanade Café. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno.** **4.55,** Talk on Religious Art. **5.5,** Concert by the Ondricek Quartet: Movement from the Second String Quartet, Op. 5 (Modr); String Quintet in E Flat, Op. 97 (Dvorak). **6.5,** Market Prices. **6.15,** Talk: The Workers of America during the Crisis. **6.25,** News in German. **6.30,** German Transmission: Talk on Patriotism. **7.0,** Time and News. **7.10,** Russian Information. **7.25,** See **Moravská-Ostrava.** **7.55,** Talk on Housing Questions. **8.10,** See **Brno.** In the intervals at **9.0** and **10.0,** Time Signals. **10.10,** News, Announcements, and Sports Notes. **10.25** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc/s, 760 metres.**—**7.0 p.m.** (from **Lausanne**), Talk. **7.30** (from **Lausanne**), Weather. Answers to Correspondence, and Announcements. **8.0** (from **Geneva**), Talk. **8.35** (from **Geneva**), Concert, relayed from the Conservatoire: Mme. Ysabelle Naef (Harpsichord), Mlle. Germaine Naville (Harpsichord), and M. Pépin (Flute): Concerto in F for Harpsichord (Bach); Sonata for Two Harpsichords (F. Bach); Sonata for Flute and Harpsichord (Handel); Concerto in C Minor for Two Harpsichords (Bach). **10.0,** News and Weather. **10.10** (from **Geneva**), Talk: The Work of the League of Nations. **10.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.15 p.m.,** Songs and Duets from Operettas by Vera Frienovics and Arturs Briedlis. **6.40,** Latvian Lesson. **7.0,** Weather Report. **7.15,** Symphony Concert by the Station Orchestra, conducted by J. Medins: Fifth Symphony (Tchaikovsky); Concerto in F Minor for Pianoforte (Glazunov); Dance from Prince Igor (Borodin); Overture, Easter (Rimsky-Korsakov). In the interval at **8.0,** News. **9.0,** Weather and News. **9.30,** Dance Music. **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.**—**4.45 p.m.,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Vocal and Instrumental Concert. **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **6.57,** Report of the International Institute of Agriculture (in Spanish, German and French). **7.10,** Tourist Report. **7.20,** Giornale Radio. **7.30,** Sports Notes. **8.0,** Time and Announcements. **8.5,** Gramophone Records of Light Music. **8.15,** Song Recital by Margherita de Acutis (Soprano). **8.30,** Talk on Ariosto and Reading. **9.0,** Symphony Concert, conducted by Attilio Parelli. **10.0** (approx.), Dialogue: Lost Illusions. **10.15,** Variety Concert: Symphonic Poem, Il canto della palude (Adriana Mikescina); Finale from Iris (Mascagni); La Reginetta—Comedy in One Act (Luigi Chiarelli); Gipsy Dance from The Fair Maid of Perth (Bizet). **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**8.0 p.m.,** Biblical Drama. **8.15 to 8.45, New York** Relay. **8.15,** Moore Triangle Club. **8.30,** Echoes of Erin. **8.45 to 9.0** (approx.), Stock Reports. **11.45,** Stock Reports. **12 Midnight,** Cities Service Orchestra, from **New York.** **12.30 a.m. (Saturday), WGY** Farm Programme. **1.0 to 3.0** (approx.), **New York** Relay. **1.0,** Best Foods Musical Country Store. **1.30,** Pond's Programme. **2.0,** Chevrolet Programme. **2.30,** Richfield Country Club, followed by Programme Résumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.,** Time Signal from Neuenburg Observatory and Weather. **12.5 p.m.** (from **Zürich**), Concert by the Swiss Radio Orchestra. **12.30,** News Bulletin. **12.40** (from **Zürich**), Concert (contd.). **1.25** (from **Zürich**), Exchange, Time, and Weather. **1.30 to 5.0,** Interval. **5.0** (from **Zürich**), Programme for Children. **5.30** (from **Zürich**), Orchestral Concert. **6.30** (from **Berne**), Talk: From Author to Publisher—the Making of a Book. **7.0** (from **Berne**), Time, Weather, Market Prices, Tourist Report, and Sports Notes. **7.20** (from **Berne**), Programme to be announced. **8.0** (from **Berne**), Famous Songs. **9.0,** Weather and News. **9.10** (from **Berne**), Programme to be announced. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Swedish Scout Report. **5.25,** Folk Music, relayed from **Uppsala, 662 kc/s (453.2 metres).** **5.45,** Reading. **6.15,** Popular Music on Gramophone Records. **7.15,** Weather and News. **7.30,** Legal Talk. **8.0,** Songs to the Lute by Ake Claesson. **8.20,** Variety Programme. **9.15,** Talk: Finland in the Power of the Czars. **9.45,** Weather and News. **10.0,** Orchestral Concert of Light Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Wagner Concert on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Extracts from La Mascotte—Operetta (Mudran) on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Literary Talk: Chateaubriand. **5.0,** Orchestral Concert, conducted by Roskam: March (Eilenberg); Waltz, Tales from the Vienna Woods (Joh. Strauss); Overture, Rakoczy (Kéler-Béla); Selection from La Traviata (Verdi); Pianoforte Solo; Piedmontese Dance (Sinigaglia); Selection from The Count of Luxembourg (Lehár). **6.0,** Trio Concert, relayed from **Lille, 1,130 kc/s, 265.4 metres.** **7.0,** Topical Talk in German. **7.15,** Popular Music on Gramophone Records. **7.30,** Time and News. **7.45,** Variety Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results and Announcements. **8.30,** Concert by the Radio Orchestra and the Union Chorale Choir: Academic Festival Overture (Brahms); Choir: Liebeslieder (Brahms); Orchestral Suite, Dolly (Fauré); Choir: Madrigal (Fauré); Petite suite (Debussy); Choir: (a) Dieu! qu'il la fait bon regarder (Debussy), (b) Le soir (Weckerlin). In an interval at **9.30** (approx.), Press Review. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.15 p.m.,** Time, News, Weather, and Programme Announcements. **1.30,** Concert from **Langenberg.** **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.0 to 3.45,** Interval. **3.45** (from **Karlsruhe**), Talk: Sunday Excursions. **4.0,** In der Heimat—A Radio Sequence from Poems by Eichendorff, set to Music by Schumann, Franz, and Pfitzner; Hilde Kecfer-Bluthardt (Songs), Heinz Laubenthal (Elocutionist), and Wilhelm Locks (Pianoforte). **4.30,** Concert by the Station Orchestra, conducted by Gustav Görlich; Soloist, Martha Weber-Neubeck (Soprano); Part I: Overture, Albin (Flotow); Aria from Figaro (Mozart); Overture, The Italian Girl in Algiers (Rossini); Aria from Mignon (Thomas); Selection from The Pearl Fishers (Bizet); Seguidilla, from Carmen (Bizet); Part II: Old Dance Music. **5.45,** Time, Weather, and Agricultural Notes. **6.0,** Medical Talk. **6.25,** Talk: Changes in German Law. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Langenberg.** **8.0,** Reading of War Stories. **8.20,** Symphony Concert, conducted by Ferdinand Drost; Soloist, Otto Sonnen (Pianoforte): Concerto for Pianoforte and Orchestra (Schumann); Symphony No. 7 in A, Op. 92 (Beethoven). **9.20,** The Widow of Ephesus—Comedy (Lessing. **10.20,** Time, News, Programme Announcements, and Sports Report. **10.45,** See **Frankfurt.** **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmission irregular owing to fire.—**7.30 p.m.,** Chansonnettes. **7.45,** Accordion Solos. **8.0,** Orchestral Music. **8.30,** Opera Music: Airs from (a) La Favorita (Donizetti), (b) Hamlet (Thomas), and (c) La Dame blanche (Boieldieu). **8.45,** Extracts from The Fire Bird—Ballet (Stravinsky). **9.15,** Military Music. **9.30,** Concert by a Viennese Orchestra. **10.0,** Popular Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Operetta Music. **11.15,** Organ Solos. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Concert: Choo, Choo; Leonard Henry lets himself go; Medley of Popular Hits; Cuban Love Song; Trees; The Wayside Shrine; An Old Violin. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Saturday),** Dance Music. **12.15,** Vocal Tangos. **12.30,** Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**6.35 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.**—**6.35 p.m.,** Giornale Radio, Agricultural Report, and Dopolavoro Notes. **7.0,** Time Signal, Report of the Royal Geographical Society and Light Music on Gramophone Records. **7.20,** Giornale Radio. **7.45,** Popular Music on Gramophone Records. **8.0,** Announcements, Giornale Radio, Weather, and Gramophone Records. **8.30,** See **Rome.** **8.45,** Popular Music on Gramophone Records. **9.0,** Symphony Concert, conducted by Attilio Parelli: Overture, Der Teufel als Hydraulicus (Schubert); Symphony in C Minor (Parelli); Chiaroscuri (Rocca); Ballet Suite (Grétry-Mottl); Good Friday Magic (Wagner); Overture, Semiramide (Rossini). In the interval, Talk. **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; 15 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.**—**5.25 p.m.,** Tourist Talk. **5.40,** Talk: Through Lower Austria. **5.55,** Sports Review. **6.5,** A Quarter of an Hour's Entertainment. **6.20,** Talk: Life in Budapest Sixty Years ago and To-day. **6.45,** Talk: The Universal German Catholic Day, 1933. **7.0,** Song Recital by Adelheid Arnhold (Soprano): Arias from Floridante (Handel): (a) Alma mia, (b) Amor commanda; Songs (Schubert): (a) Im Abendrot, (b) Sulieka, (c) Auf dem wasser zu singen, (d) Seligkeit; Songs (Brahms): (a) Die Mainacht, (b) Feldeinsamkeit, (c) Ständchen, (d) Botschaft; Songs (Richard Strauss): (a) Traum durch die Dämmerung, (b) Wiegenlied, (c) Norwegian Folk Song. **7.40** (from **Innsbruck**), Radio Report on the First Day International Flight over the Austrian Alps (on Gramophone Records). **8.0,** Time, Weather Forecast, and Programme Announcements. **8.10,** The Lovers—Comedy in Three Acts (Goldoni) German Translation by Lola Lorme. **10.0,** News, Weather Forecast, and Announcements. **10.15,** Dance Music by the David Mathé Orchestra, relayed from Hühners Kursalon.

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.,** Programme Announcements. **12.10,** Popular Music on Gramophone Records. **1.20,** Weather. **1.25,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Talk on Maritime and Colonial Affairs. **3.35,** Light Music on Gramophone Records. **4.25,** Review of Periodicals. **4.40,** Talk on Hygiene. **5.0,** Concert by a Police Band, conducted by A. Sielski: Overture, Fra Diavola (Auber); Selection from The Circus Princess (Kálmán); Melody (Katski); Airs from Tannhäuser (Wagner): (a) The Pilgrims' Chorus, (b) Oh, Star of Eve; Mazurka (Levandovski); March, Venice (Fabiani). **5.55,** Programme Announcements. **6.0,** Concert of Light Music from the Café Adria. In an interval, News. **7.0,** Miscellaneous Items. **7.20,** Polish and Foreign Press Review, relayed from **Wilno, 533 kc/s, 563 metres.** **7.30,** Reading. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert by the Warsaw Philharmonic Orchestra. In the interval, Reading. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music from the Maison Foukier.

ZURICH.—See **Schweizerischer Landessender.**

MAY 19th **FRIDAY** *continued*

SATURDAY

MAY THE TWENTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	W. C. Pepper's White Coons, a concert party show.
LONDON REGIONAL	"The Bottle Imp," a play from the story by R. L. Stevenson.
MIDLAND REGIONAL	Musical comedies, orchestral concert.
NORTH REGIONAL	Orchestral concert.
WEST REGIONAL	Instrumental and vocal concert.
SCOTTISH REGIONAL	Massed church choirs at the Edinburgh Musical (Competitions) Festival.
BELFAST	"Ireland on Record," a feature programme.

ABROAD

BERLIN (Witzleben)	8.10 p.m. "From the Vienna Prater," for soloists, choir, and orchestra.
BRESLAU	8 p.m. Operetta: "The Merry Widow," by Lehar.
BUCHAREST	8 p.m. Concert of operetta and light music.
LAHTI	7.5 p.m. Operetta: "Der Orlov," by Granichstädten.
PALERMO	8.45 p.m. Operetta: "Acqua Cheta," by Pietri.
ROME	8.45 p.m. Symphony concert, conducted by Victor de Sabata.
TURIN	8.45 p.m. Operetta: "Fior di Neve," by Guiseppe Blanc.
VIENNA	8 p.m. Operetta: "Der Fremdenführer," by Ziehrer.

ATHLONE

725 kc/s, 413 metres; 60 kW. and Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m., Time Signal, Weather Report, Stock Report and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.45,** News. **7.0,** Health Talk. **7.15,** Talk in Gaelic. **7.30,** Time Signal. **7.31,** Prof R. O'Dwyer with the Station Orchestra in a Programme of his own Compositions. **8.0,** Soprano Solos by M. C. Campling. **8.15,** Violin Solos by R. Kiernan. **8.35,** The Emer Comedy Company. **9.5,** Bass Solos by Irvine Lynch. **9.15,** The Station Orchestra. **9.35,** Bass Solos by Irvine Lynch. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

(EAJ1), 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Programme for Children. **8.0,** Talk and Request Gramophone Concert. **8.30,** Exchange Quotations and Catalan Grammar Lesson. **9.0,** Light Music on Gramophone Records, followed by News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Station Orchestra: Manhattan March (Sousa); Waltz, Estudiantina (Waldteufel); Andante from the Violin Concerto No. 3 (Saint-Saëns); Pavane (Gunne). **10.30,** See **Madrid (EAJ7).** In the interval at **12 Midnight,** News.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**5.30 p.m.,** Programme for Children. **6.0 to 6.30,** Popular Music on Gramophone Records. **8.0,** Agricultural Notes, Tourist Report, and Dopolavoro Notes. **8.20,** Giornale Radio, Weather Report, and Sports Notes. **8.30,** Time Signal and Announcements. **8.45,** Aida—Opera (Verdi) on Gramophone Records. In the interval, Talk, Book Review, and Artistic Notes. After the Opera, News.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**4.30 p.m.,** Concert by the Station Orchestra: Overture (Jenko); Potpourri, Belgrade by Night (Sedlacek); Serbian Dance (Frajt); Ballet Suite, The Swan Lake (Tchaikovsky); Selection from The Bird Fancier (Zeller). **6.55,** Time and Programme Announcements. **7.0,** Wireless Talk. **7.30,** Light Music on Gramophone Records. **7.50,** Folk Songs by the Jeka Quartet. **8.30,** Cavalleria rusticana—Opera (Mascagni), on Gramophone Records, with Introductory Talk. **10.0** (approx.). News, followed by Relay of Foreign Stations.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc s, 1,635 metres; 60 kW.—**12 Noon,** Opening of the Thirty-ninth Travelling Exhibition of the German Agricultural Society. **12.55,** Time Signal. **1.45,** News. **2.0,** Variety Music on Gramophone Records. **3.3,** Handwork for Children. **3.30,** Weather and Exchange. **3.45,** Carl von Bremen reads from his own Works. **4.30,** See **Hamburg. 5.0,** Weekly Review. **5.30,** Talk: The Salzwedel Jubilee Celebrations. **6.0,** A Poem. **6.5,** Italian Song Recital by Harvedo Felicioli. Nina (Pergolesi); Amarilli (Caccini); Girouetta (Sibella); Vorrei morire (Tosti); Aria from The Barber of Seville (Rossini): E canta il grillo (Billi); Aria from L'Arlesiana (Cilea). **6.30,** Talk: The Dramatist Otto Brues. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations. Concert by the Station Orchestra, conducted by Herbert Windt and the Station Speaking Choir, conducted by Werner Pleister. Part I.—Recital of Miners', Peasant and Soldier Songs. Wir Bergleute hauen fein; Glück auf! Der Steiger kommt; Im Märzen der Bauer; Wir pflügen und wir streuen; Nach Ostland woll'n wir reiten; Wenn alle untreu werden. Part II.—Symphonie der Arbeit, for Speaking Choir and Orchestra (Words by Hans Jürgen Nierentz, Music by Herbert Windt). **8.0,** Wireless Cabaret, relayed from the Zoological Gardens. **8.30,** Sergeants' Bulls—a Barrack-room Programme. **10.0,** Weather, News and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade relayed from **Munich. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Concert by the Union Orchestra and the Con Brio Mandoline Orchestra: Tannenberg-Defflermarsch (Gudohr); Waltz, Children of Spring (Waldteufel); March No. 126 (Strauss); Rhapsody on a Bavarian Folk Melody (Pfitzinger); March (Lindemann); Serenata lombarda (Graziani); T'amo mazurca (Alfieri); Carcioffola (di Capua); Rhenish Song Potpourri (Hannemann); Sanssouci - Festspiel - Ouverture (Kark); Apollo-Marsch (Neumann); Puttuglia Romana (Scosozza); Liebeslegende (Becce); Waltz, Primo bacio (Sartor); Friedensfeier-Ouverture (Nehl); Selection from The Bird Fancier (Zeller); March, Barbarossas Erwachen (Reckling). **5.40,** The Furtherance of Motor Sports in Germany—Discussion between Dr. Wesemann and Edvard Voigt and the Racing Motorists Manfred von Brauchitsch and Fritz Wiese. **6.10,** Reading from Die Dithmarscher (Adolf Bartels). **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.5,** Announcement. **8.10,** The Vienna Prater—a Musical Picture Sheet for Soloists, Choir and Orchestra; The Station Orchestra, the Walters' Dance Band, Dietrichs Schrammel Quartet, the Station Choir, and Soloists: Elsa Kochhann, Peppi Zampa, Bernhard Bötel, and Theo Lucas. In the interval, Songs by Berlin Choirs. **10.0,** Weather, News and Sports Notes. **10.15** (approx.), Dance Music, relayed from the Eden Hotel. **12.30 a.m. (Sunday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.— **7.40 p.m.,** Sports Talk. **7.45,** Talk on Esperanto. **8.0,** News, Exchange, Market Prices and Lottery Results. **8.5,** English Lesson. **8.20,** News Bulletin. **8.30,** Monsieur le Directeur—Play in Three Acts (Bisson).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Odchazel. **5.10,** See **Prague. 5.20,** Talk. **5.35,** Programme for Children. **6.35,** Light Music on Gramophone Records. **6.40,** Talk for Housewives. **6.55,** Report. **7.0,** See **Prague. 7.25,** Talk on the following Transmission. **7.30,** Mataj—Opera (Jan Rosnicky), relayed from the Slovak National Theatre. **10.0,** See **Prague. 10.45,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc s, 253 metres.—1.10 p.m.,** Gramophone Concert of Popular Music. **1.45,** Time, Weather, News, and Exchange. **2.5,** Variety Music on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Film Review. **4.0,** Programme to be announced. **4.30,** See **Hamburg. 5.30,** Book Review. **5.50,** Programme Announcements. **6.0,** Programme to be announced. **6.30,** Talk on the Silesian Monument on the Zobten. **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** The Merry Widow—Operetta (Lehár), arranged for Radio. **10.0,** Time, Weather, News, Sports Notes, and Programme Announcements. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc s, 342 metres; 35 kW.—**6.25 p.m.,** German Transmission: News and Arias from Die Feen (Wagner), by M. Hornegg (Soprano), O. Ruepp (Bass) and F. Kugler (Tenor). **7.0,** See **Prague. 7.25,** Students' Spring Festival, relayed from a Theatre. **8.30,** Concert by the Moravian Teachers' Choir, conducted by Professor Ferdinand Vach, relayed from the Stadium. **9.30,** See **Prague. 10.45,** See **Moravská-Ostrava. 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 P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Records: Act III of Manon (Massenet). **4.45,** Talk: The Industrial Situation in Belgium, in May, 1933. **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **6.0,** Talk: Charleroi. **6.15,** Light Music on Gramophone Records. **7.15,** Talk: The New Road Laws. **7.30,** Le Journal Parlé. **8.0,** Gramophone Records: Radetzky March (Joh. Strauss); Elegy (Massenet); Four German Dances (Mozart). **8.15,** Mort des Fléaux—Radio Play (Francis André). **8.40,** Concert by the Small Station Orchestra, conducted by P. Leemans; Soloist: M. Wigy (Violin): Turkish March (Eilenberg); Rapsodie dahoméne (de Bonck); Violin Solo: Canzonetta (d'Ambrosio); Selection from Hamlet (Thomas); Impromptu for Pianoforte (Brenta); Chanson sans Paroles (Tchaikovsky); Potpourri (Mannfred). **9.30,** Reading of Poems dedicated to Paris. **9.45,** Gramophone Records: Air from The Tales of Hoffmann (Offenbach); Vielle Histoire (Marie-Chauvet); Sous la feuillée (Thomé); Waltz from Mireille (Gounod); Jungle Drums (Ketelbey). **10.0,** Le Journal Parlé. **10.10,** Dance Music on Gramophone Records. **10.30,** Concert by Max Alexys and his Orchestra, relayed from l'Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—**12 Noon,** Gramophone Concert. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **4.45,** Reading. **5.0,** Concert by the Radio Orchestra, conducted by C. Walpot: March (Schlögel); Overture, Zampa (Hérold); Waltz, An Evening in Madrid (Fahrbach); Romantic Suite (Armandola): Chanson d'amour (Caudael); Selection from Miss Decima (Audran); Caprice italien (Tchaikovsky). **6.0,** Popular Gramophone Music. **6.15,** Talk: Cromwell. **6.30,** Light Music on Gramophone Records. **7.15,** Talk: Belgium and the Crisis—the Banks and Credit. **7.30,** Agricultural and Horticultural Review. **8.0,** Concert by the Station Orchestra, conducted by Charles Walpot: March, Stars and Stripes (Sousa); Overture, Lysistrata (Lincke); Songs by Mme. Veldya; Selection from Il Trovatore (Verdi); Songs by M. Goédel; Polka, Cock and Hen (Paradis). **8.45,** Reading. **9.0,** Concert (contd.): Potpourri of Waltzes (Lohrecht); Songs by Mme. Veldya; Polka for Flute and Two Cornets (Maquet); Selection from The Merry Widow (Lehar); Songs by M. Géodel; Selection from On with the Show (Nicholls). **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danse. **11.30,** Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Jazz Music by Sigismund Seidmann. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talk. **7.40,** Light Music on Gramophone Records. **8.0,** Concert by the Station Orchestra: Overture, The Merry Wives of Windsor (Nicolai); Second Suite from L'Arlésienne (Bizet); Selection from Madame Butterfly (Puccini); Selection from Les Cloches de Corneville (Planquette); Potpourri, Wiener Spaziergänge (Komzak). **8.45,** Dramatic Programme. **9.10,** Concert by the Station Orchestra (contd.): Waltz, Nachtsänger (Ziehrer); Second Arabesque (Debussy); Habanera (Chabrier); Canzonetta from the Romantic Concerto for Violin (Godard); Festival March (Napravnik). **9.45,** Radio Journal.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **6.30** till Close Down.—**5.0 p.m.,** Concert of Operetta Music by the Opera House Orchestra, conducted by Zsigmond Vineze: Selection from The Gipsy Baron (Joh. Strauss); Selection from Fesche Geister (Ziehrer); Selection from Kussverhot (Vincze); Selection from The Count of Luxembourg (Lehár); Selection from Lysistrata (Lincke); Selection from Orpheus in the Underworld (Offenbach). **6.0,** Answers to Correspondence. **6.30,** Concert by the Lajos Racz Cigány Band. **7.10,** Review of Foreign Politics. **7.30,** Turandot—Opera in Three Acts (Puccini), relayed from the Royal Hungarian Opera House. In the interval, News. After the programme, Weather and Variety Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **—12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, conducted by Max Skalka, relayed from the Hotel d'Angleterre. **2.0 to 2.30,** Interval. **2.30,** Gramophone Concert. **3.0,** Programme for Children. **3.30,** Concert of Light Music by Louis Preils' Instrumental Ensemble. In the interval, Reading. **5.40,** Exchange and Fish Market Prices. **5.50,** Talk: Adrienne—an Evening at the Comédie Française in 1729. **6.20,** French Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Chimes from the Town Hall. **8.2,** Concert of Modern Swedish Music by the Station Orchestra, conducted by Emil Reesen: Rhapsody on Swedish Folk Melodies (Lindberg); Suite No. 5, Barocco (Atterberg); Symphonie Poem in Rondo Form (Gask (Westberg). **8.40,** Wanderings in South Lealand—Talk, Songs, and Instrumental Music. **9.50,** Saxophone Solos by Otto Banner Jansen: Hjema (Pré); Si vous l'aviez compris (Denza); Londonderry Air (Connar-Morris); What a Perfect Combination (Ruby and Akst). **10.5,** News. **10.20,** Orchestral Concert, conducted by Emil Reesen: Spanish Concert Overture, A Summer Night in Madrid (Glinka); Waltz, A Day in Seville (Waldteufel); Oriental Suite (Popy); Yesterthoughts (Herbert); Badinage (Herbert); On the Road to the Alhambra (Turina); Marcia reale italia (Gabetti). **11.0,** Dance Music relayed from the Lodberg Restaurant. In the interval at **12 Midnight,** Time and Chimes from the Town Hall. **12.15 a.m. (Sunday),** Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. T. St. A. Ronald, C. Danvers-Walker and B. McNabb Announcing. **5.30,** Concert for Tunbridge Wells and Isle of Thanet Listeners. Classical Selection (arr. Ewing); One Fine Day, from Madame Butterfly (Puccini); Autumn Leaves (Vogler); Old Spanish Song (Aubert); Violin Solo, Au Mois d'Avril (Adlington). Violin Solo, Fandango (Godowsky); Träume (Wagner); Waltz Song from La Bohème (Puccini). Violin Solos: (a) La Chasse (Carlier), (b) The Bee. Shepherd's Hey (Grainger). Let's put out the Lights (Hupfeld); More Classical Memories (arr. Ewing). **6.15,** Concert for Dover and Folkestone Listeners. Intermezzo Selection (arr. Ancliffe); Vienna, Vienna (Foss). Songs: (a) Brothers of the Empire (Helmore), (b) My Sword and I (Byng). Valencia (Padilla); The Woman in the Shoe. Songs: (a) Eleanor (Hanley), (b) The Drum Major (Newton). In the Night (Tate); The Volunteer Organist (Lamb). Song, Route Marching (McCall).

Gold and Silver (Lehár). 7.0, Radio Gazette. 7.20, Local News. 7.30, The Listeners' Half-Hour and News. 8.45, Cabaret Programme. 11.0 p.m. till Close Down, Programme in English by the I.B.C. 11.0 p.m., Club Concert for Croydon and Thornton Heath Listeners. Gipsy Moon (Borganov); In the Gloaming; Xylophone Solo, Looping the Loop (Gaston); Two Eyes of Grey; Reconciliation; Sally in our Alley; If it wasn't for the Houses in between; Trees; Xylophone Solo, Marionette (Gaston); When it's Sleepy Time down South; Babes in Toyland (Herbert); Kitty, my love, will you marry me?; Love is like that; Lazy Pete (Kernstein). 12 Midnight, Variety Concert. Mason's Apron; I've got one Arm round Mary; She's too good for me; Silvery Moonbeams; You've got to laugh at Care; The Jilted Dutchman; The Police Station. 12.30 a.m. (Sunday), Popular Songs. Go Home and tell your Mother (McHugh); Crying for the Carolines (Warren); Leanin' (Sterndale Bennett); When you wore a Gingham Gown (Gilbert); Bye Bye Blues; Wasn't it nice? (Seymour); Say a little Prayer for me (Nicholls); Old New England Moon. 1.0, Accordion Solos. Blue Bells (Beaton); La Java de Doudonne (Padilla); Marche Joyeuse (Cuvelier); Medley of English Airs; Prince Charlie (Beaton); The Skater's Waltz (Waldteufel); Annette (Phillips); Medley of Scottish Airs. 1.30, Popular Songs. The Night you sang Sweet Genevieve; That dear old Song; Forget-me-not. High Society Blues; We live and we love; Little Boy Blue; My Old Irish Cottage. 2.0, Dance Music by the Ibeolians. Lights of Paris; It always starts to Rain; It happened in Monterey; Just a little closer; Linda; I don't mind walking in the Rain; Little Painted Doll; Got the Bench, got the Park; The Waltz you saved for me; Smile, darn ya, Smile; Carry On; My Cradle is the Desert; With my Guitar and you; Lazy Day. 2.57, I.B.C. Goodnight Melody. 3.0, Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—4.30 p.m., See **Munich.** 5.50, Economic Notes. 6.0, Talk: Man and his Traces on the German Landscape. 6.25, Topical Talk. 6.50, Time Signal, Programme Announcements, Weather Report, and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Richard Benz talks about his latest book. 8.15, A Wedding in the Hampelmann Household—Radio Play with Music. 10.15, Time, News, Weather, and Sports Notes. 10.45, See **Munich.** 12 **Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 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.**—4.30 p.m. (from **Bremen**). Concert, relayed from the Liner Europa: Overture, Chal Romano (Ketelbey); Waltz, Träume auf dem Ozean (Gungl); Serenade, Es flüstert die Liebe (Lindemann); Tom the Rhymer (Loewe); Suite, A Mediterranean Cruise (Jalowicz); Intermezzo, Violetta (Rust); Melodies (V. Herbert). 5.30, Hamburg, Bremen and Lübeck—Report on Events in the Senate and House of Burgesses of the Hanseatic Free Cities. 6.0 (from **Hanover**), Literary and Musical Programme in Dialect. 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** The German Navy. 8.0, See **Münich.** 10.0, Time and News. 10.20, Topical Talk. 10.30, Dance Music, relayed from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW., and **Danzig, 562 kc/s, 453.2 metres.**—1.5 p.m., Concert by the Small Station Orchestra, conducted by Eugen Wilcken. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Agricultural Prices and Exchange Rates. 3.30 (from **Danzig**), Handwork for Children. 4.0, Concert relayed from **Berlin (Witzleben).** In the interval at 5.0 (approx.), Road Report for East Prussia. 5.40, Two East Prussian Legends. 6.5, Programme Announcements. 6.15, Agricultural Prices. 6.20, Talk: The Reorganisation of the German Educational System. 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, News. 8.10, A Little of Everything—Bunter Abend. 10.10, Weather. News and Sports Notes. 10.20 (approx.), Dance Music relayed from **Berlin (Witzleben).** 12.30 a.m. **(Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to 5.40 p.m.).—11.40 a.m. till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). 11.40 Concert by the Small Station Orchestra conducted by H. de Groot. 12.10 p.m., Organ Recital by J. Jong. 12.40, Concert (continued). 1.10, Musical Programme by MM. Presser and Rab. 1.40, Interval. 1.55, Light Music on Gramophone Records. 2.30, Talk. 2.50, Concert by the Amsterdam Chamber Orchestra, conducted by D. Kiekens. 4.10, Talk. 4.30, Concert of Popular Music. 5.20, Literary Talk. 5.40, Violin Recital by M. H. Wiggelaar. Selection from The Tales of Hoffmann (Offenbach). Serenade (McCarthy). Indian Love Call (Friml-Wiggelaar). Selection from The Student Prince (Romberg-Kreisler); Estrellita (Ponce-Heifetz). 6.10, Talk. 6.40, Concert by a Children's Choir. 7.10, Talk. 7.25, Light Music on Gramophone Records. 7.35, Announcements and News. 7.40, Concert by De Fliereluiters, conducted by H. Eisler. 7.55, Talk. 8.5, Concert (continued). 8.20, Song Recital by Mlle. Fientje de la Mar. 8.40, Recitations. 9.0, Concert by the Station Orchestra, conducted by H. de Groot. Overture, Pique Dame (Suppé). Tableaux de Ballet (Lincini). Polish Dance (Scharwenka). Potpourri, Besuch bei Millöcker (Morena). Selection from The Bird Fancier (Zeller). 9.40, Song Recital (continued). 10.0, News. 10.10, Concert (continued). Maxim March (Lehár). Scheherazade (Schmalstich). Chants d'automne (Waldteufel). Selection from Die Meistersinger von Berlin (Lincke). Servus Wien (Dostal). 10.40, Popular Music on Gramophone Records. 11.40 (approx), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—11.55 till Close Down, Programme of the Christian Radio Society (K.R.O.). 11.55 a.m., Concert by the KRO Sextet. In the Interval, Gramophone Records and News. 1.25, Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Light Music on Gramophone Records. 4.40, Concert by the KRO Boys. Soloist, J. Mossel (Songs). Weiss du was, lieber Franz? (Lanbé). Ein kleines Haus (Glan). Wenn ich Sonntags in mein Kino geh' (Heymann). March, Freiheitsjubel (Blankenburg). Im sonnigen Süden (Bodewalt Lampe). Plegaria de mi Corazon (Freiberg). Potpourri of Waltzes (Robrecht). Irgendwo (Heymann). Zehn Minuten Schlager (Schneider). In the interval at 4.55, Esperanto Lesson. 6.0, Press Review. 6.20, Concert (continued). In's blaue Leben (Erwin). Im Gasthaus zum Goldenen Stern (Rotter). Millöcker Potpourri (Morena). Puszta-Sagen (Nael). 6.40, Police Notes. 6.55, Talk. 7.15, Popular Music on Gramophone Records. 7.25, Sports Talk. 7.40, Concert of Popular Music by the KRO Orchestra, and a Male Voice Double Quartet. March, The Liberty Bell (Sousa). Selection from Die Bajadère (Kálmán). Songs: (a) March, Neerlandia (Blokland). (b) Am Abend (Tefke). (c). Dance (Otto). In an interval, News. 8.30, Accordion Recital by the Two Cavellis. 9.50, Orchestral Concert (continued). March, San Lorenzo (de Silva). Ballet Music from La Source, (Delibes). Songs: (a) Hilde aan den Arbeid (Blokland). (b) Mein Himmel auf der Erde. (Pfeil). (c) Sailors' Song (Sieczynski). 9.20, Accordion Recital (contd.). 9.40, Orchestral Concert (contd.). Selection from La Vie Parisienne (Offenbach). Three Songs, French Comedy Overture (Keler-Bela). Melody (Montagno). Waltz, Gold and Silver (Lehar). Hungarian March, Attila (Fucik). In an interval at 10.10, News. 10.40, Gramophone Records of Popular Music. 11.40, Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—8.0 p.m., Amusements' Guide, News, Financial Notes and Racing Results. 8.10, Tourist Talk. 8.30, Radio Concert. 9.0, News Bulletin. 12.0 **Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. 12.0 **Midnight,** Variety Music. Selection from The Cat and the Fiddle (Kern). Snuggled on your Shoulder (Lombardo)). Daddy wouldn't buy me a bow-bow (Tabrar). When we're alone (Jason). You're gonna be young (Nicholls). Selection from Bow Bells (Sullivan). Concentratin', Reaching for someone (Donaldson). The King's Horses (Graham). Blaze Away (Holzmann). Little Annie Rooney (Nolan). Georgia on my Mind (Carmichael). Ain't misbehavin' (Donaldson). Father Rhine March (Porschmann). Daisy Bell (Dacre). Whistling Waltz. 12.57 a.m. **(Sunday),** I.B.C. Goodnight Melody. 1.0 (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—7.30, See **Warsaw.** 11.35, Dance Music.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—6.15 p.m., Talk. 6.35, Musical Programme. 6.55, Variety Items. 7.5, Der Orlov—Operetta (Bruno Granischtädten), relayed from Kausan Näyttämö. 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—1.0 p.m., Concert conducted by Eysoldt. In the interval at 2.0 (approx.), News. 2.30 to 3.0, Interval. 3.0, Programme for Children. 3.30, Economic Notes and Time. 3.50, Talk: Touring in the Lahn District. 4.10, English Reading. 4.30, Concert conducted by Wolf. Soloist, Otto Wetzel (Pianoforte). Invitation to the Dance (Weber); Selection from Madame Butterfly (Puccini); Delirien-Walzer (Strauss); Pianoforte Solos (Grieg): (a) Norwegian Dance, (b) Sie tanzt. (c) Springtanz, (d) Waltz Impromptu; Selection from Where the Lark Sings (Lehár). 5.50, Talk: People and their Callings: The Postman. 6.15, The World on Gramophone Records: Bulgaria. 6.45, Weather, Time, Economic Notes, and Sports Report. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, News. 8.5, Variety Programme, relayed from **Munich.** 10.20, News and Sports Report. 10.45, See **Munich.** 12 **Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—1.15 p.m. Gramophone Records of Peasant Orchestras. In an interval, Wireless Talk. After the Concert, News. 2.0, Instrumental Concert on Gramophone Records; Harpsichord: (a) Minuet from Don Giovanni (Mozart). (b) Le tambourin (Rameau). (c) Le concou (Daquin); Spinet: (a) The Harmonious Blacksmith (Handel). (b) Turkish March (Mozart); Harp: Am Springbrunnen (Zabel); Zither: (a) Scottish Melodies, (b) Old Viennese Airs; Guitar: Serenade (Toselli); Mandoline and Lute Orchestra: (a) Rococo Minuet (Leiss). (b) Loin du bal (Gillet). (c) Russian Mazurka (Ganne). 2.35, Talk on Wireless. 2.45, Programme for Children. 3.30, Radio Report on the International Dog Show at Leipzig. 3.45, Economic Notes. 4.0, Concert, relayed from **Berlin (Witzleben).** In the interval at 5.0, Talk on Music. 6.0, German for Germans—Saxon Dialect. 6.20, A Modern Dictionary. 6.30, Zerbst—a Study (Wilhelm van Kempen), in Connection with the Zerbst Musical Festival on the 24th and 25th of May. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, See **Munich.** 10.5, News. 10.10 (approx.), Spring Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer: Larghetto and Scherzo from the Spring Symphony in B Flat, Op. 38 (Schumann); Pianoforte Solo, Was die Schwalbe sang (Draesecke); Pastorale (Palmgren); Waldstille und Elfenreigen, Op. 11 (Rhode); Ein Märchen (Nicodé); Waltz, Frühlingsstimmen (Joh. Strauss). 12 **Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—6.0 p.m., Talk on Ethnology. 6.30, English Lesson. 7.0, Educational Programme. 7.30, Talk on Philosophy. 8.0, Variety Programme. 9.30, Weather and News. 10.0, Quintet Concert. 11.0 (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—7.30 p.m., Radio Gazette. 8.30, Operetta Programme, relayed from **Paris (Ecole Supérieure), 671 kc/s (447.1 metres).** After the Programme, News.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—7.0 p.m., Concert of Popular Music. 8.15, Talk. 8.30, Light Music. 9.0 to 11.30, Interval. 11.30, Programme relayed from **Madrid (EAJ7).** After the Programme, Radio Chronicle. 1.0 a.m. (approx.), **Sunday,** Close Down.

MADRID

UNION RADIO; Call EAJ7; 707 kc/s, 424.3 metres; 2 kW.—8.0 p.m., Chimes, Exchange Quotations, Radio Journal, Medical Talk, and Request Gramophone Records. 9.15, News Bulletin. 9.30 to 10.0, Interval. 10.0, Linguaphone English Lesson. 10.30, Chimes and Time Signal. 10.35 (approx.), Madame Butterfly—Opera (Puccini), on Gramophone Records. 12.45 a.m. **(Sunday),** News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—6.25 p.m., Schrammel Music. 7.0, See **Prague.** 8.30, See **Brno.** 9.30, See **Pragus.** 10.45, Concert by the Station Orchestra, conducted by V. Musil. Selection from The Czarevitch (Lehár); Wedgwood Blue (Ketelbey); Waltz (Kubin); Tango (Tichy); Polka (Tichy); Foxtrot (Kajer-Jurmann); March (Fuchs). 11.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 1,304 metres; 100 kW.—6.30 p.m., Concert from the Radio Theatre. 9.0, Talk in French: in a Food Factory. 9.55, Time Signal. 10.5, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres, and Nürnberg, 1,255 kc/s, 239 metres.**—4.30 p.m. (from **Nürnberg**), Military Band Concert. 5.45, Programme for Young People. 6.25 (from **Nürnberg**), Recital by a Vocal Quartet. 6.45, Wireless Notes. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Bunter Abend. Part I: Variety Programme by an Accordion Band, the Small Station Orchestra and Soloist: Part II: Bei der Wirtin zum weissblauen Krauzerl—Short Operetta (Willy Richartz). Part III: Old Waltzes, played by the Small Station Orchestra, conducted by Erich Kloss. 10.20, Time Signal, Weather Report, News and Sports Notes. 10.45, Serenade by the Quirin Huber Orchestra. 12 **Midnight,** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—4.30 p.m., Variety Music on Gramophone Records. 5.15, Programme for Children. 6.15, Hardanger Fiddle and Song Recital of Norwegian Music. 6.45, Talk on Economics. 7.0, Announcements, Weather and News. 7.30, Talk: Music in Sweden. 8.0, Time Signal. 8.2, Concert by the Station Orchestra, conducted by Hugo Kramm: March (Blankenburg); Overture, La Dame Blanche (Boieldieu); Suite, Aus aller Herren Länder (Moszkowsky); Piece (Alfven); Marionettes (Dreyer); The Nightingale in the Lilac Bush (Krome); Liebestraum (Liszt); Minuet (Boccherini); Melody (Backer-Gröndahl); Oriental Suite (Leopold); Waltz (Mackeben); Luxustelegramme (Holländer). 9.38, Announcements, Weather and News. 10.0, Topical Talk. 10.15, Reading. 10.45, Dance Music on Gramophone Records. 12.0 **Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—8.0 p.m., Dopolavoro Announcements, Tourist Talk, Agricultural Report, and Giornale Radio. 8.20, Sports Notes. 8.25, Gramophone Records. In the interval at 8.30, Time and Announcements. 8.45, Acqua cheta—Operetta in Three Acts (Pietri). In the intervals, Review of New Books and Announcements. After the Operetta, 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., Talk on Music, with Illustrations. 7.0, Le Journal Parlé. 8.30, Pianoforte Recital by Marie-Antoinette Pradier, with Commentary. English, Spanish and German Harpsichord Music. Prelude-Musette (Purcell); Sonata (William Byrd); Sonatas (Albéniz); Gigue (Hassler); Melody (Ph. E. Bach); Rondo (F. W. Rust); Prestissimo (J. Ch. Bach). 9.0, Concert by the Firmin Touche Quartet. Quartet in D, Op. 45 (Albert Roussel); Quartet: From out my Life (Smetana). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Journal Parlé and Foreign Press Review. 7.5, Light Music on Gramophone Records. 7.30, Answers to Correspondents. 7.35, Sponsored Concert. 8.0, Review of the Week. 8.5, Theatre Review. 8.15, Interval. 8.30, Concert of Chamber Music. Soloist, Mlle. Levy (Violin). 9.0, Interval.

MAY 20th **SATURDAY** *continued*

9.10, Dance Music by the Sonora-Radio Orchestra. 11.0, News. 11.5, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 75 kW.—**12 Noon,** Concert by the Radio Paris Orchestra: Moldavian Dance (Razigade); Cadet Rousselle (Fourdrain); Chevalier Potpourri; Highlanders' Parade (Chauvet); Swedish Songs and Dances (Paget); Egyptian Serenade, Amitre (Lincke); Melody; Neapolitan Souvenirs (Cerri); Spanish Suite (Acenes); La Voix des Cloches (Luigini); Ländler (Weckerlin); Norwegian Scenes (Matt); Le Berry (Fourdrain). In the intervals at **1.0,** Exchange, News, and Weather; and at **1.30,** Exchange. **2.0,** Exchange. **3.0,** Programme for Children. **3.45,** Exchange Quotations and Market Prices. **6.10,** Agricultural Talk. **6.30,** Concert by the Radio Paris Orchestra: March from Casanova (Lincke); Foxtrot (Siede); One-step (Beckand-Rio); Lieder der Liebesnacht (Lincke); Rumba, Cuban Night (Margutti); One-step, Peron (Vila); Waltz-Intermezzo, The White Roses (Wachlert); Tango (Eisele). **7.0,** Talk on Science. **7.20,** Dance Music by the Radio Paris Orchestra. **7.45,** Commercial Prices, News, and Review of the Latin Press. **8.0,** The Different Quarters of Paris—La Chapelle. Programme arranged by Francis Carco. **8.30,** News and Weather. **8.45,** Revue by Moriss, with the Collaboration of Gisèle Parry. **9.15,** Press Review and News. **9.30,** Light Music on Gramophone Records.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.—7.30 p.m.,** Radio Debuts. **8.0,** Radio Troubadours, from **New York. 8.30,** Wealth of Harmony, from **New York. 9.0,** Teaberry Baseball Scores. **9.5,** Dance Masters, from **New York. 9.30,** Concert Favourites, from **New York. 9.55,** Teaberry Baseball Scores. **10.0,** The United States Government in Pittsburgh—Federal Probation System, by G. G. O'Brien. **10.15,** Hotel Sherman Orchestra, from **New York. 10.30,** Behind the Law—Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Hotel Lexington Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** A Recreo by Bill and Alex of the Downtown Y.M.C.A. **11.45,** Jack Pettis and his Orchestra. **11.59,** Time Signal. **12 Midnight,** American Taxpayers' League, from **New York. 12.15 a.m. (Sunday),** The Townsend Murder Mystery, from **New York. 12.30,** Atkinson String Ensemble. **12.45,** Honey and Old-Fashioned Quartet. **1.0,** Joint Commission in Emergency in Education, from **New York. 1.15,** Programme to be announced. **3.0,** Time Signal and Gilbert and Sullivan Gems, from **New York.**

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** Divine Service, relayed from Czenstochowa. **7.0,** Miscellaneous Items and News. **7.28,** Time Signal. **7.30 to 10.0,** See **Warsaw. 10.0,** Time Signal, Sports and Police Notes. **10.5,** Chopin Recital by Bolesaw Kon. **10.40,** Announcements. **10.50,** Dance Music from the Café Polonia. **11.50** (approx.) Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava. 5.10,** Talk on Economics. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Light Music on Gramophone Records. **6.5,** Agricultural Talk. **6.15,** Tourist Talk for Workers. **6.25,** News in German. **6.30,** German Transmission. Talk: Young People without Chances for the Future. Walter Seidl reads from his own Works. **7.0,** Time and News. **7.10,** Talk: The Sun as a Benefactor and a Destroyer. **7.25,** A Relay from Music Halls and Places of Entertainment in Prague. **8.30,** See **Brno.** In the interval at **9.0,** Time Signal. **9.30,** Brass Band Concert. **10.0,** Time Signal. **10.2,** News, Announcements and Sports Notes. **10.15,** Brass Band Concert (contd.). **10.45,** See **Moravská Ostrava. 11.30** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; **Geneva, 395 kc/s, 760 metres.—12.28 p.m.,** Time Signal from Neuchâtel Observatory. **12.30 p.m.,** News Bulletin and Weather Forecast. **12.40** (from **Geneva**). Light Music on Gramophone Records. **1.0** (from **Geneva**), Financial Notes. **1.10** (from **Geneva**), Popular Music on Gramophone Records. **2.0 to 3.28,** Interval. **3.28,** Time Signal from Neuchâtel Observatory. **3.30** (from **Geneva**), Popular Concert. **5.30** (from **Berne**). Report on the International Match—Switzerland v. England. **7.30** (from **Geneva**). Weather, News, and Announcements. **8.0** (from **Geneva**). Popular Concert. **9.0** (from **Lausanne**). Concert of Slav Music by a Russian Orchestra and Mme. Talalaev (Songs). **9.50,** News and Weather Forecast. **10.0,** Dance Music, relayed from Le Perrouget Montreux. **11.30** (approx.). Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.0 p.m.,** Agricultural Talk. **6.30,** French Lesson. **6.58,** Weather Report. **7.0,** Duets from Operas, by Irma Kalnins (Soprano) and A. Kortans (Baritone). **7.25,** Concert by the Hyon Music Society on its Hundred and Twenty-Fifth Anniversary. National Anthem; Overture, Egmont (Beethoven); Elegiac Melodies (Grieg): (a) Herzwunden, (b) Letzter Frühling; March from Sigurd Jorsalfar (Grieg). **8.0,** News Bulletin. **8.20,** Concert (contd.). Popular German Songs played on Trumpets a hundred and twenty-five years old and repeated on Modern Wind Instruments. **9.0,** Weather and News. **9.20,** Dance Music. **11.0** (approx.). Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 369 metres;** and **2RO, 11,810 kc/s, 25.4 metres.—1.0 to 2.15 p.m.,** Orchestral Concert. **4.30,** Children's Radio Review. **4.45,** Report of the Royal Geographical Society, and Giornale Radio. **5.5,** Exchange and Announcements. **5.15,** Reading. **5.30 to 6.15,** Orchestral Concert: Lucia e Lucia (Gramantiicri); Hungarian Caprice (Ferraris); A Night in Vienna (May); Selection from La donna perduta (Pietri); Cordoba (Albeniz); In the Desert (Palermi); Humoresque (Rachmaninov); Ragazze d'oggi (Mascheroni). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.0,** Tourist Report. **7.10,** Lesson in Morse. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Gramophone Records of Light Music. **8.15,** Song Recital by Vera Madia Poggioli (Soprano). **8.30,** Giornale Radio and Sports Notes. **8.45,** Symphony Concert, conducted by Victor de Sabata. In the interval, Monologue. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.—11.45 p.m.,** Stock Reports. **12 Midnight to 3.0 a.m. (Sunday), New York Relay. 12 Midnight,** Kaltenmeyer's Kindergarten. **12.30 a.m.,** The Economic World Today. **1.0,** Band of Famous Brands. **1.15,** Zora Layman and her Debonairs. **1.30,** Neighbours—Dramatic Sketch. **2.0,** B. A. Rolfe and his Terraplane Orchestra. **3.0,** Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m.,** Time Signal from Neuenburg Observatory and Weather. **12.5 p.m.** (from **Berne**). Popular Music on Gramophone Records. **12.30,** News Bulletin. **12.40** (from **Berne**), Concert. **1.25** (from **Berne**), Weather, Exchange and Time Signal. **1.30** (from **Berne**). Answers to Correspondence. **1.45** (from **Basle**). Review of New Books. **2.15** (from **Basle**). Light Music on Gramophone Records. **2.45** (from **Basle**). Talk: Modern Physical Culture. **3.15** (from **Basle**). Ballet Music on Gramophone Records. **3.30 to 5.0,** Interval. **5.0** (from **Basle**). Accordion Music. **5.30** (from **Berne**). Report on the International Football Match, England v. Switzerland. **7.30** (from **Basle**). Time, Weather and Market Prices. **7.40** (from **Basle**). Newly released Gramophone Records. **8.0** (from **Basle**). Astronomical Talk: Comets which have ceased to exist. **8.10,** Jazz on Gramophone Records. **8.30,** Everyday Life. Radio Sequence (Dr. Paul Meyer and Werner Hausmann). **9.0,** Weather and News. **9.10** (from **Basle**). The Windows are open, Spring is here Bunter Abend. **10.15** (from **Basle**), Old and New Dance Music on Gramophone Records. **11.0** (approx.), Close Down).

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—4.0 p.m.,** Concert of Light Music; Soloist, Maj Jern (Songs). **5.5,** Variety Programme. **6.0,** Popular Music on Gramophone Records. **7.0,** The Practical Corner. **7.15,** Weather and News. **7.30,** Cabaret. **8.30,** Talk on Normandy. **9.0,** Old Time Dance Music. **9.45,** Weather and News. **10.0,** Dance Music. **11.0** (approx.). Close Down.

STRASBOURG

863 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Classical Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Variety Music on Gramophone Records. **2.0,** Legal Talk in German. **2.15,** Popular Music on Gramophone Records. **3.15 to 3.45,** Interval. **3.45,** Talk on Music: Wagner's Dramatic Tendencies. **4.0,** Wagner Concert, conducted by Maurice de Villers: Overture, The Flying Dutchman; Selection from Rienzi; Overture, Tannhäuser; Two Arias from Tännhauser; March and Bridal Chorus from Lohengrin. After the Concert, Suite, Scheherazade (Rimsky-Korsakov). **6.0,** Tourist Talk. **6.15,** French Lesson. **6.30,** Light Music on Gramophone Records. **7.15,** Gardening Talk in German. **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results, and Announcements. **8.30,** Alsatian Evening. **10.0,** Press Review in French. **10.5,** Orchestral Concert, conducted by Jacquet, relayed from the Café Moll. Soloist: Jacquet (Violin). Overture, Il Soraglio (Mozart); Waltz, Morgenblätter (Joh. Strauss); La Havanaise, for Violin and Pianoforte (Saint-Saëns); Ballet Music from Les deux Pigeons (Messager); Si mes vers avaient des ailes (Hahn); Selection from The Land of Smiles (Lehar). **11.0,** Dance Music from the Savoy. **12 Midnight** (approx.). Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW., and **Freiburg, 527 kc/s, 570 metres.—1.0 p.m.** (from **Mannheim**). Recital of Drinking Songs by Alfred Färbach (Tenor): Rheinlied (Obermeyer); Was ist Wein (Seewald); Weinlied (Eysler); Meine Pfalz (Koch); Am Rhein beim Wein (Ried). **1.30,** Concert from **Langenberg. 2.30,** Time, News, Weather and Programme Announcements. **2.45,** Soprano and Tenor Song Recital by Lili Buob and Hermann Lingor; Aria from The Girl of the Golden West (Puccini); Duet from Martha (Flotow); Duet from The Hermit's Bell (Maillart); Aria from The Hermit's Bell (Maillart). **3.30,** Programme for Children, relayed from **Frankfurt. 4.30,** See **Munich. 5.45,** Time and Sports Report. **6.0,** Talk: The Destiny and Mission of Germans on the Frontiers and Abroad. **6.25,** Talk: Graphic Art of the Romantic Period. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Light Music on Gramophone Records. **8.15,** See **Frankfurt. 10.15,** Time, News, Weather and Programme Announcements. **10.45,** See **Munich. 12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to fire. **7.30 p.m.,** Opera Music. **7.45,** 'Cello Solos. **8.0,** Military Music and Accordion Solos. **8.30,** Concert by a Symphony Orchestra. **9.0,** Extracts from Hérodiade—Opera (Massenet), followed by Light Music. **10.0,** Music by an Argentine Orchestra. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Popular Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** The Lighter Side of Life; Cheerful little Earful; Ragtime Memories; Laughing Susan and the Saxophone; I'm Milly, the Messy old Mermaid; Handsome Gigolo; Oh, how he looks at me; Close your Eyes; All through the Night. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m.,** Orchestral Music. **12.15,** Military Music. **12.30,** Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 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, 500 kc/s, 500.8 metres.—5.10 to 6.0 p.m.,** Dance Music on Gramophone Records. **6.35,** Giornale Radio, Announcements, and Agricultural Report and Dopolavoro Notes. **7.0,** Time, Tourist Report and Songs on Gramophone Records. **7.20,** Giornale Radio. **7.45,** Popular Music on Gramophone Records. **8.0,** Announcements, Giornale Radio, Weather, and Popular Music on Gramophone Records. **8.30,** Talk: Events and Problems. **8.45,** Fior di neve—Operetta in Three Acts (Giuseppe Blanc). In the intervals, Book Review, Announcements, and Giornale Radio. After the Operetta (from **Florence**), Dance Music Relay.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 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.—5.0 p.m.,** Concert conducted by Alois Dostal, relayed from Bad Hall. Overture, Light Cavalry (Suppé). Waltz, Wine, Woman and Song (Joh. Strauss). Selection from La Juive (Halévy-Schreiner). Die Post kommt (Eilenberg). Potpourri, Für meine Freunde (Komzak). March, Kurommissär Purtscher (Dostal). **6.0,** Talk: Experiences as a Guest of an Indian Maharajah. **6.25,** Talk: World Events of the Month. **6.50,** Concert by the Tautenhayn Quartet. Teufels-Marsch (Suppe). Gavotte, Die Lautenschlägerin (Komzák). Polka Mazurka, Frühlingsgruss an Pauline (Schrammel). Ländler, Styrian Dances (Lanner). Waltz Intermezzo, Rebengeister (Tautenhayn). Nur ein Traum, from Der Feldprediger (Millöcker). The Queen's Song, from The Queen's Kerchief (Joh. Strauss). Cake Walk (Klein). Polka from Der Botnarc (Müller). **7.25,** The Maxim. **7.30,** Time, Weather, Sports Notes and Programme Announcements. **7.40** (from Graz). Radio Report on the Second Day of the First International Flight over the Austrian Alps (on Gramophone Records). **8.0,** Der Fremdenführer. Operetta in Three Acts (Ziehrer). In an interval at **9.45** (approx.), News, Weather and Announcements. **10.15,** Dance Music on Gramophone Records.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Weather. **1.15,** Broadcast for Schools, relayed from **Lwow, 788 kc/s (381 metres). 1.55,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Answers to Military Correspondence. **3.35,** Reading, relayed from **Cracow, 959 kc/s (312.8 metres). 4.0,** Popular Music on Gramophone Records. **4.40,** Reading, relayed from **Wilno, 533 kc/s (563 metres). 5.0,** Popular Music on Gramophone Records. **5.35,** News. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Divine Service, relayed from **Czenstochowa. 7.0,** Miscellaneous Items. **7.20,** Agricultural Notes. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Concert of Popular Music by the Radio Orchestra, conducted by St. Navrot; Soloists: T. Faltzewski (Songs) and A. Miszulowicz and T. Kwiecinski (Saxophone); Overture, Silvera (Silvery); Danse fantastique (Cabella); Three Songs; Suite (Percy-Elliot); Saxophone Duets: (a) Foxtrot (Miszulovicz), (b) Boston (Kwiecinski); Waltz, Gold and Silver (Lehar); Mazurka (Osmanski); Three Songs; Ballet Music from Faust (Gounod); Three Saxophone Duets; Cigány March (Filipucci); Melody (Karaskinski); March, The Spring (Namyslovski); March, On the Banks of the Mississippi (Pucik). In the interval, Sports Notes and Radio Journal. **10.5,** Chopin Pianoforte Recital by B. Kon. Polonaise in E Flat Minor, Op. 26; Fantasia in F Minor, Op. 49; Nocturne in C Minor, Op. 48; Polonaise in A Flat, Op. 53. **10.40,** Reading. **10.55,** Aviation Weather Report and Police Report. **11.0,** Dance Music from the Bodega. In an interval at **11.30,** News for Members of the Polish Polar Expedition, relayed from **Lwow, 788 kc/s (381 metres).**

ZURICH.—See **Schweizerischer Landessender.**

Printed for the Publishers, ILIFFE & SONS LTD., Dorset House, Stamford Street, London, S.E.1, by The Cornwall Press Ltd., Paris Garden, Stamford Street, London, S.E.1.
Colonial and Foreign Agents:
UNITED STATES—The International News Co., 131, Varick Street, New York. FRANCE—W. H. Smith & Son, 248, Rue Rivoli, Paris; Hachette et Cie., Rue Réaumur, Paris. BELGIUM—W. H. Smith and Son, 71-75, Boulevard Adolphe Max, Brussels. INDIA—A. H. Wheeler & Co., Bombay, Allahabad and Calcutta. SOUTH AFRICA—Central News Agency, Ltd. AUSTRALIA—Gordon & Gotch, Ltd., Melbourne (Victoria), Sydney (N.S.W.), Brisbane (Queensland), Adelaide (S.A.), Perth (W.A.), and Launceston (Tasmania). CANADA—The American News Co., Ltd., Toronto, Winnipeg, Vancouver, Montreal, Ottawa, St. John, Halifax, Hamilton; Gordon & Gotch, Ltd., Toronto; Imperial News Co., Toronto, Montreal, Winnipeg, Vancouver, Victoria. NEW ZEALAND—Gordon & Gotch, Ltd., Wellington, Auckland, Christchurch and Dunedin.

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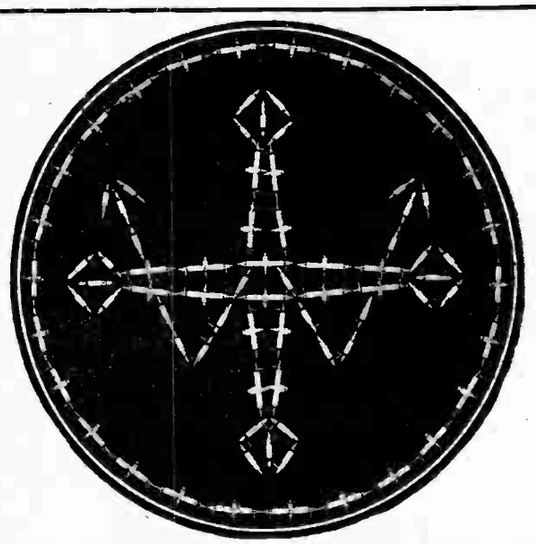

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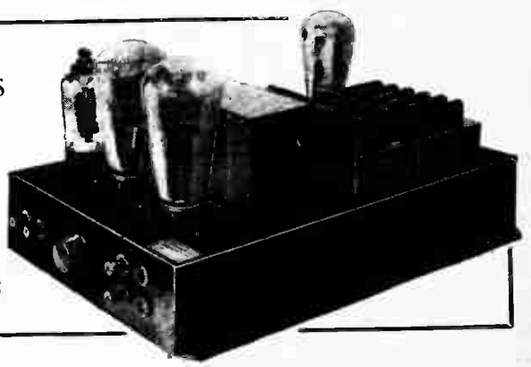

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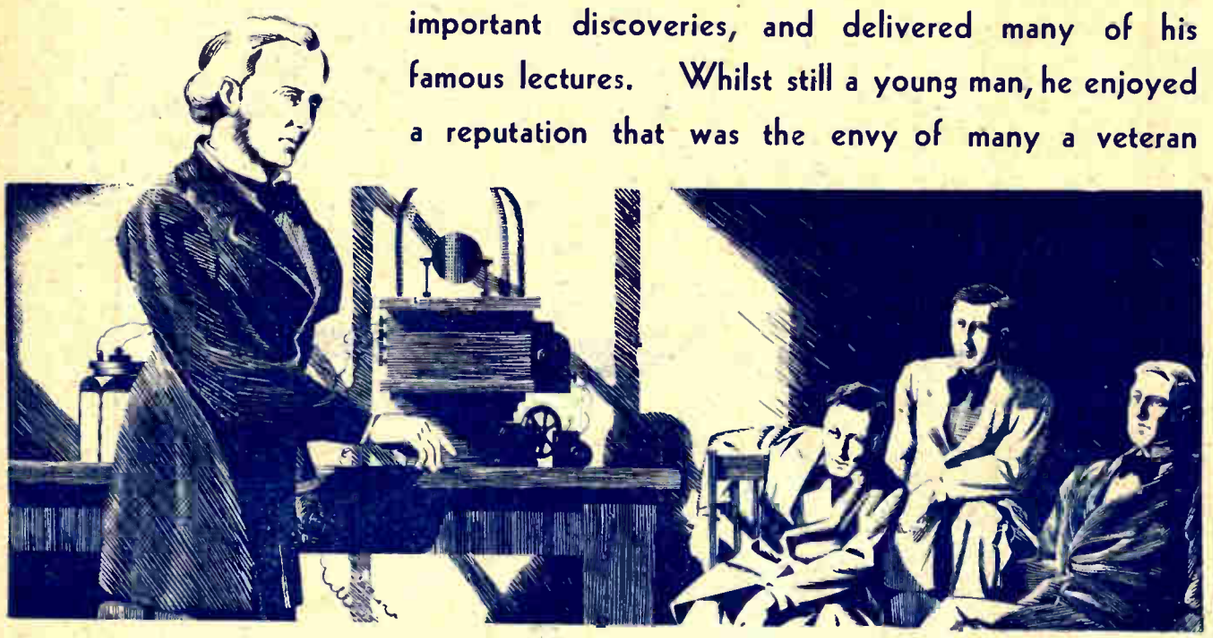

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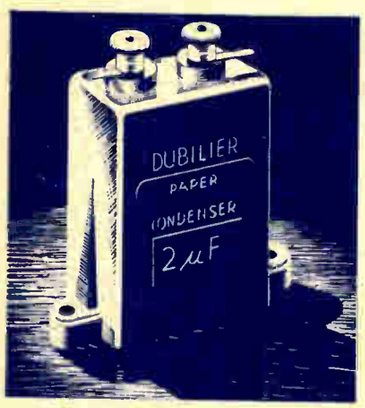

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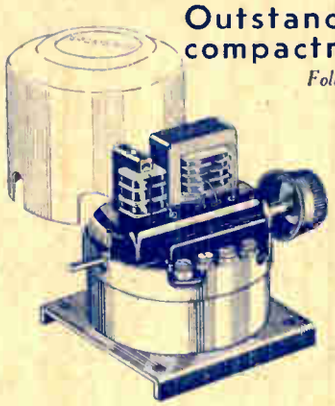

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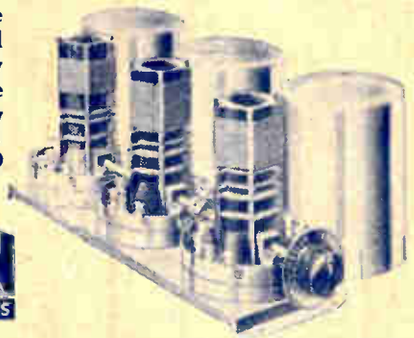

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ALL-BRITISH CONDENSERS

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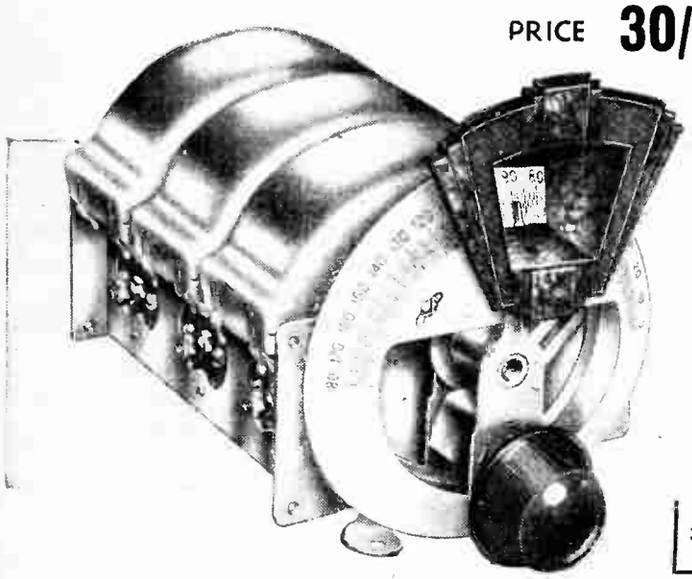

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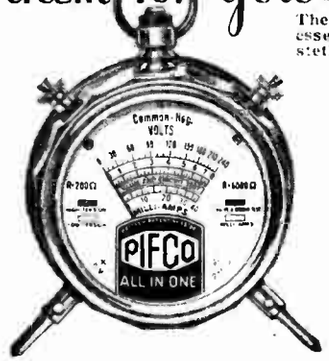

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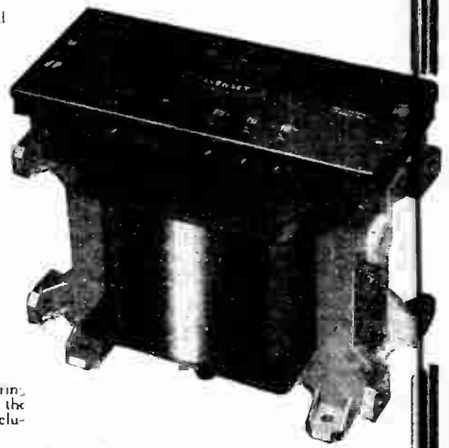

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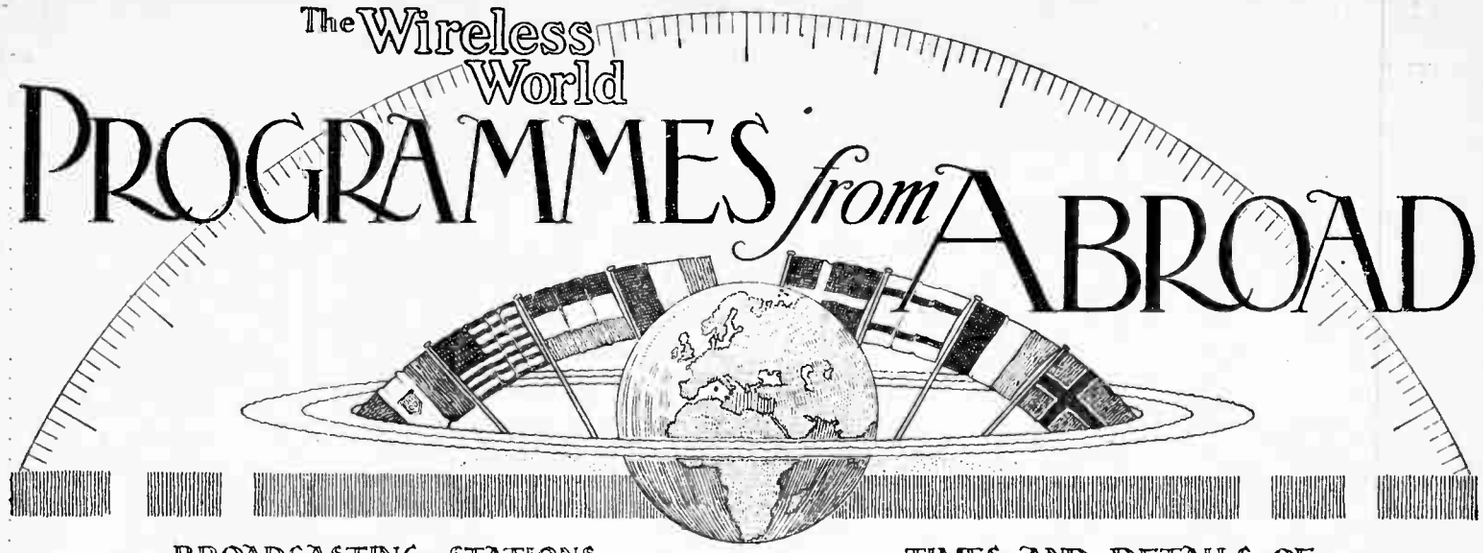

BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	Kc.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on* 31.38 *m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw I (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	100	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on* 50 *m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
770	389	0.6	Ostersund (Sweden). (*Relays Stockholm*)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
678.7	442	15	Monte Ceneri (Switzerland). (*Testing*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
558.6	537	1	Tampere (Finland). (*Relays Helsinki*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*). Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Upsala (0.15 kW.) (Sweden) (*relays Stockholm*).	
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, 1RO, (*S.-W. Station*, 2 *RO on* 25.4 *m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After* 7.0 *p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional, (Daventry)	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ1 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
368.1	815	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, INA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	0.7	Radio Vitus (Paris). (*S.-W. Stn. on* 43.75 *m.*)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, IGE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
309.9	968	50	West Regional (Washford Cross)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (7 *kW. before* 4.40 *p.m.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	10	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	Kc.	kW.	Station.	Tuning Positions.
287.3	1022	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on* 31.25 *m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*); Eskilstuna (0.2 kW.), Säffle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*); Schaerbeek (0.1 kW.) (Belgium).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.1	Brussels, Radio-Chatelineau (Belgium)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.35	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristincham (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.	Call Sign.	Station.	Tuning Positions.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 10.00–13.00)	
63.0	4,760	CT3AR	Funchal (Madeira). (*Wed.* 21.30, *Sun.* 15.30)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 07.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 01.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 13.20 *and* 08.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 20.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FIUI	Tananarive, P.T.T. (Madagascar)	
52.5	5,714	HCJB	Quito (Ecuador). (*Daily* 13.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 20.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 04.00, *Sat.* 08.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 21.00)	
49.96	6,005	HRB	Tegucigalpa (Honduras). (*Daily ex. Sun.* 01.00–06.00.)	
49.83	6,020	W9XF	Chicago, Ill. (U.S.A.). (*Relays WENR*)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 02.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 17.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamlebaek (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	UOR2	Vienna. (*Tues.* 14.00, *Thurs.* 16.00, *Sat.* 24.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 24.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 10.00, 15.00 [*Sat.* 15.30] *and* 18.00, *Sun.* 14.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 14.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 01.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 16.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 24.45)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 02.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 02.00 *Sun.* 03.00.)	
45.38	6,611	REN	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 04.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 23.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 16.30.)	
41.6	7,211	EAR58	Tenerife (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 15.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 17.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
36.92	8,125	PLW	Bandoeng (Java). (*Daily* 11.00–15.00)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 22.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 22.00)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 22.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 11.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 14.00)	
31.35	9,570	SR1	Posen (Poland). (*Tues. and Thurs.* 18.30)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 22.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.15.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 11.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 23.00–01.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 03.00–06.00)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 00.30) *Sat.* 19.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 20.00)	
29.3	10,238	T14NRH	Heredia (Costa Rica). (*Daily* 23.00 *and* 03.00.)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 21.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 11.30–13.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.30.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 18.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 21.00)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 19.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 *and* 20.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.4	11,933	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 12.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 20.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 17.00 *and* 22.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 11.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 14.00–18.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 19.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 22.00)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 14.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 22.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MAY THE TWENTY-FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral and Military Band concert, from Bournemouth.
LONDON REGIONAL	Service from Streatham Methodist Church. Chamber music.
MIDLAND REGIONAL	Service from the Cathedral, Birmingham, conducted by Bishop A. Hamilton Baynes.
NORTH REGIONAL	Service from St. Sylvester's Roman Catholic Church, Liverpool.
WEST REGIONAL	Concert from the Park Hall, Cardiff.
BELFAST	Evensong from St. James's Parish Church, Belfast.

ABROAD

BORDEAUX LAFAYETTE	9.0 p.m. Concert from the Casino, Vichy.
BUDAPEST	8.15 p.m. Operetta: "Lustige Husaren," by Emmerich Farkas.
HILVERSUM	8.40 p.m. Beethoven's Second Symphony, conducted by W. Mengelberg, from Amsterdam.
LEIPZIG	11.30 a.m. Bach Cantata: "Was willst du dich betrüben" (Relayed by other German Stations).
MUNICH	8.50 p.m. Act 3 of "Siegfried" (Wagner), from the National Theatre.
OSLO	10.15 p.m. Act 3 of "Tales of Hoffmann," by Offenbach.
PRAGUE	6.0 p.m. Opera: "The Betrothal by Lanternlight," by Offenbach.
SOTTENS	3.30 p.m. Opera: "Madame Butterfly" (Puccini), from Lausanne.
STRASBOURG	3.30 p.m. Oratorio: "The Seasons" (Haydn), relayed from **Lille.**
STOCKHOLM	8.0 p.m. Operetta: "Countess Maritza," by Kalman.
VIENNA	12.45 p.m. Brahms' Symphony, No. 1, in C Minor (Op. 68), conducted by Furtwängler.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.31,** Annie Fagan's Instrumental Trio. **8.50,** Birthright—Play (T. C. Murray), by the Dublin Repertory Company. **9.50,** Contralto Solos by Betty Byrne. **10.10,** Instrumental Trio. **10.30,** Bass-Baritone Solos by M. O'C. Maguire. **10.50,** Instrumental Trio. **11.0,** Time, News, Weather, and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**2.0 p.m.,** Variety Music on Gramophone Records. **2.30** (in an interval). Theatre Notes. **3.0,** Film Review. **3.5** (approx.), Concert by the Station Sextet. **4.0,** Programme for Hospitals and Benevolent Institutions, with Gramophone Records. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk in Catalan. **7.0,** Concert of Light Music. **7.30,** Baritone Song Recital. **8.0,** Orchestral Concert with Tenor Solos. **9.0,** Dance Music from the Hollywood Bar. **10.0,** Extracts from an Opera on Gramophone Records. **11.45,** Chess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**10.45 a.m.,** Agricultural Report. **11.5,** Sacred Music from the Church of San Domenico. **11.30,** Bible Reading. **1.0 p.m.,** Giornale radio. **1.10 to 2.15,** Variety Music on Gramophone Records. In the intervals at **1.55,** Weather, and at **2.0,** Time and Announcements. **5.30 to 6.30,** Popular Music on Gramophone Records. **8.0,** Sports Notes and Giornale radio. **8.30,** Time and Announcements. **8.45** (approx.), Concert of Operetta Music and Songs. Soloists: M. Montanari (Tenor) and Clara Demetri (Soprano). Fantasia, Mascheroncide (Mascheroni); Tenor Solo, Fanciulle belle (D'Anzi); Soprano Solo, Piccolo bar (D'Ardami); Astrakan, suol d'amore (Molcti); Tenor Song (Stolz); Soprano Solo, Pallida Mari (Stocchetti); Il signore del tassametro (Randegger); Tenor Solo, Canto all luna (Fragna); Soprano Solo, Addio bambine (Mascheroni); Potpourri Bixiana (Bixio); Soprano Solo, Non ritornate rondini (Billi); Mountain Serenade (Blanc); Soprano Solo, Sotto l'ombrellino (Mascheroni); Tenor Solo, Sperduti nel blu (Borella); Funiculi-funiculà (De Acco); Soprano Solo, Carillon (Tagliaferri); Tenor Solo, Catarinette (Ravasini). **10.30,** Variety Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.5 kW.—**4.30 p.m.,** Orchestral Concert. **6.55,** Time and Programme Announcements. **7.0,** Violin Recital. **7.45,** A Radio Play. **8.15,** Orchestral Concert with Xylophone Solos. **9.15,** Sports Notes. **9.30,** Recital of Russian Folk Songs. **10.10,** News, followed by Cigány Music from the Potrosacka Zadruga Restaurant.

BERLIN

DEUTSCHLANDSENDER; 183.5 kc s, 1.635 metres; 60 kW.—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** See **Breslau.** In the interval at **12.55,** Time Signal. **2.0,** Herybert Menzel reads from his own Works. **2.30,** Talk: A Visit to an Arab Worker in the Hottest Town in the World. **3.0,** Radio Play for Children. **3.45,** See **Berlin (Witzleben).** In an interval at **4.0,** Report on Davis Cup Match, Germany v. Holland, with Gramophone Interludes. **5.15,** A Dialogue: Social Welfare and National Socialism. **5.30,** Recital of Opera Arias, by Carla Spletter: Aria from Figaro; Micaela's Aria from Carmen (Bizet); Mimi's Aria from La Bohème (Puccini); Elsa's Dream from Lohengrin (Wagner); Elizabeth's Prayer, from Tannhäuser (Wagner). **6.10,** Talk: Ecclesiastical Leadership. **6.30,** Songs as Instrumental Music—Gramophone Concert. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Paul Lincke Concert, conducted by the Composer. Soloists: Lotte Werkmeister and Theo Lucas (Songs): Apollomarsch; Overture, Frau Luna; Song, Am schönen Rhein gedenk ich dein; Waltz, Verschmähte Liebe; Song, Ach die böse Liebe; Geburtstagsständchen; Duet: Onkel Fichte mit der Nichte; Waltz, O, Frühling wie bist du so schön; Duet: Fritzi und der Fritze; Overture, Im Reiche des Indra; Song, Es gibt ja so viel nette Mädchen; Serenade, Amina; Song: Ach, wenn das mein Männchen wüsste; Siamesische Wachtparade; Duet: Das ist der ander von Berlin; Potpourri, Lasst den Kopf nicht hangen. **10.0,** Weather, News, and Sports Notes. **10.20,** Dance Music from Krolls Festsälen. In the interval at **10.45,** Weather Report for Shipping. **11.0,** Light Music and Dance Music from **Berlin (Witzleben). 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc s, 419.5 metres; 1.5 kW.—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Concert from **Breslau. 2.0 p.m.,** Programme for Garden City Dwellers—Talks. **3.0,** Programme for Young People. **3.45,** Radio Report of the ADAC International Motor Races, from the Avus. In the interval at **4.0,** Radio Report of the Davis Cup Match, German v. Holland. Gramophone Music throughout the Programme. **5.15,** Radio Report of the Procession of Blind Men's Dogs in the Lustgarten. **5.25,** Programme arranged by the Berlin Branch of the Society for the Protection of Animals, relayed from the Landesausstellungs Park. **6.15,** Report on International Affairs. **6.30,** Talk by Captain Helmut Lorenz: My Last Journey in my U-Boat. **6.50,** Announcements. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Concert from **Breslau. 9.0,** Sports Notes. **9.10,** Report from Berlin Castle. **9.15,** Berlin Art Week—Radio Report from Berlin Castle; Concert by the Berlin Philharmonic Orchestra, conducted by Erich Kleiber. **10.0,** News, followed by Light Music and Dance Music. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.30 p.m.,** Radio Journal. **7.45,** Sports Notes. **8.0,** Talk for Ex-Servicemen. **8.15,** Lottery Results. **8.30,** Gramophone Records of Light Music. **9.0,** Concert relayed from the Casino, Vichy.

BRATISLAVA

1.076 kc/s, 279 metres; 14 kW.—**12.5 p.m.,** Radio Report from the Castle of Orava. **12.35,** See **Brno. 1.30,** Agricultural Talk. **1.45 to 1.50,** Hydrographic Report. **4.0,** Relay from **Namestov. 7.0,** See **Prague. 8.55,** See **Brno. 9.15,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Orchestral Concert, conducted by Franz Marszalek. **2.0 p.m.,** News. **2.25,** Agricultural Notes. **2.40,** Talk on Chess. **2.55,** Programme for Children. **3.30,** Songs of Young Silesia—a Recital by Leo Klaka (Baritone), with Commentary. **4.0,** Orchestral Concert from **Bad Salzbrunn.** In the interval from **4.50 to 5.10,** Radio Report from **Bad Salzbrunn** and **Bad Charlottenbrunn. 6.0,** Weather and Sunday Sports Results. **6.15,** Brahms Recital by Nora Walloseek (Pianoforte): Sonata, Op. 1, in C; Ballads, Op. 10, Nos. 3 and 4. **7.0,** Transmission for all German Stations, Annaberg—Radio Play (Knit Eggers), on the Twelfth Anniversary of the Storming of Annaberg. **8.0,** Concert by the Silesian Philharmonic Orchestra, conducted by Hermann Behr; Soloist: Olly Stephan (Soprano): Overture and the Countess' Aria from Figaro (Mozart); Sinfonia concertante for Violin, 'Cello, Oboe, Bassoon, and Orchestra, Op. 84 (Haydn); Agatha's Aria from Der Freischütz (Weber); Overture, Peter Schmoll (Weber); Overture, William Tell (Rossini); Aria from Hans Heiling (Marschner); German Dances (Schubert); Overture, The Merry Wives of Windsor (Nicolai); Persian March (Joh. Strauss). In an interval from **9.0 to 9.20,** News. **10.10,** Second News. **10.30,** Programme from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc s, 342 metres; 35 kW.—**12.35 p.m.,** Military Band Concert. **1.30 to 1.45,** Agricultural Report. **4.0,** See **Moravská-Ostrava. 5.30,** A Sketch. **6.0,** German Transmission: Dances of the Nations, by the Station Orchestra, conducted by F. Weidlich. **7.0,** See **Prague. 7.30,** Concert of Modern Music by the Station Orchestra, conducted by B. Bakala. **8.10,** Programme from **Pragus. 8.55,** Recital of Yaroslav Yezek's Songs. **9.15,** See **Pragus. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc s, 509 metres; 15 kW.—**12 Noon,** Concert conducted by A. Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by Mickey's Club Jazz Attraction. In the interval at **1.30,** La Noce à Eugène—Sketch (André Blandin). **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **5.30,** Football Results. **6.0,** Gramophone Records of Popular Music. **6.30,** Recital by Mme. Tourovetz. **7.0,** Gramophone Records (contd.). **7.15,** Religious Address. **7.30,** Music Review. **8.0,** Extracts from Mirella—Opera (Gounod). **8.30,** Vasco da Gama—Sketch (Marcel Lefevre). **8.50,** Mirella (contd.). **9.20,** Tambourin chinois (Kreisler) on Gramophone Records. **9.25,** Mirella (contd.). **9.40,** Spanish Serenade, Cadiz (Albéniz), on Gramophone Records. **9.45,** Mirella (contd.). **10.0,** Le Journal Parlé. **10.10,** Mirella (contd.). **10.25,** Concert, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by Mickey's Club Jazz Attraction, conducted by Ludo Langlois. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Concert by the Radio Orchestra, conducted by Franz André. In the interval at **5.30,** Sports Notes. **6.0,** Gramophone Records: Toccata (Boellmann); Petite Suite (Debussy-Busser); Miniature Suite (Coates); Toccata (Gigout). **6.30,** Concert by the Station Orchestra, conducted by P. Leemans. **7.15,** Religious Address. **7.30,** Music Review by Jef Van Durme. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloists: Mme. Lambert and M. Tolkowsky (Songs). Russian Folk Dances (Bullerian and Tchaikovsky); The Volga Boatman; Waltz, The Blue Danube (Joh. Strauss). **8.45,** Recitations. **9.0,** Concert (contd.): Songs from: (a) A Waltz Dream (O. Strauss), (b) Lilac Time (Schubert), (c) Show Boat (Kern); Negro Spirituals; Jazz Potpourri (Candrix). **10.0,** Le Journal Parlé. **10.10,** Dance Music from the St. Sauveur Palais de Danse. **11.30,** Light Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Jean Marco Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Song Recital by Aurel Alexandresco. **8.30,** Concert by the Radio Orchestra. In the interval at **9.0,** Talk. **9.45,** Radio Journal.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **8.15 p.m.** till Close Down.—**11.0 a.m.,** Catholic Service, followed by Report of the Opening of the New Relay Station at Pecs. **2.0 p.m.,** Gramophone Concert of Variety Music. **3.0,** Agricultural Talk. **3.45,** Orchestral Concert conducted by F. Fridl: Selection from Faust (Gounod); Viora (Szabados); The Nutcracker Suite (Tchaikovsky); Violin Solo from Sylvia (Delibes); Waltz Intermezzo from Naila (Delibes). **4.50,** Talk: The Century Old Cinematograph. **5.15,** Concert by the Imre Magyari Cigány Band. **6.15,** A Dialogue. **6.50,** Pianoforte Recital: Organ Toccata in C (Bach-Busoni); Bénédiction de Dieu dans la Solitude (Liszt); Caprice in B Minor (Dohnanyi); Allegro barbaro (Bartok). **7.30,** Recitation: Spring in Budapest. **8.0,** Sports Notes. **8.15,** Lustige Husaren—a Hungarian Operetta (Emmerich Farkas). **10.15,** Sports and Racing Results, followed by News and Dance Music from the Lunapark.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc s, 1,153 metres;** 7.5 kW.—**11.30 a.m.,** Weather and News. **12 Noon,** Town Hall Chimes. **12.2 p.m.,** Concert by Louis Preil's Instrumental Ensemble. **1.30,** Talk in English: Basic English. **1.50,** Talk in German. **2.10,** Reading in French. **2.30,** Trio Concert of Accordion Music. **3.0,** Concert by the Radio Orchestra, conducted by Emil Reesen. Soloist: Anna Hagen (Songs). Overture, Peter Schmoll (Weber); Blind Man's Buff Suite and Waltz from Gretna Green (Gairand); Spanish Serenade (Glazunov); Lyric Suite (Grieg); Melody from Napoli (Niels Gade); Prelude to Weyland the Smith (Emi Henriques); Modern Danish Songs; Marche parisienne (Ganne); Waltz (Lanner); Finale from the London Symphony in D (Haydn); Selection from Madame Butterfly (Puccini); Overture, The Bartered Bride (Smetana). **5.0** (also relayed by **Skamleback on 31.51 metres**), Divine Service from the Christiansborg Castle Church. **6.20,** Talk: Synagogues in Copenhagen. **6.50,** Weather and News. **7.15,** Time Signal. **7.30,** Talk: Impressions of a Journey to Russia. **8.0,** Town Hall Chimes. **8.1,** Recital of Modern Pianoforte Music. **8.15,** The Hansen Family—a Humorous Episode (Jens Locher). **8.30,** Lortzing Concert by the Radio Orchestra, conducted by Launy Gröndahl. Soloist: Einar Nörby (Songs). Overture, Aria and Ballet Music from Czar and Carpenter; Overture, The Armourer; Aria from The Armourer; Selection from Der Wildschütz; Overture, Die beiden Schützen. **9.20,** A Visit to the Circus—Radio Report. **9.50,** Trio in C, Op. 74, for two Violins and Viola (Dvorák). **10.10,** News. **10.20,** Concert of Scandinavian Music by the Radio Orchestra, conducted by Launy Gröndahl. 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.—**4.0 to 8.0 p.m.,** Programme in English by the I.B.C. **4.0,** The Nursery Corner. **5.0,** Songs of the West Country: The Fly be on the Turmuta (arr. Wheatly); Up from Somerset (Sanderson) Orchestra: Torch Dance from Henry VIII (German); Drake goes West (Sander-

son); Young Tom o' Devon (Russell); Orchestra: Merrymakers' Dance from Nell Gwynn (German); Floral Dance (Moss); Devonshire Cream and Cider (Sanderson). **5.30,** Octet Concert: Slav Dance (Dvorák); Sans Souci (von Blon); Golliwog's Cake Walk (Debussy); Loin du Bal (Gillet); Twilight on the Waters (Squire); Extase (Ganne); Humoresque (Dvorák); Serenade in C (Tchaikovsky). **6.0,** Club Concert for Belfast Listeners: Shamrockland (arr. Stoddon); Songs: (a) Come back to Erin (Claribel). (b) Biddy Mulligan; Selection from Maritana (Wallace); Song: Down by the Liffeyside; Believe me, if all those endearing Young Charms; The dear little Shamrock (Cherry); In a Monastery Garden (Ketelbey); Songs: (a) Father O'Flynn (Stanford), (b) Molly Bawn; Waldemere March; Love's Old Sweet Song (Molloy); Medley of Irish Airs (arr. Stodden). **7.0,** Opera Music: One fine Day, from Madame Butterfly (Puccini); Songs: (a) Cortigiani vil razza, from Rigoletto (Verdi), (b) Mephistopheles' Serenade (Gounod); Selection from I Pagliacci (Leoncavallo); Songs: (a) Toreador Song from Carmen (Bizet), (b) Anvil Chorus from Il Trovatore (Verdi), (c) O Star of Eve from Tannhäuser (Puccini). **7.30,** Special Club Concert for Members at St. John's College, Southsea: The Gladiators' March (Sousa); Serenade (Heykens); In a Chinese Temple Garden (Ketelbey); Potpourri of Waltzes (Ancliffe); Lazy Pete (Kernsten); Bells across the Meadow (Ketelbey); The Skaters' Waltz (Waldteufel); Marche lorraine (Ganne). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C.: Dance Music: Jack-in-the-Box; Her Name is Mary; The Knave of Diamonds; Hyde Park Corner; Drifting and Dreaming; Love Tales; Look what you've done; Lover of my Dreams. **9.30,** Concert. Orchestra: Liebesfreud (Kreisler); Baritone Solo: The Toymaker's Song (Glass); Song: A Boy and Girl were dancing (Gordon); Mandoline Band: Napolitana (Meisel); Contralto Solo: On the Banks of Allan Water (Horn); Duet: The Keys of Heaven (Broadwood); Tenor Solo: Violets (Wright); Orchestral Selection from Love Me To-night. **10.0,** Negro Songs: Down South; I got Shoes; Carry me back to Old Virginie; 'Way down upon the Swanee River; Choir: Swing low sweet Chariot; Orchestra: From the Canebrake; I wanna be ready; Tone de bell; Plantation Song Medley. **10.30,** Concert: Selection from Wild Violets: Let me give my Happiness to you; Farewell to Arms; Hold up your Hands; Under my Umbrella; And so I married the Girl; Sylvia; I wake up smiling. **11.0,** Orchestral and Vocal Concert: Selection from La belle Hélène (Offenbach); Songs: (a) I give my Heart (Mackeben), (b) The Night was made for Love (Kern); Dance of the Clowns (Smetana); Mignonette (Friml); Songs: (a) Air from The Dubarry (Millöcker-Mackeben), (b) A New Love is Old Harbach); Roses from the South (Strauss). **11.30,** Military Band Concert: Amorettentanz (Gungl); Suite from La Source (Delibes); Valse des Alouettes (Drigo); The Wedding of the Rose (Jessel); Wood Nymphs (Coates); Bobomoko (Reeves); Old Panama (**Alford**). **12 Midnight,** Club Concert for Belfast Listeners: Shamrockland (arr. Stodden); Songs: (a) Come back to Erin (Claribel). (b) Biddy Mulligan; Selection from Maritana (Wallace); Song: Down by the Liffeyside; Believe me if all those endearing young Charms; The Dear little Shamrock (Cherry); In a Monastery Garden (Ketelbey); Songs: (a) Father O'Flynn (Stanford), (b) Molly Bawn; Waldemere March; Love's Old Sweet Song (Molloy); Medley of Irish Airs (arr. Stodden). **1.0 a.m. (Monday),** Vocal Duets: Jovial Jasper (Green); Parking in the Moonlight (Tobias); In the Mountains of the Pine (Tait); Orchestra: Musical Comedy Switch (arr. Hall); Living a Life of Dreams (Rubey); The Waltz you saved for me (Wayne); Pasadena Rose (Kennedy). **1.30,** Concert of National Dances: Medley of Scottish Reels; Reel, Hason's Apron; Highland Schottische; Jig, Rakes of Clonmel; Scotch Reels; Prince Charlie (Beaton); Medley of Irish Jigs; Blue Bells (Beaton); March, The Return of Johnnie. **2.0,** Dance Music by the Ibeolians: Round the bend of the Road; Balloons; How can you say "No"?; Have you ever been lonely?; Standing on the Corner; Sittin' in the Dark; A Boy and Girl were Dancing; Isn't it romantic?; Dreaming; Mimi; Wanderer; Southern Serenade; The Wise Old Owl said "Hoo"; So ashamed. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Gramophone Concert. **1.0 p.m.,** See **Langenberg. 2.0,** Agricultural Notes. **2.10,** Programme for Farmers. **3.0,** Programme for Children. **3.45,** Radio Report of the A.D.A.C. International Automobile Races from the Avus. Commentators: Eduard Dietze, Eduard Voigt, Hans Stuck, and Paul Markwald. In the intervals, Gramophone Music. **5.15,** Concert. **6.0,** Talk: Poachers. **6.25,** Kaczmarck Zwo—Humorous Barrack-room Programme in Song and Verse. **6.50,** Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 6.50,** Sports Notes. **8.0,** See **Leipzig. 10.0,** Humorous Programme. **10.20,** Time, News, Weather, and Sports Notes. **10.45,** Serenade from **Munich. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), 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.—12 Noon,** Orchestral Concert, conducted by Horst Platen. In an interval at **12.55 p.m.,** Time and Weather. **2.0,** Young Hitlerites' Programme, relayed from the Harbour—Music and Addresses. **3.0,** In Praise of May—Musical and Literary Programme. **4.0** (from **Kiel**), Concert by the Neumünster Choir, relayed from the Tivoli. **4.30** (from **Kiel**), Tischlein deck' dich—Marionette Play in Seven Acts (Carl Ivovski). **5.30** (from **Kiel**), Military Band Concert, conducted by G. Richter. **6.30** (from **Hanover**), Talk. **6.40,** Neo-Romantic Song Recital by Mara Duve. **7.10,** Sports Notes. **7.25,** Weather. **7.30** (from **Hanover**), Concert of Folk Songs by Karl Hogrebe, by the Göttinger Male Voice Choir. **8.0,** Concert by the Station Orchestra, conducted by José Eibenschütz. Soloist: Dr. Brückner (Violin); Kleist-Overture (Wetz); Violin Concerto in D (Paganini); Burlesque Die Bremer Stadtmusikanten, from Aus deutschen Märchen (Reifner); Suite from Der Rosenkavalier (R. Strauss); Overture, Fatinitza (Suppé); Small Radio March for Wood Wind, Violins and Violas (Eibenschütz); Selection from Gipsy Love (Lehár); Waltz from Prince Methuselah (Joh. Strauss). In an interval, Announcements. **10.0,** Time, Weather, Announcements, Sports Notes and Police Report. **10.10,** Radio Report on the A.D.A.C. International Automobile Race, relayed from the Avus. **10.35,** Concert, relayed from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon** (from **Danzig**), Concert by the Danzig Municipal Theatre Orchestra, conducted by G. E. Lessing; Overture, Le Lac des fées (Auber); Wiegenlied (Schubert); Minuet (Dostal); Piedmont Serenade (Leopold); Waltz Intermezzo Traum der Nacht (Schmalstich); First Suite from L'Arlésienne (Bizet); Idyll, Frühling am Mühlbach (Zimmer); Overture, The Hermit's Bell (Maillart); Barcarolle, Moonlight in Venice (Brasé); Waltz, My Dream (Waldteufel); Dreaming (Vieuxtemps); Die kleinen Soldaten (Marks); Potpourri, Round the Globe (Yoshitomo); March, Regiment von Hindersen (Paul). **2.0 p.m.,** Talk on Chess. **2.30,** Programme for Young People. **2.55,** Talk: Contemporary Painters of East Prussia. **3.15,** Concert by the Königsberg Male Voice Choir. **3.45,** Radio Report from **Berlin (Witzleben). 5.15,** Concert by the Station Orchestra, conducted by Eugen Wilcken. Sports Notes in the interval. **6.25,** Talk: Marienwerder Cathedral. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Sports Notes. **8.10** (approx.), Concert from **Stuttgart. 10.0,** News, followed by Light Music and Dance Music from **Berlin (Witzleben).** In the interval: Gramophone Report of the Königsberg Spring Race Meeting. **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**12.10 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.10,** Orchestral Concert conducted by Nico Treep. **1.40,** Weekly Book Talk. **2.10,** Concert by a Mandoline Band. **2.40,** Military Band Concert: Overture, Le Carnaval romain (Berlioz); Andante from the Fifth Symphony (Tchaikovsky); L'Apprenti Sorcier (Dukas); Gramophone Music; Military March (van Lecuwen); Overture, Euryanthe (Weber); Norwegian Artists' Carnival (Svendsen); Selection from Tosca (Puccini). **4.10,** Gramophone Music. In the interval, Sports Results. **4.40,** Programme of the Workers' Radio Society (V.A.R.A.): Programme for Children. **5.40 to 7.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Book Review. **6.25,** Religious Programme. **7.40** till Close Down, A.V.R.O. Programme. **7.40,** Time, Weather and News. **7.55,** Concert by the Station Orchestra, conducted by Nico Treep. Soloists: Helen van Vliet (Soprano) and Bert van Bloem (Tenor). March from The Merry Widow (Lehár); Two Tenor Solos from Lilac Time (Schubert-Berté); Duet from Toni aus Wien (Stefan); Soprano Solos from (a) The Czarevitch (Lehár), and (b) A Kiss in Spring (Kálmán); Tenor Solos: (a) Song from The Land of Smiles (Lehar), (b) Schlösser die im Monde liegen (Lincke); Duet: Will dir die Welt zu Füssen legen (Abraham); Dort rauscht der Wienerwald (Strauss-Korngold); Duet from Countess Maritza (Kálmán). **8.40,** Symphony No. 2 in D (Beethoven) relayed from the Concertgebouw, **Amsterdam.** The Concertgebouw Orchestra, conducted by Willem Mengelberg. **9.20,** Reading. **9.40,** Concert by Kovacs Lajos and his Orchestra. **10.40,** Gramophone Concert. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**8.10 a.m.,** Religious Programme by the Catholic Radio Society (K.R.O.). **9.10 to 11.55 a.m.,** Programme of the Christian Radio Society (N.C.R.V.): Divine Service from **Apeldoornk,** followed by Sacred Music. **11.55 to 4.40 p.m.,** K.R.O. Programme. **11.55,** Concert by the K.R.O. Boys. **12.40,** Literary Talk. **12.55,** Concert (contd.). **1.40,** Religious Address. **2.10,** Benediction relayed from the Lourdes Grotto in Valkenburg. **4.40 to 7.25,** N.C.R.V. Programme. **4.40,** Divine Service from **Veenendaal,** followed by Sacred Music on Gramophone Records. **6.25,** Studio Service. **7.25** till Close Down, K.R.O. Programme. **7.25,** Talk. **7.50,** Football Report. **7.55,** Orchestral Concert, conducted by J. Gerritsen. Soloist: Ilse Möller-Gerlach (Songs). **8.40,** News. **8.45,** Songs by Ilse Möller-Gerlach. **8.55,** Gramophone Music. **9.10,** Songs (contd.). **9.20,** Gramophone Music. **9.35,** Concert (contd.). **9.55,** News. **10.0,** Concert (contd.). **10.20,** Choral Epilogue. **10.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusements Guide and Variety Programme. **8.45,** News. **9.0,** A Batons rompus—Radio Play (Marie). **10.30** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **10.30,** Violin Recital and Orchestral Music: Roses from the South (Strauss); Violin Solos: (a) Le Balcon (St. Denis), (b) Souvenir (Drdla); Melody (Strauss); Melody (Fétras); Waltz, Estudiantina (Waldteufel); Waltz, Dolores (Waldteufel); Wiener Zugvögel (Translateur). **11.0,** Orchestral and Vocal Concert: Wiener Bonbon (Joh. Strauss); Songs: (a) The Yeoman of England, from Merrie England (German), (b) Largo al Factotum, from The Barber of Seville (Rossini); Melody (Strauss); A Jovial Monk am I (Audran); To-morrow, from The Salt Water Ballads (Keel); Ho, Jolly Jenkin (Sullivan); Waltz, Très jolie (Waldteufel). **11.27,** I.B.C. Good-night Melody. **11.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.—6.10 p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko: Selection from La Juive (Halevy); Waltz from Faust (Gounod); Marche militaire (Saint-Saëns). **6.45,** History Talk. **7.15,** Song Recital. **7.40,** Recitations. **8.0,** The Station Orchestra. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12.5 p.m.,** The World on Gramophone Records—Bulgaria. **12.35,** Reading of Modern German Literature. **1.0,** Concert, conducted by Eysoldt. **2.30,** Talk on Chess. **2.50,** Agricultural Talk. **3.15,** Talk on Music. **3.45,** Talk: The Liturgical Movement in Protestantism. **4.5,** Talk: Tales from the Trenches. **4.30,** Radio Report from **Berlin (Witzleben).** In the interval, Gramophone Records of Popular Music. **5.15,** Choral and Orchestral Concert. **6.0,** Talk: Towns of the Rhineland and Westphalia—Zulpich. **6.30,** Aus dem Grossen Kriege—Play in One Act (Heinrich von Stein). **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Sports Notes. **8.10,** Concert by the Station Orchestra, conducted by Kühn. Soloists: Kläre Hansen (Soprano) and Josef Schömmer (Tenor). Overture, The Merry Wives of Windsor (Nicolai); Hungarian Rhapsody, No. 1 (Liszt); Waltz from Hansel and Gretel (Humperdinck); Duet from The Valkyries (Wagner); Military March (R. Strauss); Tenor Solos (R. Strauss): (a) Ich trage meine Minne, (b) Heimliche Aufforderung; Waltz from Der Rosenkavalier (R. Strauss); Songs for Soprano: (a) Ständchen (R. Strauss), (b) Liebesfeier (Weingartner); Overture, Waldmeister (Joh. Strauss); Waltz, Alt-Wien (Kremser), **10.15,** News and Sports Notes. **10.40** (approx.), Report of the International Boxing Match, Germany v. Italy, relayed from Ferrara. **10.45,** Serenade and Dance Music. **12.0 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **Dresden, 319 metres.—11.30 a.m.,** Transmission for all German Stations: Wast willst du dich betrüben—Cantata (Bach) by the Gewandhaus Orchestra, the Choir of St. Thomas' Church and Soloists. **12 Noon,** Concert Relay. **1.30 p.m.,** Gramophone Report on the Unveiling of the Wagner Memorial at Gaupa. **2.0,** Weather Report and Time Signal. **2.5,** Programme Announcements. **2.25,** Agricultural Notes. **2.40,** Little-known Music by Famous Composers—Pianoforte Duets by Hilde Knopf and Willy Eickemeyer. **3.20,** The Fox in the Henhouse—Radio Play (Robert Overweg). **4.30,** Concert of Choral Music, relayed from **Bad Schmiedeberg. 5.15,** Talk: The German and his Landscape. **5.40,** Concert of Wedding Music, by the Symphony Orchestra, conducted by Kilmar Weber. **7.0,** Radio Reports: (a) The First Round of the German Football Championship, (b) The A.D.A.C. International Automobile Races on the Avus Course. **8.0,** Das Liebesverbot—Opera in Two Acts (Wagner), relayed from the New Theatre. **10.5,** News. **10.15,** Dance Music from **Berlin (Witzleben). 12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**5.15 p.m.,** Tourist Report, relayed from Néris-les-Bains. After the Relay, Programme relayed from **Paris (Ecole Supérieure), 671 kc/s, 447.1 metres. 8.30,** Tourist Report, relayed from **Montlucon. 9.0,** Concert relayed from the Casino, Vichy. After the Concert, News Bulletin.

MADRID

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

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Madrid Municipal Band, conducted by M. Villa. **3.0,** Chimes, Time Signal, Amusement Guide, and Concert of Popular Music. **5.0 to 8.0,** Interval. **8.0,** Chimes, Announcements, Radio Journal, and Dance Music relayed from the Ritz Hotel. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Scientific Talk. **10.45** (approx.), Pianoforte and Song Recital by Enriqueta Garreta and Francisco Arganza. After the Recital, Dance Music. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.0 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **5.30,** See **Prague. 8.55,** Pianoforte Recital by Arnost Immerglück. **9.15,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION 230 kc/s, 1,304 metres; 100 kW.—**5.30 p.m.,** Red Army Hour. **6.30,** Concert. **9.0,** News Bulletin. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsberg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—11.30 a.m.,** Transmission for all German Stations, relayed from **Leipzig. 12 Noon,** Orchestral Concert. **1.5 p.m.,** Time, Weather and Programme Announcements. **1.15,** Concert of Light Music. **2.30,** Talk: The National Revolution. **3.0,** Concert by the National Socialist Symphony Orchestra, relayed from Passau Cathedral. **4.30,** Reading. **4.45,** Concert, conducted by Erich Kloss. **5.45,** Talk: Naulila and Chorab. **6.5,** Organ Recital. **6.45,** Weather and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Breslau. 8.0,** Musical Miniatures—Concert by the Small Station Orchestra. Soloist: Hugo Reker (Violin). **8.40,** Talk on the following transmission. **8.50,** Third Act of Siegfried—Opera (Wagner), from the National Theatre. **11.20,** Time, Weather, News and Sports Notes. **10.45,** Programme to be announced.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.15 a.m.,** News and Road Report. **10.50,** Chimes and Divine Service from the Castle Chapel. **5.0 p.m.,** Gramophone Music. **6.0,** Talk: Recent Excavations in Greenland.

6.30, Recitations. 7.0, Parliamentary Notes. 7.15, Weather and News. 7.30, Trio Music. 8.0, Time. 8.1, Provincial Programme, relayed from **Bergen, 824 kc/s, 364 metres.** 9.40, Weather and News. 10.0, Topical Talk. 10.15, Act III of The Tales of Hoffmann (Operetta (Offenbach), by the Station Orchestra, Choir and Soloists. 11.0, Dance Music on Gramophone Records. **12 Midnight** (approx.), Close Down.

ÖSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**10.25 a.m.,** Religious Address. **10.40,** Sacred Music. **11.0,** Agricultural Talk. **12.45 p.m.,** Giornale Radio. **1.0 to 2.0,** Concert of Light Music. In the interval at **1.30,** Time, Announcements and Weather. **5.30 to 6.30,** Gramophone Concert of Popular Music. **8.0,** Dopolavoro Notes and Giornale Radio. **8.20,** Sports Notes. **8.25,** Light Music on Gramophone Records. In the interval at **8.30,** Time and Announcements. **8.45,** Symphony Concert, conducted by Armando La Rosa Parodi, with a Talk by G. Longo. After the Concert, Variety 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).—**1.0 p.m.,** News Bulletin. **1.15,** Weather Report. **1.30,** Concert by Jean Ibos and his Orchestra. **6.45,** Le Journal Parlé. **7.55,** Programme for Children. **8.25,** News Bulletin. **8.30,** Gramophone Concert. Part I: Wagner and Liszt Music. Part II: Variety Music. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—**9.15 a.m.,** Music for Tambourines and Bugles. **9.35,** Press Review. **9.45,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concerts. **11.40,** Popular Music on Gramophone Records. **12 Noon,** Interval. **12.15 p.m.,** Sound Film Music. **12.45,** Sponsored Programme. **12.50,** Half an Hour of Fantasy, by Paul Weill. **1.20,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** No Transmission. **6.45,** Le Journal Parlé. **7.0,** Sports Notes. **7.15,** Light Music on Gramophone Records. **7.30,** Catholic Review. **8.0,** Song Recital by Hugues Guénod. **8.15,** Interval. **8.30,** Musical Programme by Enrico di Mazzei and Mme. Gina d'Esparros: Tu ch'ai le penne, Amor ch'attendi (Caccini); O del mio dolce amor (Gluck); Plaisir d'amour (Martini); Se l'aura spira (Frescobaldi); Duet from Act I of La Bohème (Puccini). **9.0,** Interval. **9.15,** Open the Door—Play in One Act (Jean Renouard). **9.45,** Variety Music on Gramophone Records. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **8.30,** Physical Culture. **10.0,** Elementary Book-keeping Lesson. **10.20,** Advanced Book-keeping Lesson. **10.40,** Spanish Lesson. **12 Noon,** Religious Address by the Rev. Father Lhande. **12.20 p.m.,** Gloria from the Mass in D (Beethoven). **12.30,** Bibliobuet. **12.45,** Press Review, News and Weather. **1.0,** Gramophone Concert. **2.0 to 2.30,** Programme in English by the I.B.C. Mr. T. St. A. Ronald announcing. Light Music, Signature Tune; Pink Elephants; Blue Ridge Moon; Under my Umbrella; Black Eyes; Old Father Thames; Smiling Through; When my Little Pomeranian; A Tree was a Tree; Signature Tune. **2.30,** Gramophone Concert of Light Music. **3.0 to 3.30,** Programme in English by the I.B.C. **3.0,** Popular Melodies. March of the Giants (Finck); Selection from Stand up and Sing (Charig and Ellis); Two-Step: Yip-I-addy-I-ay (Cobb and Flynn); By Special Request: Selection from Cavalcade (Coward); Waltz, from the Merry Widow (Lehár); Selection from Iolanthe (Sullivan). **3.30 to 5.0,** Interval. **5.0 to 6.0,** Programme in English by the I.B.C. S. H. C. Williams announcing. **5.0,** Tea-time Variety Hour. **6.0 to 6.30,** Interval. **6.30 to 7.0,** Programme in English by the I.B.C. Mr. T. St. A. Ronald announcing. Light Music; Signature Tune; Look what I've got; And so I married the Girl; A Broken Rosary; I'm nutts about Mutts; Signature Tune. **7.0,** Variety Concert. **8.0,** Musical Hall Programme. In the intervals at **8.30,** News, Sports Notes and Weather, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.0 p.m.,** Monarch Mystery Tenor, from **New York.** **7.15,** The Boys of Wynnecastle. **7.30,** The North-Western Chronicle, from **New York.** **8.0,** National Opera Concert, from **New York.** **9.0,** Programme to be announced. **9.15,** Symphonette, from **New York.** **9.30,** Vesper Services, from Shadyside Presbyterian Church. **10.30,** Pages of Romance, from **New York.** **11.0,** Soprano Solos by Lois Miller. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Programme to be announced. **11.45,** Dick Daring, from **New York.** **12 Midnight,** Time Signal, and Jack Pettis and his Orchestra. **12.30 to 3.0 a.m. (Monday), New York** Relay. **12.30 a.m.,** Great Moments in History. **1.0,** Reisenfeld's Viennese Programme. **2.0,** Will Rogers, with Orchestra. **2.30,** Walter Winchell. **2.45,** Pickens Sisters. **3.0,** Time Signal and Popular Melodies by Will Ryshanek.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**11.0 a.m.,** Concert by the Station Orchestra, conducted by Robert Brock: Festival Overture in C (Smetana); Military Divertissement (Mozart); Serenade, Op. 36 (Novak); Symphonic Poem, The Ballad of Blanik (Janecek). **12 Noon,** Chimes. **12.5 p.m.,** See **Bratislava.** **12.35,** See **Brno.** **1.30,** Agricultural Report. **1.45 to 1.55,** Talk. **4.0,** See **Moravska-Ostrava.** **5.30,** Talk. **5.45,** Variety Music on Gramophone Records. **6.0,** German Transmission: The Betrothal by Lanternlight—Opera in One Act (Offenbach). After the Programme, News. **7.0,** Uncle Kropal—Farce. **7.30,** Bagpipe Music. **7.55,** Military Band Concert, relayed from the Kralovska Oborа. **8.55,** See **Brno.** In the interval at **9.0,** Time Signal. **9.15,** Variety Programme with Gramophone Records, Songs, and Pianoforte Solos. **10.0,** Time Signal. **10.1,** News Bulletin. **10.20,** Dance Music on Two Pianofortes. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—**10.0 a.m.** (from **Lausanne**), Protestant Service. **11.15** (from **Lausanne**), Concert by the Small Station Orchestra, conducted by M. Moser, or Relay of a Talk. **12.30 p.m.,** News and Weather. **12.40** (from **Lausanne**), Gramophone Music. **2.0 to 3.30,** Interval. **3.30** (from **Lausanne**), Madame Butterfly, Opera in Two Acts (Puccini), sung in Italian. **5.30 to 7.0,** Interval. **7.0** (from **Lausanne**), Religious Address. **7.30** (from **Lausanne**), Sports Results, News and Announcements. **8.0,** Concert by the Station Orchestra. **9.0** (from **Lausanne**), Recital by Mme. Flore Gabella (Songs), Mme. Maggy Gayrhos-Defrancesco (Pianoforte), and M. Defrancesco (Flute). **9.50,** News and Weather. **10.0** (from **Lausanne**), Violin Duets by the Desarzens Brothers. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 690 kc/s, 441 metres; 50 kW. Relayed by **Naples, 941 kc/s, 319 metres,** and **2RO, 11,810 kc/s, 25.4 metres.**—**10.10 a.m.,** News, Sports Notes and Amusement Guide. **10.30,** Agricultural Talk. **10.45,** Bible Reading. **11.0 to 12 Noon,** See **Turin.** **12.30 p.m.,** Concert of Variety Music. **1.30 to 2.30,** See **Turin.** **3.45 (Naples),** Programme for Children, followed by Weather and Sports Notes. **4.0,** Orchestral Concert. **4.45,** Sports Notes. **5.0 to 6.15,** Soprano, Tenor and 'Cello Recital. Sports Notes in the interval. **7.30,** Football Report. Dopolavoro Notes and News. **8.0,** Time and Announcements. **8.15,** Song Recital by Elena Cheli (Soprano). **8.30,** Sports Notes. **9.45,** Concert. In the intervals, Talk and Announcements. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY); 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**7.0 to 8.45 p.m.** (approx.), **New York** Relay. **7.0,** Wayne King's Orchestra. **7.30,** Hour of Worship. **8.0,** Musical Programme. **8.15,** Wildroot Institute. **8.30,** Temple of Song. **11.45,** Horse Sense Philosophy. **12 Midnight** till Close Down, **New York** Relay. **12 Midnight,** Chase and Sanborn Hour. **1.0 a.m. (Monday),** Manhattan Merry-go-round. **1.30,** American Album of Familiar Music. **2.0,** Current Government, by David Lawrence. **2.15,** Highlights and Shadows. **2.45,** Sunday at Seth Parkers' and Programme Résumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 69 kW. Basle, 1,229 kc/s, 244.1 metres; and **Berne, 1,220 kc/s, 245.9 metres.**—**10.0 a.m.** (from **Zürich**), Protestant Service. **10.45** (from **Zürich**), Chamber Music Concert by the East Swiss Radio Society. **12 Noon** (from **Zürich**), Gramophone Music. **12.28 p.m.,** Time and Weather. **12.30,** News Bulletin. **12.40** (from **Zürich**), Concert of Viennese Folk Music by the Swiss Radio Orchestra. **1.30** (from **Zürich**), Agricultural Programme. **2.30 to 5.0,** Interval. **5.0** (from **Zürich**), Gramophone Music. **6.0** (from **Zürich**), Le médecin malgré lui—Comedy (Molière). **7.15** (from **Zürich**), Time and Sports Notes. **7.20** (from **Zürich**), Concert by the Swiss Radio Orchestra. **8.0** (from **Zürich**), Talk and Reading (Emil

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W.W.93

MAY 21st SUNDAY *continued*

Ermatingers) for Professor Ermatingers' Sixtieth Birthday. **8.30**, Concert by the Swiss Radio Orchestra. **9.0**, News Bulletin. **9.10** (from **Zürich**), Swabian Programme. **10.15** (from **Zürich**), 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, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**11.0 a.m.**, Divine Service Relay. **12.45 p.m.**, Weather and Ice Report. **12.55**, Time. **1.20**, Sports Talk. **2.30**, Gramophone Music. **3.30**, Talk. **4.0** (from **Sundsvall**), Choral Concert, conducted by Linus Enwall. **4.30**, Programme for Children. **5.0**, Weather. **5.5**, Pianoforte Recital by Hilding Domellöf. **5.30**, Readings. **6.0**, Evensong, relayed from **Karlstad, 1,382 kc/s, 217 metres. 7.15**, Weather and News. **7.35**, Talk. **8.0**, Countess Maritza—Operetta in Three Acts (Kálmán). **9.45**, Weather and News. **10.0**, Light 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 in German. **11.30**, Catholic Service in German. **12 Noon**, Variety Music on Gramophone Records. **12.45 p.m.**, News. **1.0**, Time Signal and Light Music on Gramophone Records. **1.15**, Radio Report from **Evaux-les-Bains. 1.30**, Dance Music on Gramophone Records. **3.0 to 3.30**, Interval. **3.30**, The Seasons—Oratorio (Haydn), relayed from **Lille, 1,130 kc/s, 265.4 metres. 5.30**, Light Music on Gramophone Records. **6.0**, Medical Talk in German. **6.15**, Sports Notes in French. **6.30**, Orchestral Concert, conducted by Maurice de Villers. **7.30**, Time Signal, News, and Sports Results. **7.45**, Gramophone Concert. **8.15**, Press Review in German, Lottery Results, and News. **8.30**, In the Heart of Alsace—May Programme, relayed from the Convent of St. Odile: Chimes, Divine Service, Talk, Sacred Music, and Folk Songs. **9.45**, Press Review and Light Music on Gramophone Records. **11.30**, Dance Music from the Savoy Dance Hall. **12 Midnight**, Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 627 kc/s, 570 metres.**—**11.30 a.m.**, Transmission for all German Stations, relayed from **Leipzig. 12 Noon**, (from **Karlsruhe**), National Demonstration for Richard Wagner in front of the Baden Theatre in Karlsruhe. Choral and Orchestral Concert, conducted by Hugo Rudolph. Richard Wagner's Fanfares for Trumpets and Kettle Drums; Kaisermarsch; Choir: Wach auf, from Die Meistersinger (arranged for Male Voice Choir by Hugo Rahner); Address by Christian Lorenz, President of the Bayreuth Association; Choir: Ehrt eure deutschen Meister, from Die Meistersinger (arranged for Male Voice Choir by Hugo Rahner); Deutschlandlied. **12.45 p.m.**, Radio Report on the International Motor Cycle Races in Hockenheim. **1.0**, Topical Talk. **1.15**, Gramophone Concert. **2.0**, Gramophone Concert of Light Music. **2.45**, Agricultural Talk. **3.15**, Choral Concert, relayed from **Badenweiler. 4.0** See **Berlin (Witzleben). 5.15**, See **Frankfurt. 6.0**, Sports Notes. **6.15**, Beautiful Italy—Talk with Gramophone Records. **7.0**, Transmission for all German Stations, relayed from **Breslau. 8.0**, Concert by the Württemberg Symphony Orchestra, conducted by Ferdinand Drost. Soloists: Gerda Hansi (Soprano), Brunhild Mökesch (Soprano), Richard Bitterauf (Baritone), Hermann Lingor (Tenor), and Leo Hantz (Guitar). **10.0**, Time and News. **10.45**, See **Munich. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**6.30 to 7.0 p.m.**, Programme in English by the I.B.C., W. Brown-Constable announcing. Dance Music: Selection from Congress Dances; My Heart's to let; Freddy the Freshman; Puss, Puss, Puss; I'm playing with Fire; Someone to care for; Can't do without Love; Round about Sundown. **7.15**, News and Racing Results. **7.25**, Local News. **7.30**, Popular Songs. **7.45**, Accordion Solos. **8.0**, Hunting Horn Choruses. **8.15**, Opéra-Comique Songs. **8.30**, Instrumental Music. **8.45**, Arias from Operas. **9.0**, Melodies from Le chemin du paradis (Heymann). **9.20**, Viennese Music. **9.30**, Balalaika Music and Russian Songs. **9.45**, Orchestral Music. **10.15**, North African News. **10.30 to 11.30**, Programme in English by the I.B.C. **10.30**, Dance Music; Jolly Good Company; My Old Dutch; Down the Lane to Home Sweet Home; Angels guard thee; Memories by the Fireside; Danny Boy; Around the Corner; Good-bye. **11.0**, Variety Programme: Sketch, Evening in the Village Inn; Songs: (a) I'm one of the Ruins Cromwell knocked about a bit, (b) Sometimes I'm happy; Grandma and the Weather Announcer; Selection from Wonder Bar (Katscher); Negro Spiritual, Bye and Bye; Selection from Say it with Songs. **11.27**, I.B.C. Good-night Melody. **11.30**, Dance Music. **12.0 Midnight**, Weather and Announcements. **12.5 a.m. (Monday)**, Songs from Sound Films. **12.15**, Accordion Solos. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**9.30 a.m.**, See **Turin. 9.55**, Mass from the Cathedral of San Guisto. **11.0**, Religious Address. **11.20 to 11.40**, Agricultural Talk. **12.30 p.m.** (approx.), 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, 559 kc/s, 500.8 metres.**—**9.40 a.m.**, Giornale Radio. **9.55 to 10.40**, Interval. **10.40**, Agricultural Talk. **11.0**, Mass from the Church of the Annunciation, Florence. **12 Noon to 12.45 p.m.**, Bible Reading. **12.30**, Concert of Variety Music. In the interval at **1.0**, Time and Announcements. **1.30 to 2.30**, Orchestral Concert, conducted by Ugo Tansini. **4.0**, Variety Concert. In the interval, Sports Notes. **6.15 to 6.30**, Giornale Radio and Football Report. **7.0**, Time and Dopolavoro Notes. **7.10**, Gramophone Records of Variety Music. **8.0**, Announcements, Giornale Radio and Sports Notes. **8.20**, Talk on the following Transmission. **8.30**, Siberia—Opera in Three Acts (Giordano). In the intervals, Talk and Theatre Notes. Giornale Radio after the Opera.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**11.30 a.m.**, Concert of Light Music by the André Hummer Orchestra. **12.45 p.m.**, Symphony No. 1 in C Minor, Op. 68 (Brahms), by the Vienna Philharmonic Orchestra, conducted by Furtwängler, relayed from the Music Society's Hall. **2.30**, Time and Programme Announcements. **2.35**, Talk: Through Zululand and Natal by Car. **3.0**, Report of an Old Viennese Procession, from the Rosenhügel to the Hauptplatz—relayed from **Mauer. 3.30**, Chamber Music: String Quartet in A Minor, Op. 132 (Beethoven); Chaconne for String Quartet (Purcell). **4.30**, Review of Books on Children. **4.55**, Concert of Light Music by the Karl Pausperti Orchestra. **6.25**, Talk: A Gramophone Trip through Central Spain. **7.0**, Paula von Preradovic reads Extracts from her own Works, with Introductory Talk by Erwin Rainalter. **7.30**, Time, Sports Notes, and Programme Announcements. **7.40**, Talk: The First International Austrian Flight Over the Alps, 1933—The Third Day. **8.0**, Talk: The Battle of Aspern. **8.30**, Song Recital by Dr. Emil Schipper: Aria from Iphigenie in Aulis (Gluck); Two Songs (Beethoven): (a) In questa tomba oscura, (b) Die Ehre Gottes; Three Songs (Schumann): (a) Dichters Genesung, (b) Mein altes Ross, (c) Die beiden Grenadiere; Two Songs (Richard Trunk): (a) Die Stadt, (b) Unter Blüten; Hans Sachs' Monologue from The Mastersingers (Wagner). **9.10**, Bunter Abend. The Josef Holzer Orchestra, the Opus-Quartet, the Vienna Boys' Choir, and Otto Schulhoff (Pianoforte). **10.30**, News and Weather. **10.45**, Dance Music from Hübners Parkhotel.

WARSAW

212.5 kc/s, 1,411 metres.—**11.57 a.m.**, Time and Fanfare from the Tower of St. Mary's Church, Cracow. **12.5 p.m.**, Programme Announcements. **12.10**, Weather Forecast. **12.15**, Concert by the Warsaw Philharmonic Orchestra, conducted by Wilkomirski. Soloist: Umberto Macnez (Tenor); Overture, Iphigenia in Aulis (Gluck); Arias from: (a) The Force of Destiny (Verdi), (b) La Gioconda (Ponchielli), (c) Don Pasquale (Donizetti), (d) Salvator Rosa (Gomez); Symphony No. 5 (Beethoven). In the interval, Announcements. **2.0**, Veterinary Talk. **2.20**, Baritone Song Recital by Luszaj. **2.40**, Agricultural Talk. **3.0**, Weather for Farmers. **3.5**, Concert by a Mandoline Band. **4.0**, Programme for Young People. **4.25**, Popular Music on Gramophone Records. **4.45**, Talk relayed from **Wilno, 533 kc/s, 563 metres. 5.0**, Pianoforte Recital: Andante con Variazioni (Haydn); Toccata in C (Bach-Busoni); Four Preludes (Debussy); Three Dances (Wojtowicz). **5.55**, Programme Announcements. **6.0**, Dance Music. In the intervals, News. **7.0**, Miscellaneous Items. **7.25**, Dramatic Programme. **8.0**, Concert of Popular Music by the Station Orchestra, conducted by Ozieminski. Soloist: E. Mossakowski (Baritone). In the interval, Sports Notes. **10.0**, Variety Programme. **10.55**, Aviation Weather Report and Police Notes. **11.0**, Dance Music Relay.

ZURICH.—See **Schweizerischer Landessender.**

ATHLONE

725 kc/s, 413 metres; 60 kW.; and Cork, 224.4 metres.—1.30 to 2.0 p.m., Time, Weather, Stock Report, and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** Travel Talk on Chile. **7.30,** Concert by the Caledonian Male Voice Choir. **8.0,** Clarinet Solos by P. Ryan. **8.10,** The Station Orchestra. **8.30,** Soprano Solos by Mollie Phillips. **8.50,** Clarinet Solos by P. Ryan. **9.0,** Baritone Solos by J. Rice. **9.15,** Folk Music from the Nations, by the Station Orchestra. **9.30,** Folk Songs by Erni Ritter (Soprano). **9.45,** Sponsored Programme. **10.45,** Time, News, Weather, and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Trio. **7.30,** Concert by the Vilalta Quintet, relayed from the Café de la Rambla. **8.0,** Request Gramophone Records. **8.20,** Sports Notes. **8.30,** Exchange and Talk in Catalan. **9.0,** Request Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather, and Exchange. **10.5,** Humorous Review of the Week's Events in Verse. **10.15,** Sardanas, by the Cobla Barcelona. **11.0,** Song Recital by Enriqueta Nogue. **11.30,** Radio Gazette in Catalan. **12 Midnight,** News Bulletin. **12.5 a.m. (Tuesday),** Concert of Catalonian Music, by the Station Orchestra. After the Concert, Gramophone Dance Music. **1.0** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time and Announcements. **8.40** (approx.), Giuseppe Mulè Concert, conducted by the Composer. Part I: La baronessa di Carini—Lyric Drama in One Act; Part II: Soloists: Lea Tamburello Mulè (Soprano) and Bianca Bianchi (Mezzo-Soprano). Intermezzo and Drinking Chorus from Le cuefore; Dance from Ifigenia in Aulide; Lament and Finale from I Sette a Tebe; Chorus and Dance from Il ciclope. Part III: Symphonic Intermezzo and Act III of Dafni—Opera. Talk in the interval. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

430.4 metres; 2.5 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Gramophone Concert of Variety Music. **8.0,** Programme relayed from **Zagreb, 977 kc/s, 307 metres. 10.0,** News, followed by Cigány Music from the Rudnicanin Restaurant.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert. **3.0,** Handwork for Women: Embroidering Summer Dresses. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.0,** See **Breslau. 5.0,** Talk: National Education. **5.35,** Concert of Folk Music for Zither. **6.0,** A Poem. **6.5,** Talk: The Reorganisation of the German Theatre. **6.30,** Talk: Wagner and Germany to-day. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations: Richard Wagner Concert by the Berlin Wireless Orchestra, conducted by Max von Schillings: Soloist, Wilhelm Rode: Prelude to the Third Act of Lohengrin; Aria from The Flying Dutchman; Aria from The Mastersingers; Bachanale from Tannhäuser; Wotan's Farewell and Fire Magic from The Valkyries; Prelude to Tristan und Isolde. **8.0,** Peasant Humour. **8.30,** Concert from **Frankfurt. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.55 p.m.,** Concert of Chamber Music: Serenata for Flute, String Quartet and Pianoforte (Ernst Roters); Silhouettes for two Violins and Pianoforte (Paul Juon). Spitzweg-Ständchen for Flute and String Quartet (Martin Gambke); Chamber Music in One Movement on a Silesian Folk Song for Pianoforte Quintet (Kurt Schubert). **5.30,** Dialogue: Prehistoric Religions. **6.0,** Chamber Music (continued): Serenade for String Quartet (Hans Lange); Andante for Flute, Violin and Viola (Kurt Adami); Variations on the Beresina Lied—for two Violins and Viola (Otto Siegl); Adagio and Rondo for Pianoforte Quartet (Schubert). **6.30,** Talk on Wagner. **6.40,** The Witzleben Station informs its Listeners. **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.5,** Announcements. **8.10,** Talk, Wagner and the Wesendonk House. **8.25,** The Fourteen Years (arr. Dr. Wolfgang Herrmann). **9.5,** Sixth Symphony in A (Anton Bruckner), by the Berlin Philharmonic Orchestra, conducted by Eugen Jochum. **10.10,** News, followed by Dance Music. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

MONDAY

MAY THE TWENTY-SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Variety programme. "'Tis of Aucassin and Nicolette," a mediæval romance.
LONDON REGIONAL	Opera: "Aida" (Verdi), relayed from Covent Garden.
MIDLAND REGIONAL	Music of Italy, orchestral concert.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	Orchestral and instrumental concerts.
BELFAST	Light orchestral concert.

ABROAD

BERLIN (Deutschlandsender)	7.0 p.m. Wagner Concert, conducted by Max von Schillings (relayed by other German Stations).
BRESLAU	8.30 p.m. Acts 2 and 3 of "The Valkyries" (Wagner), from the Municipal Theatre.
BRUSSELS (No. 2)	8.0 p.m. Mozart and Wagner Concert.
BUCHAREST	8.30 p.m. Oratorio: "The Seasons" (Haydn), relayed from Szeged.
BUDAPEST	8.0 p.m. Wagner Concert.
EIFFEL TOWER	7.50 p.m. Opera: "La Juive," by Halévy, from the Opéra.
HAMBURG	9.10 p.m. Extracts from Opera: "Die Nibelungen," by Wagner.
LANGENBERG	9.5 p.m. Wagner's Third Symphony, conducted by Buschkötter.
STRASBOURG	9.35 p.m. Operetta: "La Périchole," by Offenbach.
WARSAW	8.0 p.m. Operetta: "Light Cavalry," by Suppé.

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.0,** News, Exchange, and Market Prices. **7.5,** Talk: Bordeaux a Hundred Years ago. **7.20,** Lottery Results. **7.25,** Talk on Hygiene. **7.40,** Charades and News Bulletin. **7.50,** La Juive—Opera (Halevy), relayed from the Opera House, Paris.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by F. Dyk; Soloist: Rudolf Macudzinski (Pianoforte): Overture, William Tell (Rossini); Grand Fantasia, Op. 15, Der Wanderer, for Pianoforte and Orchestra (Schubert-Liszt); Czech Suite, Op. 39 (Dvorak). **5.10,** See **Prague. 5.50,** Two Sonatas (Brahms) for Violin and Pianoforte: (a) Sonata in G, Op. 78, (b) Sonata in A, Op. 100. **6.45,** Talk for Housewives. **7.0** till Close Down, See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW. Relayed by **Gleiwitz, 1184 kc/s, 253 metres.—1.5 p.m.,** Weather for Farmers, followed by Gramophone Concert of Serenades. **1.45,** Time and News. **2.5,** Gramophone Concert of Waltzes. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Market Prices. **3.40,** Review of Books. **4.0,** Orchestral Concert conducted by Franz Marszalek; Overture, La Sirène (Auber); Waltz, Phantasiebilder (Jos. Strauss); Fantasia on Gounod's Music (Rhode); In the Circus (Mraczek); Old Russian Dance Pictures (Ciemus); Intermezzo from Naïla (Delibes); Waltz, Münchner Kindl (Komzak); Music for a Punch and Judy Show (Gabriel-Marie); Ballet Music from Rosamund (Schubert); Altmeister Berlioz (Homann-Weban); Overture, The Gipsy Baron (Joh. Strauss). In an interval at **5.20,** Market Prices. **6.0,** Technical Talk. **6.25,** Talk: Germany's Struggle for Equality. **6.50,** Weather, News and Market Prices. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.0,** Topical Report. **8.30,** Second and Third Acts of The Valkyries—Opera (Wagner), relayed from the Municipal Theatre. In an interval at **10.0,** Second News. **11.30,** Wireless Technical Talk. **11.40,** Talk: A May Expedition into the Frontierland. **12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.0 to 10.15 p.m.,** See **Prague.**

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Small Station Orchestra, conducted by P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Extracts from The Barber of Seville—Opera (Rossini), on Gramophone Records. **2.0,** Broadcast for Schools. **5.0,** Concert by the Station Symphony Orchestra, conducted by J. Kumps: Overture, William Tell (Rossini); Intermezzo, from Cavalleria rusticana (Mascagni); Zabava (Gilson); Invitation to the Waltz (Weber); Piece for 'Cello and Pianoforte; Le Cygne (Saint-Saëns); Piece (Schumann); Petite suite (Delcroix); Nursery (Ingelbrecht). **6.0,** Talk on Æsthetics. **6.15,** Ballet Music from Marouf (Rabaud). **6.30,** Concert: Trio for Piano, Violin and Viola (Jos Jongen): (a) Prelude, (b) Variation, (c) Finale; Legénde naïve (Aquarelle) (Jos. Jongen); Foxtrot (Emile Chaumont); Sunflower (Emile Chaumont); Burlesque, Modern Dance for Violin and Piano (Emile Chaumont. **7.15,** Talk: What is a 'Trades' Union? **7.30,** Film Review. **8.0,** Gala Concert by the Radio Orchestra, conducted by Charles Walpot, and the Station Vocal Quartet; Soloists: Mme. Guyla (Songs), M. Leus (Songs), M. Gason (Saxophone), and M. Brenders (Pianoforte): Overture, Die Fledermaus (Joh. Strauss); Suppé Potpourri (Michaelov); Musiquette for Pianoforte and Orchestra (Poot); Aria from La Traviata (Verdi); Suite, Four Ways (Coates): Flower Song from Carmen (Bizet); Fünf Uhr Tee bei Stolz (Dostal); Saxophone Solos: (a) Gitane (Kreisler), (b) Waltz Caprice, Vanity (Wiedoeft); Song, with Orchestral accompaniment: Frühlingsstimmen (Joh. Strauss); Piece for Two Pianofortes and Chorus; Lying in the Hay (Mireille); Airs from Manon (Massenet). In the interval, Walloon Programme: Monologues, Sketches, and Gramophone Records. **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert of Popular Music.

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.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, La princesse jaune (Saint-Saëns); Waltz (J. Strauss); Gipsy Romance (Boldi); Selection from Die Bajadere (Kálman); Pianoforte Solo, Waltz (Moszkovsky); Serenade (Leoncavallo); Selection from Yes (Yvain). **2.0,** Broadcast for Schools. **5.0,** Concert by the Small Station Orchestra, conducted by P. Leemans; Overture, Carmen Festivum (Gilson); Petite Suite (Busser); Intermezzo and Barcarolle from The Tales of Hoffmann (Offenbach); Andante from the Spanish Symphony (Lalo); Esquisses flamandes (Brusselmans). **5.45,** Programme for Children. **6.30,** Gramophone Concert, with Songs by Mlle. Hochstenbach; Angel's Serenade (Braga); Nocturne (Boulanger); Two Songs; Tes yeux (Bonincontro); Melody (Strauss-Grünfeld); Two Songs; Melody (Lehár); Gipsy Song, Mon bateau (Drigo); Liberty March (Latann). **7.15,** Talk on Electricity. **7.20,** Educational Talk. **7.30,** Variety Items. **8.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps; Part I: Mozart: Symphony in D; Serenade; Ballet, Les Petits Riens. **8.45,** Talk: Birds and Aeroplanes. **9.0,** Concert (continued); Part II, Wagner: Overture, Tannhäuser; Songs by Mme. Lauwers-Vanhommerich: (a) Schmerzen, (b) Elsa's Dream, from Lohengrin; Selection from Lohengrin; Songs by Mme. Lauwers-Vanhommerich: (a) Träume, (b) Senta's Ballad from The Flying Dutchman; The Ride of the Valkyries; Overture, The Flying Dutchman. **10.0,** Le Journal Parlé. **10.10,** Old and Modern Dance Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Military Band Concert. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Wagner Festival Concert, by the Station Orchestra. Soloists: Mme. Steinbach (Songs), Gabriel Popesco (Songs) and Mlle. Nadia Chebap (Pianoforte). Introductory Talk. Monologue from Act I of Tristan und Isolde; Siegfried Idyll; Five Songs; Sonata for Pianoforte; The Death of Isolde, from Tristan und Isolde; Albumblatt; Hans Sachs' Monologue and the Apotheosis of Hans Sach, from Act III of The Mastersingers. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **8.30 p.m.** to **12 Midnight.—5.45 p.m.,** Song Recital by Hilda Sasko: Aria from Lucia di Lammermoor (Donizetti); Solveig's Song (Grieg); Aria from Dinorah (Meyerbeer); Villanella (Dell' Acqua). **6.15,** Talk. **6.45,** Concert by the Karl Toll Cigány Band. **7.50,** Exchange. **8.0,** Reading. **8.30,** The Seasons—Oratorio (Haydn), relayed from **Szeged. 10.30,** News, followed by Cigány Music from the Café Emke.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **—12 Noon,** Town Hall Chimes. **12.2 to 2.0 p.m.,** Concert of Light Music from the Hotel d'Angleterre. **3.0,** Reading in Zealand Dialect. **3.20,** Talk for the Housewife. **3.30,** Concert by the Teddy Petersen Orchestra, relayed from the Wivex Restaurant. **5.0,** Programme for Children. **5.35,** Exchange and Fish Market Prices. **5.50,** Talk: The Mole. **6.20,** English Lesson. **6.50,** Weather and News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Town Hall Chimes. **8.1,** Concert of Ballet Music by the Radio Orchestra, conducted by Emil Reesen: Dance from Don Juan (Gluck); Ballet Music from Faust (Gounod); Chinese Dance and Trepak from the Nutcracker Ballet (Tchaikovsky); Dance from Lazy John (Nedbal); Mazurka from Coppélia (Delibes). **8.40,** Recital of Songs, with Introductory Talk. **9.40,** Recital of Old Italian 'Cello Music: Sonata in F (B. Marcello); Sonata in D (Locatelli). **10.10,** News. **10.25,** Concert of Old Danish Music by the Radio Orchestra, conducted by Emil Reesen: Overture, Jacob von Thyboe (Kjell Roikjer); Suite from Kejserens nye Klaeder (Finn Höffding). **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.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk on Motoring Accidents. **7.15,** Miscellaneous Announcements and News. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: T. St. Ronald, C. Danvers-Walker and B. McNabb. **5.30,** Concert of Light Music for Hastings and Eastbourne Listeners: The Rose Beetle goes a-wooing (Armandola); On Wings of Song (Mendelssohn); Songs: (a) At Dawning (Cadman), (b) Lily of Laguna (Leslie Stuart), (c) My lovely Celia (arr. Lane Wilson); Siciliana Serenata (Schmalstich); Poem (Fibich); Songs: (a) A Bachelor Gay (Tate), (b Comin' through the Rye (arr. Smart), (c) If I were King (Coslow); Wedgwood Blue (Ketelbey); The Grasshopper's Dance (Bucalossi). **6.15,** Military Band Concert for Chichester and Bognor Listeners: The Passing of the Regiments; Policeman's Holiday (Ewing); Selection from Iolanthe (Sullivan); Parade of the Tin Soldiers (Jessel); Amorettentänze (Gungl); Wood Nymphs (Coates); Valse des alouettes (Drigo); Regimental Marches; Valse triste (Sibelius); Scottish Patrol (Williams); Prelude (Järnefeldt). **7.0 to 10.0,** Programme in French. **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music

by the Ibcolians: After To-night we say Goodbye; Goodbye Blues; Goodbye; Same old Moon; Rock your Cares away; Where is this Lady?; A Bedtime Story; Tell me To-night; Silver Hair and Heart of Gold; Yes, Mr. Brown; Song of the Bells; Take a Spot of Happiness; She was only Somebody's Daughter; Happy-go-lucky you; Marching along Together. **11.0**, Orchestral Concert: Overture, Morning Noon and Night (Suppé); Under Heaven's Blue (Payan); Barcarolle (Waldteufel); By the Sleepy Lagoon (Coates); Pale Volga Moon (O'Hagan); By the Swanee River (Myddleton); Gipsy Moon (Borganov); The Song of the Nightingale (Ailbout). **11.30**, The Studio Chorus, with Orchestra: Overture, 1914; The Rogue Song; The Bells of St. Mary's; Up in the Clouds; Orchestra: Me and the Man in the Moon (Monaco); Do, do, do; Come to the Fair; Orchestral Selection of Songs. **12 Midnight**, Club Concert for Ballymena Listeners: St. Patrick's Day March (Brase); Songs: (a) Love's Pleading, (b) Danny Boy (arr. Weatherley); Piccolo Solo: Deep Blue Sea (Brewer); Song: Malone's Christening; Violin Solos: (a) Boys at the Lough, (b) Tom Clarke's Reel; Song: Tell me To-night; The Mad Major; Songs: (a) O'Donnell Aboo (Traditional), (b) Mavourneen Deelish (Traditional); Piccolo Solo: Sylvia Scherzo (La Thière); Songs (Lehár): (a) Patiently Smiling, (b) You are my Heart's Delight; Cupid's Army (Siever). **1.0 a.m. (Tuesday)**, Accordion Music: Selection of Songs: All Change for happiness (Johns); Duet, The Blue Danube (Joh. Strauss); Selection from Carmen (Bizet); Duet: Marine March; Mona Lisa (Carter); La Javanette (Bozi); Song Medley. **1.30**, Popular Songs: Down Sunnyside Lane; For You; Heartaches; Selection from Viktoria and her Hussar; There's something in your Eyes Cherie; Many Happy Returns of the Day; When you wore a Gingham Gown. **2.0**, Dance Music by the Ibcolians; Sheltered by the Stars; Just a little Home for the Old Folks; You've got me in the Palm of your Hand; Fit as a Fiddle; Roll on Kentucky Moon; I can't believe it's true; Her name is Mary; Willow weep for me; My Romance; Look what you've done; Pardeeze Mr. Hemingway; On a Dreamy Afternoon; Till to-morrow; Moonlight on the River. **2.57**, I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW., and **Cassel, 1,220 kc s, 245.9 metres;** and **Trier, 1,157 kc s, 259.3 metres.**—**6.25**, English Lesson. **6.50**, Time. Programme Announcements, Weather and Economic Notes. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0**, Talk on Wagner as a Young Man, with Extracts from his Works. **8.30**, Concert by the Station Orchestra; Romance (Grieg); Minuet (Elgar); In Hammersbach (Elgar); Neapolitan Song (d'Ambrosio); Waltz, Op. 37 No. 3 (d'Ambrosio); Overture, Marinarella (Fucik); Nixenwalzer (Bayer); March from The Bird Fancier (Zeller); Potpourri of Viennese Songs (Drescher); March, Echtes Wiener Blut (Komzak); Overture, Berlin, wie es weint und lacht (Conradi); March, In Treue fest (Gremp); Waltz, Ach, ich bin dir so gut (André); Flitsch-Marsch (F. Wagner). **10.15**, Time, News, Weather and Sports Notes. **10.45**, Serenade from **Stuttgart. 12 Midnight**, Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **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.**—**2.10 p.m.**, Gramophone Concert: The Month of May in Music; March, Frühlingseinzug (von Blon); Potpourri of Folk Songs (Markgraf); Polka, Maiglöckchen (Nothelfer); May Song (Granichstaedten); Hungarian Song, Flowers at Whitsuntide (Kokay); Flowers in the Wood (Kistenmacher); The first May Flowers (Durras); March, In the lovely meadows (Ailbout); Waltz, May Flowers (Rixner); Mazurka, Maiglöckchen (Dittrich); Heimatsklänge (Krome); Waltz, Im Zeichen des Frühlings (Lehár). **6.0**, Book Review: The New Edition of Gregorovius. **6.25**, Topical Talk. **6.40**, Frankfurt Exchange and Hamburg Market Prices. **6.50**, Weather. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0**, Talk by E. G. Kolbenheyer: The National Revolution and the Renaissance of German Intellect. **8.40**, Variety Concert by the Station Male Voice Quartet. **9.10**, Extracts from Die Nibelungen—Opera (Wagner) **10.10**, Time, Weather, Announcements, Sports Notes and Police Report. **10.30** (from **Kiel**), Concert by the Kiel Orchestra of Unemployed Musicians. Conductor, Hans Döring. March, Hand in Hand (Blon); Selection from Don Pasquale (Donizetti); Old Dances (Vood); Ein Morgen in Saussouci (Kockert); Selection from Casanova (Lincke); Rosenstaude (Lindsay-Theimer); Mazurka, Marietta (Millöcker); Waltz, Hofballtänzer (Lanner); March, Sonnenadler (Blankenburg).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.**, Gramophone Concert: Intermezzo from the Ballet Naïla (Delibes); Rondo from the Haffner Serenade (Mozart); Tenor Solo from the Third Act of Alessandro Stradella (Flotow); Die heilige Barke (Niemann); Fest in Garten (Niemann); Soprano and Tenor Duets: (a) Wenn zwei sich lieben (Lehár), (b) Wer uns getraut (Strauss); Silesian Folk-song; Silesian Dances; Potpourri, Echoes of the World (Zimmer); In Mainz auf der Brücke (Rathke); In der Lunebürger Heide (Krome); Soprano Solos: (a) Barcarolle (Waldteufel), (b) Ally; Potpourri, The Merry Widow (Lehár); Army March No. 2. In the interval at **1.20**, News. **2.30**, Programme arranged by the Post Office, with Gramophone Records. **3.0**, Exchange Quotations. **3.30**, Programme for Young People. **4.0**, Talk: An Old East Prussian Country Wedding. **4.20**, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Lurline (Wallace); Suite No. 1 (de Micheli); Selection from Hansel and Gretel (Humperdinck); Hungarian Dances Nos. 6 and 3 (Brahms); Selection from Der Mann mit den drei Frauen (Lehar); Selection from La Gioconda (Ponchielli). In the interval at **5.0**, Technical Talk. **5.45** (from **Danzig**), Talk: Danzig and East Pommerania. **6.15**, Market Prices. **6.30**, See **Berlin (Deutschlandsender). 6.50**, Weather Report. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0**, News. **8.5**, Variety Programme by the Small Station Orchestra, conducted by Eugen Wilcken, and the Schmidt-Harmonists. **9.30**, Elementary English Lesson. **10.15**, Weather, News, and Sports Notes.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m.** till Close Down. Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40**, Time Signal. **11.41**, Music by the Rentmeester Ensemble. In the interval, Programme by the Three Syncopators. **1.55 to 2.10 p.m.**, Interval. **2.10**, 'Cello Recital by Mlep Meder. **2.40**, Gramophone Music. **3.40**, Pianoforte Recital by Annie de Ridder. **4.10**, Talk, with Gramophone Illustrations: Dutch Artists. **5.10**, Concert by Kovacs Lajos and his Band; Soloist: Hilde Jager (Songs). In the interval at **6.10**, Weekly Book Talk. **7.10**, Tourist Talk: The French Mountains. **7.40**, Weather and News. **7.45**, Concert by the Wireless Orchestra, conducted by Albert van Raalte; Soloist: Hélène Cals (soprano): Overture, Rosamund (Schubert); Soprano Solos: (a) Mia speranza adorata (Mozart), (b) Wiegenlied (Schubert); Herzwunden (Grieg); Letzter Früling (Grieg); Suite No. II from L'Arlésienne (Bizet). **8.40**, The Smith Brothers. **9.0**, Concert (contd.): Invitation to the Waltz (Weber); Soprano Solos: (a) Aria from Le billet de loterie (Isouard), (b) Il Bacio (Arditi); Pas des fleurs, from Naïla (Delibes); Waltz, Wiener Blut (Joh. Strauss). **9.40**, Gramophone Music. **10.0**, Concert by Cornelius Codolban and his Orchestra, relayed from the Carlton Hotel, Amsterdam. **10.25**, Gramophone Music. **10.40**, Weather and News. **10.50**, Concert from the Carlton Hotel (contd.). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.). **12.10 p.m.**, Organ Recital from **Amsterdam. 1.40**, Gramophone Concert of Sacred Music. **2.25**, Talk on Cooking. **2.55**, Dressmaking Lessons. **3.40**, Religious Programme. **4.40**, Gramophone Records of Variety Music. **4.55**, Accordion and Xylophone Recital. In the interval, Gramophone Records. **6.10**, Programme arranged by the Department of Buildings and Roads. **6.40**, Police Notes. **6.55**, News. **7.10**, Answers to Correspondence. **8.10**, Concert by the Utrecht Ladies' Choir. **8.40**, Talk. **9.10**, Concert by the Station Orchestra, conducted by Piet van den Hurk. In the intervals, Gramophone Records. **9.40** (in the interval). News. **10.55**, Gramophone Concert: Selection from The Bartered Bride (Smetana); Scherzo capriccioso (Dvorák); Grieg Potpourri; Intermezzo from Cavalleria rusticana (Mascagni); Organ Solo: Andante sostenuto in C Sharp Minor, Op. 40, No. 1 (Hans Fahrmann); Organ Solo: Lento assai in D flat, Op. 40, No. 6 (Hans Fahrmann); Two Hymns. **11.40** (approx.). Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.**, Amusements Guide, News, Financial Notes, and Racing Results. **8.15**, Sports Talk. **8.30**, Talk. **9.0**, Weather Forecast and News. **9.15**, Dramatic Programme. **12 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight**, Songs in Russian, and Orchestral Music: Saschinka (Schirmann); Songs (a) Song of the Volga Boatmen (Traditional), (b) Serenade from Don Juan (Tchaikovsky); Shining Moon (Traditional); Songs: (a) Song of the Flea (Mussorgsky), (b) Song of the Viking Guest (Rimsky-Korsakov), (c) The Town of Kazan (Mussorgsky); Potpourri of Russian Melodies (Schirmann). **12.30 a.m. (Tuesday)**, Dance Music: Love will find a way; Put a little Springtime; Butterflies in the Rain; I'm one of the Lads from Valencia; Sweetheart; My Heart's to let; Can't we meet again? When you've fallen in love. **12.57**, I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.15 p.m.**, Announcements, followed by Gramophone Music. **7.25**, Announcements. **7.30**, See **Warsaw. 10.0**, Answers to Technical Correspondence.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.0 p.m.**, Time Signal, Weather and News. **7.30**, Divine Service Relay. **8.0**, Announcements. **8.15**, Evening Concert. **8.40**, Talk. **9.0**, Trio in C Minor (Beethoven). **9.30**, Talk on Biology. **9.50**, Concert: Selection from Carmen (Bizet); Bal Costumé (Rubinstein). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.**, Agricultural Report. **6.25**, Talk. **6.50**, 'Cello Recital by Yrjö Selin: Sonata in G (Sammartini-Salmon); Sicilienne (Paradies); Rondo (Boecherini); Spanish Dance (Granados); Le Fileuse (Popper). **7.20**, Talk. **7.40**, Grieg Concert by the Station Orchestra, conducted by Erkki Linko. **8.0**, Humorous Programme. **8.15**, Concert of Finnish Music by the Station Orchestra. **8.45**, News in Finnish. **9.0**, News in Swedish.

LANGENBERG

635 kc s, 473 metres; 60 kW.—**1.0 p.m.**, Concert conducted by Eysoldt: Waltz, Wo die Zitronen blühn (Strauss); Overture, In the Well (Blodek); Suite from Friedemann Bach (Geissler); Burlesque (Poot); Kleine Serenade (Grünfeld); Malerisches Ständchen (Graener); Selection from The Barber of Bagdad (Cornelius); Song, The Lost Chord (Sullivan); Potpourri, Leháriana (Geiger). In the interval at **2.0**, News. **2.30**, Meat Market Prices. **3.30**, Exchange and Time Signal. **3.50**, Programme for Young People. **4.30**, Concert by the Peter Quartet. Soloist: Margarete Patt (Contralto). Second String Quartet, Op. 5 (Schiffmann); Seven Songs (Hugo Wolf): (a) Gesegnet sei, (b) Das verlassene Mägdelein, (c) Blumengrauss, (d) Der Gärtner, (e) Anakreons Grab, (f) In der Frühe, (g) Er ist's; String Quartet in E Minor (Beethoven). **5.50**, Talk: The Aims of the Modern Woman—the Right to Work. **6.5**, Talk: The Reconstruction of the German Theatre. **6.30**, The Rhenish Inhabitants of East Germany. **6.50**, Weather, Time, Exchange, and Sports Notes. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5**, News Bulletin. **8.10 to 9.5**, See **Berlin (Witzleben). 9.5**, Third Symphony in D Minor (Bruckner) by the Station Orchestra, conducted by Büschkötter. **10.15**, News and Sports Notes. **10.30**, Serenade, conducted by Wolf. **12 Midnight**, Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12.5 p.m.**, Predecessors of Wagner—Gramophone Concert. **1.0**, News Bulletin. **1.15**, Successors of Wagner—Gramophone Concert. News after the Programme. **2.10**, Art and Film Review. **2.30**, Programme for Women. **3.0**, Song Recital by Elfriede Götze (Soprano). **3.15 to 3.35**, Interval. **3.35**, Economic Notes. **4.0**, Talk: German Literature in the Eighteenth Century—Johann Christoph Gottsched. **4.20**, Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen: Prelude to Schirin und Getrande (Graener); Extracts from the Traumspielsuite (Reznicek); Extracts from the Japanese Suite (Niemann); Lagunenwalzer, from Eine Nacht in Venedig (Joh. Strauss); Salut d'amour (Elgar); Hungarian Rhapsody (Reindel); Overture, Undine (Lortzing); Allegretta quasi Andantino, Op. 164 (Schubert); Intermezo, Gang durch den Märchenwald (Meyer-Helmund). Talk in the interval. **6.5**, See **Berlin (Deutschlandsender). 6.25**, Talk on Wireless Legal Questions. **6.45**, Programme to be announced. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0**, Instrumental Concert, with Introductory Talk and Commentary on the Nature and Development of the Various Instruments; Fritz Kirms (Violin), Richard Lindner (Viola and Viola d'amore), Christian Klug ('Cello and Viola da Gamba), Erich Nahler (Double Bass), Margarete Stahl (Harp), Walter Goetze (Lute and Guitar), Ferdinand Kollmaneck (Zither), and Franz Vogel (Mandoline). **9.0**, News Bulletin. **9.10**, Lustiges Durcheinander—Radio Sequence in Two Parts (Schmiedel and Freyberg). **10.10**, News Bulletin. **10.30** (approx.), Concert by the Leipzig Symphony Orchestra, conducted by Theodor Rümmer: Prelude, An mein deutsches Land, Op. 48 (Zilcher); Tone Poem, Meergruss (von Schillings); Tone Poem, Jugend, Op. 19 (Ehrenberg); Symphonic Poem, Orpheus (Liszt); Goethe Festival March (Liszt). **12 Midnight**, Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.**, Quintet Concert. **7.0**, Esperanto Lesson. **7.30**, Serbo-Croatian Lesson. **8.0**, Programme from **Zagreb, 977 kc/s, 307 metres. 10.0**, Weather, News, and Light Music on Gramophone Records.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.**, History Talk. **7.15**, Miscellaneous Items. **7.30**, See **Warsaw. 10.0**, Talk on Films. **10.15**, Song Recital by Artur Lewkowicz (Baritone). **10.30**, Light Music and Dance Music from **Warsaw.** In an interval at **10.55**, News, Aviation Weather Report, and Police Notes. **11.30** (approx.), Close Down.

LYONS

LA DOUA, 644 kc s, 465.8 metres; 1.5 kW.—**7.30 p.m.**, Radio Gazette for Lyons and the South-East. **7.50**, La Juive—Opera (Halévy), relayed from **Paris.** After the Opera, News Bulletin.

MADRID

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

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.**, Chimes, Exchange Quotations, Radio Journal, and Request Gramophone Records. **9.15**, News Bulletin. **9.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc s, 263.8 metres; 11 kW.—**7.0 p.m.**, See **Prague. 7.25**, Concert by a Zither Trio. **7.45**, Talk: Life in the Depths of the Ocean. **8.0**, Military Band Concert. **9.0**, See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc s, 1,304 metres; 100 kW.—**6.30 p.m.**, Literary and Musical Programme relayed from the Radio Theatre. **9.0**, News Bulletin. **9.30**, Programme Announcements. **9.55**, Time Signal. **10.5**, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc s, 533 metres; 60 kW. Relayed by **Augsberg** and **Kaiserslautern, 536 kc s, 560 metres;** and **Nürnberg, 1,256 kc s, 239 metres. 4.30 p.m.**, Military Band Concert: Hymn and Triumphal March from Aida (Verdi); Overture, Zampa (Herold); Selection from Tiefland (d'Albert); Kaiser-Walzer (Joh. Strauss); Intermezzo, Am Lagerfeuer (Siede); March, Für Vaterland und Freiheit (Blankenburg). **5.45**, Talk on Wagner. **6.5**, Talk: German Ideas of Statesmanship—The Building up of the Bismarck Empire. **6.25**, Talk. **6.45**, Time, Weather and Agricultural Prices. **7.0**, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0**, Talk by the Station Manager, Richard Kolb. **8.20**, Concert conducted by Erich Kloss: Overture, Le Brasseur de Preston (Adam); Rondino (Beethoven); Selection from Li-Tai-Pe (Frankenstein); Pavane and Waltz from the Sleeping Beauty Suite (Tchaikovsky); Petite Suite (Delaney); Dreaming (Scassola); Gavotte Caprice (Kortkiewicz); Lyric Suite (Grieg). **9.15**, Recital of Bavarian Ballads. **9.35**, Concert of Music by Georg Caspar Schürmann: Overture, Alceste; Aria for Soprano, two Flutes and Harpsichord from Salomon; Aria for Soprano and Harpsichord from Leonilde; Recitative and Aria for Tenor, Strings and Harpsichord from Das zerstörte Troja; Drinking Song for Baritone and Harpsichord from Clelia; Aria for Baritone, two Oboes and Harpsichord from Clelia; Recitative and Arioso from Alceste; Aria for Tenor, 'Cello, Strings and Harpsichord from Alceste; Recitative for Baritone, two Bassoons, Strings and Harpsichord from Ludwig der Fromme;

Musette for Baritone, Orchestra and Harpsichord from Ludwig der Fromme; Overture, Ludwig der Fromme. **10.20,** Time, Weather, News and Sports Notes. **10.45,** Concert of Bavarian Schrammel Music by the Station Choir, conducted by Eduard Zengerk.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres,** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Chamber Music by the Station Ensemble. **6.0,** German Lesson. **6.30,** Song Recital by Olvin Lunde (Baritone). **7.0,** Announcements, Weather and News. **7.30,** Talk. **8.0,** Time Signal. **8.1,** Concert of Instrumental Music. Mme. Hildegun Reuter (Pianoforte), M. P. Wang (Flute), and M. Gunnar Knudsen (Violin). Three Pieces for Flute and Pianoforte: (a) Sonata No. 2 in E Flat (Bach), (b) Romance, Op. 34, No. 3 (Widor), (c) Spirale (Donjon); Pianoforte Solos: (a) Ballad No. 10 (Brahms), (b) Prelude in C Sharp Minor, Op. 32 (Rachmaninov), (c) Suite (Grieg), (d) Variations on a German Melody (Chopin); Violin Solos: (a) Aria (Reger), (b) Nocturne in D, Op. 27 (Chopin-Sarasate), (c) Tango (Elman), (d) Souvenir de Moscou (Wieniavsky). **9.10,** Political Review. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Gramophone Concert. **11.0** (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,** Popular Music on Gramophone Records. In an interval at **8.30,** Time, Announcements, and Light Music on Gramophone Records. **8.45** Variety Concert. **9.45,** One-Act Comedy. **10.0,** Dance 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).—**6.45 p.m.,** Theatre Talk. **7.0,** Le Journal Parlé. **8.30,** Moulins—Tourist Propaganda Programme. Radio Report, Interview with Local Celebrities, Music by La Schola de Moulins and Chimes. **9.35,** Acts III, IV, and V of La Juive—Opera (Halévy), relayed from the Opera, Paris.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Le Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Variety Music on Gramophone Records. **8.0,** Scientific Talk. **8.5,** Talk on the Motor-Car. **8.15,** Interval. **8.30,** Concert of Popular Songs. **9.0,** Interval. **9.15,** Sponsored Concert. **10.15,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert of Opera and Ballet Music by the Station Orchestra. Overture, Russlan and Ludmilla (Glinka); Selection from L'étoile du nord (Meyerbeer); Three Airs from Marouf (Rabaud), on Gramophone Records. Selection from Patrie (Paladilhe). **1.0,** Exchange, News and Weather. **1,5,** Pianoforte Recital by Suzanne Teynier-Betille. Les tricoteuses (Couperin); Les cyclopes (Rameau); Petite berceuse (de la Presle); Etude (Pech); Orientale (Albeniz); Ballad in A Flat (Chopin). **1.30,** Exchange. **1.35,** Orchestral Concert (contd.). Alastian Dances (Levadé); Selection from Izeyl (Pierné). **6.10,** Agricultural Talk. **6.30,** Elementary English Lesson. **6.50,** Film Review. **7.0,** Review of New Books. **7.20,** Orchestral Concert. **7.45,** Commercial Prices and News. **8.0,** Un châtiment—Play in One Act (Truffier and Chenu) after the Novel by Paul Bonrget. In the intervals at **8.30,** News and Weather, and at **8.40,** Review by Paul Reboux, and at **9.45,** Gramophone Records. **11.15** (approx.), Close Down.

PITTSBURGH

WESTINGHOUSE ELECTRIC, (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York.** **8.15,** Monday Matinee, from **New York.** **8.45,** Human Values. **9.0,** Teaberry Baseball Scores. **9.5,** Programme to be Announced. **9.30,** Weather Report. **9.32,** Market Report. **9.45,** Folk Songs by Lois Miller. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be Announced. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Hotel McAlpin Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sports Review. **11.22,** Press News-Reeler. **11.29,** Temperature Report. **11.30 to 1.30 a.m. (Tuesday), New York** Relay. **11.30,** Tastyeast Jesters. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m. (Tuesday),** Townsend Murder Mystery. **12.30,** Five Star Theatre—Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Programme to be Announced. **1.45 to 3.0, New York** Relay. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** Time Signal and KDKA Players.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**6.20 p.m.,** Talk for Soldiers. **7.5,** Miscellaneous Announcements and News. **7.28,** Time Signal. **7.30,** See **Warsaw.** **10.0,** Time Signal, Sports and Police Notes. **10.15** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava.** **5.10,** Shorthand Lesson. **5.30,** Programme for Children. **5.50,** Variety Music on Gramophone Records. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk: The Economic Crisis. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Elementary English Lesson. **7.25,** Song Recital by Anna Zborilova-Rackova. **7.45,** Medical Talk. **8.0,** See **Moravská-Ostrava.** **8.45,** Talk. **9.0,** Time Signal. **9.1,** Concert by the Station Orchestra, conducted by O. Parik. Soloist: Professor Emil Mikelka (Pianoforte). Comedy Overture (Kovarovic); Pianoforte Concerto in F Minor, Op. 21, No. 2 (Chopin); Symphonic Fantasia, Francesca da Rimini, Op. 32 (Tchaikovsky). **10.0,** Time Signal. **10.1,** News Bulletin. **10.15** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—**7.30 p.m.** (from **Lausanne**) Weather News and Announcements. **8.0** (from **Geneva**), Extracts from Esther—Tragedy in Three Acts (Racine) with Music by Moreau, by Pupils of the Secondary Schools for Girls and the Station Orchestra. **9.25** (from **Lausanne**), Choral Concert. **9.50,** News and Weather. **10.0** (from **Lausanne**), Gramophone Music. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (approx.), Close Down.

REYKJAVIK

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

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.**—**1 to 2.15 p.m.,** Radio Report of the Cycle Tour of Italy, followed by Gramophone Records of Variety Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.0,** Radio Report of the Cycle Tour of Italy. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Song and Violin Recital by Ofelia Parisini (Soprano), Gino Corti (Bass), Vittoria Sensi (Baritone), and Maria Flori (Violin): Duets from Silvano (Mascagni) and Madame Butterfly (Puccini); Songs by Verdi and Gomez; Violin Music by Corelli, Chabrier, and Wieniavski. **6.40, (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.10,** Tourist Report. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Summary of the Day's Results of the Cycle Tour of Italy. **8.15,** Song Recital by Margherita Cossa (Soprano). **8.30,** Giornale Radio and Sports Notes. **8.45,** Concert of Light Music. In the interval, Talk. After the Concert, Dance Music. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.0 p.m.,** Book News by Levere Fuller. **8.15 to 9.0** (approx.), **New York** Relay. **8.15,** Salon Concert Ensemble. **8.30,** Three Seamps. **8.45,** Lady Next Door. **11.45,** Stock Reports. **12 Midnight to 1.30 a.m. (Tuesday), New York** Relay. **12 Midnight,** Soconyland Sketch. **12.30 a.m.,** National Opera Concert. **12.45,** Band of Famous Brands. **1.0,** A. & P. Gipsies. **1.30,** WGY Players—One Man's Family. **2.0,** Contented Programme, from **New York.** **2.30,** National Radio Forum from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather. **12 Noon** (from **Basle**), Gramophone Records of Bird Songs. **12.30 p.m.,** News Bulletin. **12.40** (from **Basle**), Which piece was that?—Musical Guessing Competition. **1.25** (from **Basle**), Exchange, Time and Weather. **1.45 to 5.0,** Interval. **5.0** (from **Zürich**), Fashion Talk for Women. **5.30** (from **Berne**), Gramophone Dance Music. **6.0** (from **Berne**), Gramophone Records of Famous Violinists. **6.30** (from **Zürich**), Otto Zarek reads from his Novel, Theater um Maria Thul. **7.0,** Time and Weather. **7.5** (from **Zürich**), Gramophone Music. **7.30** (from **Zürich**), English Lesson. **8.0** (from **Zürich**), Concert by the Swiss Radio Orchestra. **9.0,** Weather and News. **9.10** (from **Zürich**), Gustav Adolf Programme. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.** (from **Göteborg**), Provincial Programme. **5.55,** Gramophone Music. **6.55,** Parliamentary Notes. **7.15,** Weather and News. **7.30,** Recital by Ossian Frumeris (Songs) and Gunnar Ahlberg (Pianoforte). Three Songs (Peterson-Berger); Pianoforte Solos: Lyrische Stückchen (Grieg); Two Songs (Sinding). **8.0** (from **Göteborg**), Discussion on Co-operation between the Middle Classes. In the interval at **9.45,** Weather and News. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert. **12.45 p.m.,** News. **1.0,** Time Signal and Exchange Quotations. **1.5,** Gramophone Records. **1.15,** Radio Report of a Hunt in the Trone Forest, relayed from **Hérisson.** **1.30,** Light Music on Gramophone Records. **2.0 to 4.0,** Interval. **4.0,** Concert, relayed from **Paris (Radio Coloniale), 25.2 metres, 11,905 kc/s,** Pianoforte and 'Cello Recital by Mlle. Cols and M. Serres. **5.0,** Orchestral Concert, conducted by M. Roskam; Overture, Gri gri (Lincke); Waltz, Blue Diamonds (Witz); Two Melodies (Tosti): (a) Ideale, (b) Serenata; Selection from La Tosca (Puccini-Bergho); Rêve (d'Ambrosio); 'Cello Solo by M. Roskam; Le Cygne (Saint-Saëns); Ballet Suite (Popy). **6.0,** Talk on the Cinema. **6.15,** Talk in German: Figures in Alsatian History—G. Daniel Arnold. **6.30,** Orchestral Concert, conducted by Maurice de Villars; Soloist: M. Gregoire (Violin): The Surprise Symphony (Haydn); Overture, Figaro (Mozart); Les Petits Riens (Mozart); Violin Solo: Romance in G (Beethoven); Overture, Fidelio (Beethoven); Marches Militaires (Schubert). **7.30,** Time Signal and News. **7.45,** Russian Dance Music on Gramophone Records: Dances from Prince Igor (Borodin); Contradance (Napawnik); Sérénade Nocturne (Kedroff); Tri Piesni (Dobrowen); Kol Slaveuj (Bortujansky). **8.15,** Press Review in German, Lottery Results, and News. **8.30,** Radio Report of a Journey to Moulins in Central France, Chimes from the Town Clock, and Choral Concert of Old Bourbon Folk Songs. **9.30,** Press Review in French. **9.35** (approx.), La Périchole—Operetta (Offenbach): The Station Orchestra, conducted by Maurice de Villers, and Soloists. **11.0,** Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.,** Concert from **Langenberg.** **2.0 to 2.15 p.m.,** Programme arranged by the Post Office, with Gramophone Records. **2.30,** Spanish Lesson. **3.0 to 3.30,** Elementary English Lesson. **4.0,** Songs to Poems by Adalbert von Chamisso—Recital by Emma Mayer (Contralto). Dolorosa—Cycle (A. Jenssen); Frauenliebe und-leben (Schumann). **4.30,** Concert from **Frankfurt.** **5.50,** Time and Announcements. **6.0,** Talk: Germany—Her Leaders and Notabilities—Adolf Hitler. **6.25,** See **Frankfurt.** **6.50.** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** **8.0,** See **Frankfurt.** **9.0,** For Whitsun, 1933—Programme of Swabian Literature and Music, with Introductory Talk. **10.15,** Time and News. **10.35,** Talk on Chess. **10.45,** Serenade. **11.5,** Serenade. **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to fire. **6.30 p.m.,** Spanish Caprice for Orchestra (Rimsky-Korsakov). **6.45,** Popular Songs. **7.0,** Argentine Music. **7.15,** News, Exchange, Market Prices and Announcements. **7.25,** Local News. **7.30,** Instrumental Music. **7.45,** Songs from Opéra-Comique. **8.0,** Viennese Music. **8.30,** Sound Film Songs. **8.45,** Violin Solos. **9.0,** Extracts from Aïda—Opera (Verdi). **9.30,** Orchestral Concert: Norwegian Dance (Grieg); Minuet in G (Beethoven); Overture, Idomeneus (Mozart); Selection from Schwanda the Piper (Weinberger); Minuet (Schubert). **10.0,** Bal Musette. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Request Concert. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Dance Music: I'll never be the same; I'm playing with Fire; As long as Love lives on; Here it is Monday; When anybody plays or sings; We'll always be Sweethearts; Every Woman thinks she wants to wander; One Hour with you.—**11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Tuesday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

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

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 to 6.0 p.m.,** Concert of Variety Music. **6.35,** Giornale Radio, Agricultural and Dopolavoro Notes. **7.0,** Time and Tourist Report. **7.5** (approx.), Recital of Songs on Gramophone Records: Canzone della giovinezza (de Angelis); Marielita (Simi-Neri); Danziamo Jenny (de Angelis); Pardon (Celani-Gaslieri). **7.20,** Giornale Radio. **7.45,** Gramophone Records of Light Music. **8.0,** Announcements, Report on the Cycle Tour of Italy, Giornale Radio, Weather, and Gramophone Records of Operatic Music. **8.45,** Talk. **9.0,** Concert of Chamber Music. **10.0,** Comedy in One Act, followed by Gramophone Records of Variety 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; 20 kW. Relayed by **Graz, 851 kc/s, 352 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 246 metres;** and **Salzburg, 1,373 kc/s, 218 metres.**—Transmits at intervals from **6.30 p.m.,** Talk on the Austrian Countryside—the Gaisberg. **6.55,** English Lesson. **7.15,** Time, Weather, and Programme Announcements. **7.25,** Relay from the State Opera House. In an interval at **9.45,** News and Weather. **10.35,** Announcements. **10.45,** Gramophone Concert. Waltz, from The Arabian Nights (Joh. Strauss); Song from Frederica (Lehár); German Dances (Schubert); Selection from Coppélia (Delibes); The Merrymakers' Carnival.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.40 a.m.,** Police Press Review. **11.50,** Aviation Weather Report. **11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Road Report. **3.35,** Answers to Correspondence. **3.50,** Popular Music on Gramophone Records. **4.25,** Elementary French Lesson. **4.40,** Talk on Economics. **5.0,** Concert: Pianoforte Solos: (a) Theme with Variations in D (Mozart), (b) Toccata in G (Bach); Songs: (a) Aria from Sigismund Augustus (Joteyko), (b) Sérénade (Gounod), (c) Le Printemps (Gounod); Pianoforte Solos: (a) Polonaise brillante in E (Weber), (b) Etude (Henselt), (c) Etude in E (Scriabin), (d) Night (Glazunov); Songs: (a) L'oiseau des Champs (Gretchaninov), (b) Arietta from Richard Coeur de Lion (Grétry), (c) Aria from Gianni Schicchi (Puccini). **5.55,** Programme Announcements. **6.0,** Dance Music from a Café. News in the interval. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Light Cavalry—Operetta in Two Acts (Suppé). In the intervals, Sports Notes and Radio Journal. **10.0,** Answers to Correspondence and Technical Queries. **10.15,** Light Music. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** Dance Music on Gramophone Records. **6.40,** Talk in Lithuanian: The Rebellion of 1863. **6.55,** Miscellaneous Announcements. **7.0,** Daily Reading. **7.10,** Miscellaneous Announcements. **7.15,** Programme to be announced. **7.30,** Talk on Cyprjan Kamil Norwid—Poet, on the Fiftieth Anniversary of his death. **7.30,** See **Warsaw.** **12 Midnight** (approx.), Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.40 p.m.,** Announcements. **8.0,** Early Works of Famous Composers—Pianoforte Recital by Antonie Geiger-Eichhorn. Pianoforte Sonata, Op. 1 (Wagner); Variations on the Name Abegg, Op. 1 (Schumann); Pianoforte Sonata in C Op. 1 (Brahms); Rondo, Op. 1 (Chopin). **8.45,** Concert of Yugoslavian Music by the Station Quartet. **10.0,** News and Weather Report. **10.10,** Dance Music. **11.0,** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

TUESDAY

MAY THE TWENTY-THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Opera: "La Bohème" (Puccini), from Covent Garden.
LONDON REGIONAL	Recital of Brahms' organ works. "Tickets, Please," a revue.
MIDLAND REGIONAL	Choral programme and orchestral concert.
NORTH REGIONAL	Concert from the Houldsworth Hall, Manchester.
WEST REGIONAL	"Western Tour," some musical comedies which have visited the West.
SCOTTISH REGIONAL	Band concert.
BELFAST	Relay of variety programme from the Empire Theatre, Belfast.

ABROAD

BERO-MUNSTER	8.15 p.m. Opera: "The Barber of Bagdad" (Cornelius), from Berne.
BUDAPEST	8.30 p.m. Concert of English Music by the Orchestra of the Royal Academy of Music.
HUIZEN	7.40 p.m. Oratorio: "Elijah," by Mendelssohn.
MUNICH	9.20 p.m. Symphony Concert.
PRAGUE	7.0 p.m. Opera: "Tannhäuser" (Wagner), from the National Theatre.
ROME	8.45 p.m. Opera: "Siberia," by Giordano.
STOCKHOLM	8.0 p.m. Contemporary Swedish Music; the Composers conducting.
VIENNA	9.0 p.m. Mahler's Sixth Symphony in A.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report and Light Music on Gramophone Records. **6.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Reading. **7.15,** Monologues by Hilda Knowles. **7.30,** Time Signal. **7.31,** The Station Orchestra. **7.45,** Tenor Solos by H. Whitehouse. **8.0,** Sketch by Mary O'Hea and Company. **8.30,** The Station Orchestra. **8.45,** Soprano Solos by Mamie Dingle. **9.0,** Uilleann Pipes by S. MacAonghusa. **9.15,** Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time, News, Weather Report and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Trio: Concerto No. 2 (Couperin); Chanson de mai (Dandois); Berceuse (Rimsky-Korsakov); Selection from Intermezzo (R. Strauss). **8.0,** Request Gramophone Records. **8.15,** Catalan Grammar Lesson. **8.45,** Exchange and Talk on the History of Art. **9.0,** Request Gramophone Records and News. In the interval at **9.15,** Talk on Football. **10.0,** Chimes from the Cathedral, Messages for Seamen, Exchange and Market Prices. **10.5,** Sponsored Programme. **10.30,** La Cara de Dios—Play in Three Acts (Arniches), Music by Chapi. 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 Report, Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time and Announcements. **8.40** (approx.), Concert by the Bari Mandoline Quartet: Overture, Le trame deluse (Cimarosa); Liuto gentile (Gargano); Spleen (Amadei); Selection from Ernani (Verdi); Overture, Flora (Anelli); Serenata, C'era la luna (De Martino); Adagio cantabile, from the Pathetic Sonata (Beethoven); Seduzione (Amadei). In the interval, Talk on Wine. **10.30,** Light Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.0 p.m.,** Jugoslav Song Recital by Evgenie Pinterovic. **7.30,** Talk. **8.0,** See **Ljubljana. 10.0,** Relay of Foreign Stations.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert. **3.0,** Programme for Young People. **3.30,** Weather and Exchange. **3.45,** Dramatic Programme: (a) Der traurige Mönch (Lenau, Music by Liszt), (b) Der Gott und die Bayadere (Goethe, Music by Prince Louis Ferdinand of Bavaria). **4.0,** See **Leipzig. 5.0,** Talks for Women. **5.25,** Topical Talk. **5.35,** Song Recital by Hans Joachim Andresen. Four Songs (Richard Trunk): (a) An die Liebe, (b) Die Stadt, (c) In stiller Dämmerung, (d) In der Nacht; Four Songs (Justus Hermann Wetzel): (a) Alpenpass, (b) In Danzig, (c) Der Reisebecher, (d) Weg zur Geliebten. **6.0,** A Poem. **6.5,** 'Cello Recital: The Arpeggione Sonata in A Minor (Schubert); Minuet (Haydn); Intermezzo (Granados); Allegro spirituoso (Senaillé). **6.30,** Political Press Review. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations.—Programme to be announced. **8.0,** See **Hamburg. 9.0,** Topical Talk. **9.10,** See **Breslau. 10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Hamburg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.20 p.m.,** Heinrich Sattler Song Recital by Isa Berger (Soprano), Margarete Schreber-Sattler (Mezzo-Soprano) and Elsie Hartwig (Contralto). Introductory Talk by Prof. Paul Graener: Hoffnung auf Gott; Sonntagslied; Lied der Vögelein; Herbstmorgen; Murmelnder Bach; Wanderlied; Blauer Himmel Vaterlandslied. **6.40,** The Witzleben Station informs its Listeners.... **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Announcement. **8.10,** Introductory Talk to the following Transmission. **8.20,** Berlin Art Week—Part Relay of a Concert by the Prussian Academy of Arts from the Singakademie. The Station Orchestra conducted by Eugen Jochum. Soloist: Käte Hennemann (Pianoforte): Concerto in A Minor, Op. 72, for Pianoforte and Orchestra (Paul Graener), conducted by the Composer; Concerto, Op 38, for Orchestra (Hindemith). **9.0,** Variety Concert: Gertrud Runge (Soprano), Erwin Hartung (Tenor), Willy Glahe and Partner (Accordion Duets) and Gerhard Hoffmann's Band. **10.15,** Weather, News and Sports Notes. **10.45** (approx.), Radio Report on the European Police Boxing Championship from the Sportpalast. After the Report, Concert from **Hamburg. 12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News and Exchange. **7.40,** Talk for Women. **7.55,** Lottery Results. **8.0,** Topical Talk. **8.15,** News. **8.30,** Programme to be announced.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.25 p.m.,** Pianoforte Recital by Anna Kafendova-Zochová: Pianoforte Suite (Kafenda); Prelude and Fugue in D Minor (Bach). **7.50,** Reading. **8.0,** Programme from **Prague. 10.15,** Concert by the Station Orchestra, conducted by F. Dyk. **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.—1.5 p.m.,** Weather, followed by Gramophone Concert of German Music. **1.45,** Time and News. **2.5,** Gramophone Concert of Marches from Opera. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Market Prices. **3.40,** Programme for Children. **4.10,** Pianoforte Sonata in C Minor (Schubert). **4.40,** Review of Books. **5.0,** Orchestral Concert conducted by Franz Marszalek: Overture, Zampa (Hérold); An der schönen grünen Narenta (Komzak); Berceuse (Iljinsky); Barcarolle (Arensky); Grieg Reminiscences (Urbach); Dance Suite (Kochmann). In an interval at **5.30,** Market Prices. **6.0,** Topical Talk. **6.25,** Reading from the Works of Henry von Heiseler, with Introductory Talk. **6.50,** Weather and News. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.0,** Die lange Jule—Drama (Carl Hauptmann) arranged for Radio. **9.0,** First General News. **9.10,** Folk Songs of Germans Abroad—Choral and Orchestral Concert. **10.10,** Second News. **10.30,** Political Press Review. **10.55,** Talk: The Plight of the Provincial Theatre. **11.10,** Concert from **Hamburg. 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.45 p.m.,** Programme from **Prague. 8.40,** In the Waiting-Room—a Radio Play. **9.0,** Programme from **Prague. 10.15,** See **Bratislava. 11.0** (approx.). Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Gramophone Concert of Opera Music. **12.20 p.m.,** Clarinet Solos. **12.35,** Viennese Music: Selection from Light Cavalry (Suppé); Waltz from The Merry Peasant (Fall); Waltz from The Count of Luxembourg (Lehár); Overture, The Gipsy Baron (Strauss). **1.0,** Le Journal Parlé. **1.10,** Liszt Concert by the Small Station Orchestra, conducted by Leemans: Hungarian March; Rhapsody No. 2; Liebestraume. **1.30,** Concert of Old Dances. **5.0,** Beethoven Concert by the Station Orchestra, conducted by Meulemans: Overture, Die Geschopfe des Prometheus; Symphony in D. **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Organ Recital of Sacred Music: Prelude and Fugue in B Minor (Bach); Two Chorals (Karg Elert): (a) O Durchbrecher aller Bande, (b) Wie schon leuchtet uns der Morgenstern; In dir ist Freude (Bach); Cantabile (Franck); Preludio (Corelli); Adagio (Bach); Finale from the First Symphony (Guilmant). **6.45,** Programme arranged by J. O. C. **7.15,** Talk by M. Pauwels: The Encyclical Letter Rerum Novarum. **7.30,** Review for Women and Notes on Art. **8.0,** Concert of Belgian Music by the Radio Orchestra, conducted by F. André. **8.35,** Sacred Music: Pontifical March; Hymn. **8.45,** Talk. **9.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Soloists: Mme. Laure Bergé (Songs). Part I—Beethoven Music: Overture, Egmont; Song (Beethoven); March from The Ruins of Athens. Part II—Songs: (a) Ewige Liebe (Brahms), (b) Traum durch die Dämmerung (R. Strauss), (c) Heimliche Aufforderung (R. Strauss); Finale from The Dusk of the Gods (Wagner). **10.0,** Le Journal Parlé. **10.10,** Request Gramophone Records. **10.40,** Gramophone Records: Nicolette (Ravel); Lisette (d'Indy); Toccata in F (Bach). **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 by the Small Station Orchestra, conducted by Pierre Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Popular Music on Gramophone Records. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Overture, Zampa (Hérold); Stolz Potpourri (Dostal); Ballet Music from William Tell (Rossini); Selection from Véronique (Messager); Ballet Music from Coppelia (Delibes); Hungarian Dances (Brahms). **5.45,** Programme for Children. **6.30,** Concert by the Station Orchestra, conducted by P. Leemans: Cortège oriental (Leemans); Russian Dance No. 4 (Bullerian); Violin Solo, Hymn to the Sun, from The Golden Cockerel (Rimsky-Korsakov); Gramophone Records; Selection from Le Petit Duc (Lecocq); Gramophone Record; International Suite (Tchaikovsky). **7.15,** Talk. **7.30,** Tourist Talk. **8.0,** Hotchpotch—Variety Programme by Mme. Julia Belloy-Van Troyen and M. Bertal (Songs), Albert Remes (Humorist), the Sarov Dramatic Club, the Station Symphony Orchestra, conducted by Arthur Meulemans, and the Radio Orchestra, conducted by Franz André. **10.0,** Le Journal Parlé. **10.10,** Gramophone Dance Music: Foxtrot, There's something in your Eyes Madame; Jolly Good Company; I would not change you for the World; Waltz, Girl of a Million Dreams; Foxtrot, Paradise and you; Slow Foxtrot, Minnie the Moocher; Foxtrot, Sugar o'Mine; Tango, Sangre; Waltz, I'll believe in Love; Foxtrot, Mona Lisa; Tango, Tell me I'm forgiven; Foxtrot, By the Fireside; Waltz, Flor des Alpes; Foxtrot, Got the Bench, got the Park; Waltz, Amoureuse.; Two step, Tereo fino.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Motoi Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Concert by the Radio Orchestra; Soloist, M. Theodoru (Violin): Overture, The Merry Wives of Windsor (Nicolaï); Second Suite from L'Arlésienne (Bizet); Selection from Madame Butterfly (Puccini); Selection from Les Cloches de Corneville (Planquette); Potpourri, Wiener Spaziergänge (Komzak). **8.45,** Dramatic Programme. **9.15,** Concert (contd.): Rondoletto (Bohoci); Waltz, Natursänger (Ziehrer); Second Arabesque (Debussy); Habanera (Chabrier); Canzonetta from the Romantic Concerto for Violin (Godard); Festival March (Napravnik). **9.45,** Radio Journal. **10.0,** Talk: Sinaia and the Royal Castle of Pélésch.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **7.40 p.m.** to **12 Midnight.—5.0 p.m.,** Gramophone Concert of Variety Music. **6.0,** French Lesson. **6.30,** Violin Recital by Johann Konez: Third Scene from the Czardas (Hubay); Rondo (Mozart); Andantino (Nardini); Minuet (Veracini); Etude No. 9 (Paganini); Spanish Dance (Sarasate). **7.0,** Talk on India. **7.30,** Exchange. **7.40,** Butter Abend. **8.30,** Concert of English Music by the Orchestra of the Royal Academy of Music, conducted by Paul Kerby. Soloist: Dorothea Humphreys (Songs). Introductory Talk by Prof. Eugen Hubay. Suite for String Orchestra (Purcell); Dido's Song from Dideo and Aeneas (Purcell); The Fifth Symphony (Boyce); Suite from The Beggar's Opera (Gay-Pepusch); Concert Overture, Cockaigne (Elgar); Enigma—Variations for Orchestra (Elgar); March (Elgar). **10.30,** News, followed by Cigany Music from the Hotel Britannia.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **12 Noon,** Town Hall Chimes. **12.2 to 2.0 p.m.,** Concert from the Bellevue Strandhotel. **3.0,** Concert by Carl Rydahl's Instrumental Ensemble. Soloist: Ellen Jannaes (Songs). Comedy Overture, Hokus Pokus (Leuschner); Waltz, Wiener Frauen (Joh. Strauss); Selection from Norma (Bellini); Two Pieces from Per Svinaherda (K. Atterberg); Tarantella from Masaniello (Auber); Songs; Ballet Suite (O. Gyldmark); Waltz from Lysistrata (Lincke); Sorg (Fini Henriques); Two Pieces (Czibulka): (a) Hearts and Flowers, (b) Serenade, To Thee; Tango (Henrik Kaikar); Petite Romance (Knud Brandt); Alexandra-march (Th. Poulsen). **5.0,** Programme for Children. **5.35,** Exchange and Fish Market Prices. **5.50,** Talk. **6.20,** German Lesson. **6.55,** Weather and News. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk: Colonisation and Irrigation. **8.0,** Town Hall Chimes. **8.1,** Beethoven takes a Holiday—Radio Play with Music in Three Acts (Emma Schiller), followed by the Pastoral Symphony in F (Beethoven). **9.40,** Reading. **10.0,** Recital of Danish Folk Melodies. **10.20,** News. **10.35,** Folk Dances from Other Lands. Concert by the Radio Orchestra, conducted by Fritz Mahler: Scottish Dance (Henry Cowell); Indian Dance (Frederic Jacobi); Marosszekerjänze (Kodaly). **11.5,** Dance Music from the Wivex Restaurant. In an interval at **12 Midnight,** Town Hall Chimes. **12.30 a.m. (Wednesday),** Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk on Old Cracow. **7.15,** Miscellaneous Announcements and News. **7.30,** See **Warsaw. 11.0,** Popular Music on Gramophone Records. **12 Midnight,** Fanfare from the Tower of St. Mary's Church.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the B.B.C., T. St. A. Rolland, C. Danvers-Walker and B. McNabb announcing. **5.30,** Concert of Light Music for Torquay and Exeter Listeners: Waldteufel Memories (arr. Finck); Reconciliation (Drigo); Songs: (a) Try a little Tenderness (Woods), (b) Somebody, somewhere, someday (Rapee); Babes in Toyland (Herbert); Violin Solos: (a) Because (d'Hardelot), (b) The Song of Songs (Moya); The Clock and the Dresden Figures (Ketelbey); Songs: (a) Memories of Devon (Evans), (b) I pitch my Lonely Caravan at Night (Coates); Poupée valsante (Poldini); The Skaters' Waltz (Waldteufel). **6.15,** Pianoforte Recital and Songs for Plymouth and Devonport Listeners: Rustle of Spring (Sinding); Under the Palm Trees (Alfvén); The First Waltz (Durand); Songs: (a) The Sun God (James), (b) I am Fate (Ham-

MAY 23rd **TUESDAY** *continued*

bleu); Arabesque (Debussy); Spanish Dance, No. 5 (Granados); Prelude (Rachmaninov); Songs: (a) If I were (Henry), (b) Invictus (Huhn); Waltz in E Flat (Moskovsky); Rondo capriccioso (Mendelssohn). **7.0,** Programme in French. **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Ibcolians: Speedway Sam; The Old Kitchen Kettle Dance of the Cuckoos; At Eventide; Same Old Moon; I've gone and lost my Little Yo Yo; Through that Open Window; The Gag Song; The Sun has got his Hat on; Let me be your Carmen for To-night; Singing in the Moonlight; Let that be a Lesson to you; Strangers; It's that extra little Something; Paradise. **11.0,** Concert: Wiener Blut (Strauss); Song, The Bonnie Banks o' Loch Lomond; Choir, Caller O'u (Gray); Gems of Robbie Burns (arr. Beaton); Song, Shetland Lullaby (arr. Geehl); Choir, Three Fishers went sailing (Kingsley); Song, McLeod's Galley (Kennedy-Fraser); The Gay Gordons (arr. Beaton). **11.30,** Songs; Kitty my Love, will you marry me? Life's desire; Little Boy Blue; Orchestra: Potpourri of Famous Songs; Song o' my Heart; Love is like that; Just an Old Refrain. **12.0 Midnight,** Club Concert for Downpatrick, Banbridge, and Dromore Listeners: General Mulcahy March (Bruse); Songs: (a) At the End of an Irish Lane, (b) Cuban Love Song; Accordion Solo, The Minstrel Boy; Songs: (a) I know of Two Bright Eyes, (b) Beneath thy Window, (c) Phil the Fluter's Ball (French); Handsaw Solos: (a) When I'm dreaming, (b) Someone like you; Songs: (a) My Irish Song of Songs, (b) The Lass from County Mayo; Accordion Solo; Restless Fingers; Song, Sigh no more; Irish National March (Bruse). **1.0 a.m. (Wednesday),** Hawaiian Band Music; My South Sea Home (Camellio); Hawaiian Hotel (Traditional); Whistling Waltz (Reeves); Julien (Donata); Mari Girl (Libornio); Kilima (Traditional); Duet, Kamschamola (Traditional); Aloma (Bowers). **1.30,** Songs: Little Things in Life (Berlin); I am the Words (de Sylva); Just because I Lost my Heart (Gilbert); Orchestra: Selection from The Cat and the Fiddle; Reaching for the Moon (Berlin); Little White Lies (Donaldson); To-day I feel so happy (Carter). **2.0,** Dance Music by the Ibcolians: Three's a Crowd; You're my Everything; Sweethearts Forever; Ooh! that Kiss; Let's all dance the Polka; I'm forgetting Myself; Marching along together; I guess I'll have to Change my Plan; Sweet Muchacha; How deep is the Ocean; Pu-leeze Mr. Hemmingway; What would happen to me? Love is the Sweetest Thing; I wonder how the Old Folks are to-night. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.; and **Cassel, 245.9 metres;** and **Trier, 259.3 metres.—6.0 p.m.,** Talk: Wardrobe Fever. **6.25,** Talk: The German Theatre. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the winners of the Frankfurt Radio Singing Competition of April 25th, 1933. **9.0,** Lorraine Programme. **9.20,** Symphony in C Sharp Minor after the Quartet, Op. 36 (Pfitzner); The Station Orchestra, conducted by the Composer. **10.20,** Time, News, Weather and Sports Notes. **10.45,** See **Stuttgart.**

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.,** Die Torgauer Heide—Play (Otto Ludwig). **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Hamburg Philharmonic Orchestra, conducted by Adolf Secker; Soloists, Erna Kroll-Lange and B. Jakschtat (Songs): Overture on a Thuringian Song (Lassen); Susanne's Aria from Act III of Figaro (Mozart); Norwegian Rhapsody No. 1 (Halvorsen); Two Symphonic Tone Poems (Schultze-Biesantz): (a) Der Glücksritter, (b) Humorous March; Duet from Act II of The Merry Wives of Windsor (Nicolai); Selection from Der Obersteiger (Zeller); Overture, Die schöne Galathée (Suppé); Eva's Entry Song from Eva (Lehár); Waltz, Du und Du, from Die Fledermaus (Joh. Strauss); Basil's Song from Act I of The Count of Luxembourg (Lehár); Selection from The Merry Widow (Lehár); March, Semper vivum (Larcher). **10.0,** Time, Weather, Announcements, Sports Notes and Police Report. **10.20,** Topical Talk. **10.30,** Concert by a Symphony Orchestra of Unemployed Musicians; Conductor, Otto Ebel von Sosen: Comedy Overture (Lincke); Musikanten-Suite (Geisler); Selection from The Gipsy Baron (Joh. Strauss); Swabian Peasant Waltz (Krome); Schön ist so ein Ringelspiel (Leopold); Hurra, wir lieben (Inwald); Old Vienna in Song and Dance (Pachernegg); Es liegt eine Krone im grünen Rhein (Pachernegg); Hurra, die Musik kommt (Zimmer); Katzbach-Marsch (Becker).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert of Lortzing Music. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Music. **3.0,** Exchange. **3.30,** Programme for Children. **4.0** (from **Danzig**), Police Band Concert: March, Soldatenliebe (Ailbout); Overture, Der Königsleutnant (Titl); Potpourri of Johann Strauss Waltzes (E. Strauss); Potpourri, The Immortal Verdi (Rhode); Prelude to Lohengrin (Wagner); Fantasia on Ich hatte einst ein schönes Vaterland (Ailbout); Warmbrunner Festmarsch 1932 (Willi Pischel); Overture, Mignon (Thomas); Deutschland, blühe neu auf (Meyer-Helmund); A Summer's Day in Norway (Willmer); Potpourri, Aus der Woche (Thiele); Feuerwehrgalopp (Hertel). **5.30,** Songs to the Lute. **6.0,** A Review of Books on the Youth Movement. **6.15,** Market Prices. **6.25,** Talk for Workers. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.5,** Gubernator Coeli Programme on the Three Hundred and Ninetieth Anniversary of the Death of Copernicus (Martin Borrmann). **9.10,** News. **9.20,** Violin and Harpsichord Recital by Prof. Hermann Dieter (Violin) and Dr. Müller-Blattau, Johann Friedrich Reichardt, with Introductory Talk. Part I: His Teachers: (a) Caprices (Franz Benda), (b) Adagio from a Sonata (F. A. Veichtner). Part II: Reichardt's Music: (a) Sonata in E flat for Violin, (b) Sonata in B flat for Violin and Harpsichord. **10.0** (approx.), News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.).—11.40 a.m.** till Close Down. 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. **1.55 to 2.10,** Interval. **2.10,** Gramophone Music. **2.40,** Fashion Talk for Women. **3.40,** Violin Recital by Boris Lensky. Hindu Song (Rimsky-Korsakov); Syncopation (Kreisler); Tango (Albéniz); Spanish Dance (Granados); Mitternachtsglocken (Heuberger); Schön Rosmarin (Kreisler); Liebesfreud (Kreisler). **4.10,** Concert by a Children's Choir. **4.40,** Fairy Tales for Children. **5.10,** Talk for Young People arranged by the Liberal Protestant Radio Society (V.P.R.O.). **5.40,** Gramophone Music. **6.10,** Talk on Liberia, arranged by the V.P.R.O. **6.40,** Gramophone Music. **7.10,** Tourist Talk: Norway. **7.40,** Time, Weather and News. **7.45,** Organ Recital by Pierre Palla, relayed from the Kurhaus, Scheveningen. Soloists: Henk Viskil (Songs) and Jan Sevenstern (Saxophone). **8.40,** Do you know why?—Detective Mysteries (P. van't Veer): No. 1, The Stolen Documents. **8.55,** Concert by Kovacs Lajos and his Band and the A.V.R.O. Girls. We're a Couple of Soldiers; Let's all sing like the Birdies sing; Waltz from The Girl in the Taxi (Gilbert); Stolz Potpourri (Dostal); Campana e sera (Billi-Palla); Malavaje; Schön ist das Leben (Heymann). **9.40,** Gramophone Music. **9.55,** Concert (contd.). Hyde Park Corner; El mal que me Liciste; Du wärst für mich die Frau gewesen (Weinberger); The Old Kitchen Kettle; You're dancing on my Heart; Tränen in der Geige (Kaper-Jurmann); Will dich lieben (Spoliansky); Schön wär's Liebling (Grothe); A Boy and a Girl were dancing; Old Father Thames; The River Rhine; Träume mein Baby. **10.40,** News Bulletin. **10.50,** Gramophone Music. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

1,875 metres; 8.5 kW. Programme of the Catholic Radio Society (K.R.O.). **11.55 a.m.** Concert by the Station Orchestra, conducted by M. Gerritsen. Overture, Ten Maids and no Man (Suppé); Kirmes am Rhein (Dreissen); Parisian Life (Fetras); Three Woodland Dances (Haines). **12.40,** Gramophone Music. **12.55,** Concert (contd.). Semper fidelis (Sousa); Selection from The Merry Peasant (Fall); Waltz, Carnevals-Botschafter (Strauss); Berceuse de Jocelyn (Godard). **1.25,** Interval. **1.40,** Programme for Women. **2.40,** Gramophone Music. **3.40,** Organ Recital by A. Driessen. **6.40,** Police Notes. **6.55,** Talk: Iceland. **7.15,** Gramophone Music. **7.25,** Talk. **7.40,** Elijah (Oratorio (Mendelssohn). In the interval at **8.55** (approx.), News and Gramophone Music. **10.40,** News. **10.45,** Gramophone Music. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW. **8.0 p.m.,** Amusements Guide, News, Financial Notes and Racing Results. **8.10,** Agricultural Talk. **8.20,** The Listeners' Quarter of an Hour. **8.35,** Radio Concert. **9.0,** Weather and News. **9.15,** Radio Concert (contd.). **12 Midnight** till Close Down, Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Concert of Trios and Songs: Serenata No. 2 (Toselli); Old Vienna Moon (Lehert); Song without Words (Tchaikovsky); Songs: (a) Trees (Rasbach), (b) The Song of Songs (Moya); Play, fiddle, play (Lawrence); Kisses in the Dark (Micheli); Adios (Fernandez). **12.30 a.m. (Wednesday),** Songs and Orchestral Music. Songs: (a) Sleep on (Offenbach), (b) All my Life (Gibbons), (c) My Man (Adams); The Skaters' Waltz (Waldteufel); Songs: (a) I give my Heart (Millöcker), (b) By the Fireside (Conelly), (c) Goodbye (Tosti); Waltz, The Blue Danube (Joh. Strauss). **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.30 p.m.,** Divine Service Relay. **8.0,** Announcements. **8.15,** Evening Concert. **8.50,** Talk: The Problem of Modern Physics. **9.10,** Popular Programme. **9.30,** Talk. **9.50,** Concert: Overture, Hamlet (Gade); Melody (Byford); Wedding Scenes (Smetana). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.—6.15 p.m.,** Talk. **6.40,** Song Recital by Hannes Lehtonen. **7.5,** Talk. **7.30,** Concert by the Station Orchestra, conducted by Erkki Linko. Soloist: Vainö Arjava (Violin). Symphony No. 1 in C (Beethoven); First Movement from the Concerto for Violin (Tchaikovsky); Hymn to the Sun, from The Golden Cockerel (Rimsky-Korsakov); Overture, Oberon (Weber). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Wolf. Soloist: Elfriede Rheindorf (Contralto). March, Regimentskameraden (Füsser); Overture, Berlin wie es weint und lacht (Conradi); Waltz, Frühlingszauber (Füsser); Overture, Frau Meisterin (Suppé); Three Songs (Reger): (a) Waldeinsamkeit, (b) Glückes genug, (c) Das Dorf; Romantic Suite, Schloss Durande (Niemann); Spanish Dance (Sarasate); Selection from Faust (Gounod); Waltz, An des Rheines grünen Ufern (Detert); Potpourri, Contrasts (Robrecht); March Potpourri, Achtung Wir gehn voran (Reckenwald). In the interval at **2.0,** News. **2.30 to 2.45,** Sponsored Programme with Gramophone Records. **3.0,** Programme for Children. **3.30,** Exchange and Time Signal. **3.50,** Notes on the Broadcasts to Schools. **4.0,** Talk on the Teaching of Mathematics. **4.30,** See **Munich. 5.50,** Ruhrland—Two Poems (Otto Wohlgemuth). **6.5,** Talk for Taxpayers. **6.15,** Italian Lesson. **6.45,** Weather, Time, Exchange, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** News Bulletin. **8.5,** Concert by the Münster Municipal Orchester, conducted by Wolf. Soloist: Herbert Alsen (Bass). Part I: Mozart, Overture and Sarastro's Aria from The Magic Flute; Three Movements from the Ballet Music to Idomeneo. Part II: Weber, Overture and Caspar's Aria from Der Freischütz; Ballet Music from Die drei Pintos; Overture, Oberon. Part III: Lortzing, Overture, Der Wildschütz; Song from Der Waffenschmied; Clog Dance from Czar and Carpenter; Selection from Undine. In the interval at **9.5,** Talk: The V.D.A.—a Popular Movement. **10.5,** News and Sports Notes, followed by Silent Night.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Concert of Sacred Music on Gramophone Records. **1.0 p.m.,** News. **1.15,** Concert Dances on Gramophone Records. After the Concert, News. **2.10,** Talk: The Possibilities and Limits of Surgery. **3.35,** Economic Notes. **4.0,** Concert by the Station Orchestra, Conductor, Theodor Blumer. Soloist, Walter Mayer (Baritone). Part I: Music from German Operas: Overture and Arias from Don Giovanni (Mozart); Selection from Der Waffenschmied (Lortzing); Song from Czar and Carpenter (Lortzing); Recitative and Aria from Der Wildschütz (Lortzing); Selection from Martha (Flotow); Overture, Peter Schmoll (Weber); Talk. Part II: Light Music: Spanish Dance, Op. 5, No. 3 (Fielitz); Valse triste (Sibelius); Tarantela napolitana (Martucci); Mazurka, Aus dem Wiener Wald (Strauss); Gallop, Prestissimo (Waldteufel); Waltz from Der arme Jonathan (Millöcker). **5.50,** News, Weather, and Time. **6.0,** Radio Report from the Leipzig Voluntary Labour Service Camp. **6.45,** Programme Announcements. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Concert by the Dresden Instrumental Ensemble: Three Movements from the Novelletten, Op. 29 (Gade); Divertimento in G for Two Violins and 'Cello (Mozart); German Dances (Schubert); Two Movements from Märchenbilder (Schumann); Ein kurioser Kaffeeklatsch, Op. 32 (Weiss); Waltz, Evening Star (Lanner). **9.0,** News. **9.15,** Frederick at Leuthen—Play (Bernhard). **10.30,** News. **10.35,** Concert of Contemporary Music by the Symphony Orchestra, conducted by Hilmar Weber. Soloist, Erwin Kindscher (Violin). Overture, Hamlet (Woyrsch); Violin Concerto, Op. 50 (Siegl); Variations on the Folk Song Morgenrot, Morgenrot (Müller). **11.30,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** German Lesson. **7.30,** Programme to be announced. **8.0,** Talk on Music. **8.30,** Chamber Music. **9.30,** Weather and News. **10.0,** Quintet Concert.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.15 p.m.,** Miscellaneous Items. **7.30,** See **Warsaw. 10.45,** Gramophone Music. **10.55,** See **Warsaw. 11.30** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South-East. **8.30,** Programme to be announced. After the Programme, News.

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Wednesday), Talk. 1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call 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 Espana Cantos and Gramophone Records (contd.). **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time, and Political Review. **10.45** (approx.), Spanish Artists before the Microphone—Irene Lopez Heredia and Mariano Asquerino. **11.30,** Relay from a Theatre. **12.45 a.m. (Wednesday), News. 1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. Part I—Overture, Der Bettelstudent (Millöcker); Suite (Gabriel Marie). Part II—Czech Dance Music. **5.10,** See **Prague. 5.50,** Gramophone Music. **6.0,** Talk. **6.15,** Talk for **Brno. 6.50,** See **Prague. 10.45** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**5.30 p.m.,** Dance Music. **9.0,** News Bulletin. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsberg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m.,** Concert conducted by Erich Kloss. Overture, Le Roi l'a dit (Delibes); Prelude and Fugue from Le Déluge (Saint-Saëns); Selection from Tannhäuser (Wagner); Waltz, Perlen der Liebe (Jos. Strauss); Suite, In den Bergen (Kasper-Schmid); Berceuse (Cui); Suite mignonne (Sibelius); Heroischer Marsch (Schubert). **5.45,** Talk: The History of Bavarian Towns. **6.5** (from **Nürnberg**), Talk: German Soldiers in North American Pay. **6.25,** Music, Grave and Gay—Gramophone Medley. **6.45,** Time, Weather, and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Fantasia in C for Pianoforte (Schumann), by Emmy Braun. **8.25,** Die Schule der Welt—A Comedy (Frederick the Great). **9.5,** Dialogue on Bavarian Writers. **9.20,** Symphony Concert by the Station Choir and Orchestra, conducted by Hans Winter: Overture, Coriolanus (Beethoven); Symphony in E flat (Mozart); German Psalm for Mixed Choir and Orchestra (Wedig). **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

MAY 23rd **TUESDAY** *continued*

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres,** and **Rjukan, 671 kc/s, 447.1 metres.**—**12.15 p.m.,** Radio Report on the Sailing of s.s. Bergensfjord for America. **5.0,** Light Orchestral Concert, relayed from **Trondheim, 605 kc/s (495.8 metres).** **6.0,** Programme for Housewives. **6.45,** Accordion Solos. **7.0,** Announcements, Weather and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra. **9.30,** Talk on Amateur Photography. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Concert by a Cornet Octet. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Concert of Opera Music, conducted by F. Russo. In the intervals, Talk and Announcements. **10.55,** News.

PARIS

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

PARIS

POSTE PARISIEN, 914 kc/s., 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Concert with Gramophone Records. **8.0,** Film Review. **8.5,** Talk on the Circus. **8.15,** Interval. **8.30,** Orchestral Concert; Soloists: Mme. Roesgen-Champion (Harpsichord), Henry Merckel (Violin), and Jean Doyen (Pianoforte): Concerto for Pianoforte and Orchestra (Ravel); Melodies (Debussy); Norwegian Fantasia for Violin and Orchestra (Lalo); Melodies (Lalo); Concerto in F for Harpsichord and Orchestra (Haydn); Melody (Haydn); Introduction, Sarabande, and Toccata for Harpsichord and Orchestra (Roesgen-Champion); Marche militaire from Suite algérienne (Saint-Saëns). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Krettly Orchestra: Opéra-Comique Music: Overture, Le Roi d'Yvetot (Adam); Selection from Les Dragons de Villars (Maillart); Overture, Mirella (Gounod); Selection from Mignon (Thomas); Serenade from L'Amant jaloux (Grétry); Aria, Mon cœur soupire, from Figaro (Mozart). **1.0 p.m.,** Exchange, News and Weather. **1.5,** Extracts from Frasquita—Operetta (Lehar). **1.30,** Exchange. **1.35,** Concert by the Krettly Orchestra (contd.): Classical and Romantic Music: Overture, Egmont (Beethoven); Albumblatt (Schumann); Clarinet Solo, Adagio (Wagner); Overture, Fingal's Cave (Mendelssohn). **2.0,** Market Prices, and Announcements. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Market Prices, Weather, Agricultural Report, and Exchange. **6.35** (approx.), Advanced English Lesson. **6.50,** Theatre Notes. **7.5,** Talk on Art. **7.20,** Concert of Modern French Music by the Krettly Orchestra: Suite Persane (Tournier); Recueillement (Gallon); Violin Solos: (a) Vitrail (Defosse), (b) Sabor de España (Defesse); Traversée heureuse (F. Schmitt); Marche joyeuse (Chabrier). **7.45,** Review of the Anglo-Saxon Press, Commercial Prices, and News. **8.0,** Variety Programme arranged by Paul Weill. **8.30,** News and Weather. **8.40,** Review by Paul Seize. **8.45,** Papa—Play (de Flers and Caillavet). **9.15** (in the interval), News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York. 8.15,** Radio Troubadours, from **New York. 8.45,** Congress of Clubs Period. **9.0,** Teaberry Baseball Scores. **9.5,** Meredith Wilson Orchestra, from **New York. 9.15,** Selma Brandt (Pianist). **9.30,** Weather Report. **9.31,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5 to 10.45, New York** Relay. **10.5,** Harold Stokes Orchestra. **10.15,** Dick Daring. **10.30,** The Singing Lady. **10.45,** Little Orphan Annie. **11.0,** Village Barn Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 2.59 a.m. (Wednesday), New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** National Advisory Council on Radio in Education. **12.45,** Irene Bordoni and Emil Coleman. **1.0,** Eno Crime Clues. **1.30,** Adventures in Health. **1.45,** From the Composer to you with Herman Hupfield. **2.0,** Willard Robison's Deep River Orchestra. **2.30,** Tune Detective. **2.45,** Pickens Sisters. **2.59,** Time Signal. **3.0,** Household Musical Memories, from **New York.**

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**6.20 p.m.,** Talk on Children's Week. **6.35,** Topical Talk. **6.50,** Miscellaneous Announcements and News. **7.10,** Book Review. **7.28,** Time Signal. **7.30,** See **Warsaw. 8.0,** Military Band Concert. **9.0,** Baritone Song Recital by Kajetan Kopczynski. **9.25,** Pianoforte Recital by Zygmunt Lisicki: Three Ballads (Schumann); Pianoforte Solos (Schubert-Liszt): (a) Der Müller und der Bach, (b) Die Forelle, (c) Der Lindenbaum, (d) Der Erlkönig. In an interval, News from **Warsaw. 10.0,** See **Warsaw. 10.15,** Time Signal, Sports and Police Notes. **10.30,** Dance Music from the Esplanade Café. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Moravská-Ostrava. 5.10,** Talk on Economics. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Gramophone Music. **6.5,** Market Prices. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: News and Song and Pianoforte Recital by Traute Wolf and Dorothea Ruzitschka: Songs (Schumann): (a) Marienwürmchen, (b) Ständchen, (c) Die wandeinde Glocke; Songs (Brahms): (a) Der Reiter, (b) Wie komm ich denn zur Tür herein, (c) Schwesterlein; Pianoforte Solos: Extracts from Bunter Blätter (Schumann). **6.50,** Talk on the following Transmission. **7.0,** Tannhäuser—Opera in Three Acts (Wagner), relayed from the National Theatre, for the 120th Anniversary of Wagner's Birth. In the intervals at **9.0** and **10.0,** Time Signals. **10.30,** News Bulletin. **10.45** (approx.), 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**), New Gramophone Records. **7.30** (from **Geneva**), Weather, News, and Answers to Correspondence. **8.0** (from **Lausanne**), Talk on Music. **8.10** (from **Lausanne**), Trio Music. **8.55** (from **Lausanne**), A Childhood Friend—Comedy in One Act (Edmond See). **9.50,** News and Weather. **10.0** (from **Lausanne**), Firzel, the Well-known Singer, in Songs from his Repertoire. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—**9.30 p.m.,** Weather Report. **9.40,** Musical Programme and Announcements. **10.0,** Chimes and News Bulletin. **10.30,** Reading. **11.0,** Pianoforte Recital by Emil Thoroddsen. **11.15,** Recitations. **11.35,** Quartet in F Minor, Op. 52 (Beethoven) on Gramophone Records.

RJUKAN.—See **Oslo.**

ROME

Call 1RO, 680 kc/s, 441 metres; 60 kW. Relayed by **Naples, 941 kc/s, 319 metres; and 2RO, 11,810 kc/s, 25.4 metres.**—**1.0 to 2.15 p.m.,** Gramophone Concert from **Turin.** In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.15,** Orchestral Concert: Reminiscences of Seville (Nissim); Signora felicità (Moleti); Nicaragua (Marazìti); Serenata (Culotta); Selection from Madam Butterfly (Puccini); Melody (May); Capriccioso (Bucchi); Sveglia (Orselli). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.0,** Tourist Report. **7.10,** Lesson in Morse. **7.20,** Giornale Radio. **8.0,** Time, Announcements and Report on the Cycle Tour of Italy. **8.15,** Talk on Astronomy. **8.30,** Light Music on Gramophone Records. **8.45,** Siberia—Opera in Three Acts (Giordano). In the intervals, Theatre Talk and Theatre Notes. Giornale Radio after the Opera.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.**—**11.45 p.m.,** Stock Reports and Baseball Scores. **12 Midnight** till Close Down, **New York** Relay. **12 Midnight,** Blackstone Plantation. **12.30 a.m. (Wednesday),** Wayne King's Orchestra. **1.0,** Ben Bernie's Blue Ribbon Orchestra. **1.30,** Ed Wynn and the Fire Chief Band. **2.0,** Lives at Stake. **2.30,** Walter Damrosch Symphony Concert and Programme Resumé. **3.0** (approx.), Close Down

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather. **12 Noon** (from **Zürich**), Orchestral Concert. **12.30 p.m.,** News Bulletin. **12.40** (from **Zürich**), Concert (contd.). **1.25** (from **Zürich**), Exchange, Time and Weather. **1.45 to 5.0,** Interval. **5.0** (from **Zürich**), Concert of Light Music by the Swiss Radio Orchestra. **5.30** (from **Basle**), Gramophone Records of Operetta Music by Johann Strauss and Paul Abraham. **6.30** (from **Berne**), Talk. **6.55** (from **Berne**), Gramophone Music. **7.0** (from **Berne**), Time, Weather and Notes on the Broadcasts for Schools. **7.10,** Concert of Light Music. **7.45** (from **Berne**), A May Evening at Lake Thun—Radio Report on Life in the Lake Thun District. **8.15** (from **Berne**), The Barber of Bagdad—Opera (Cornelius). In the intervals at **9.10,** Weather and News. **10.0** (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; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Concert of Light Music relayed from **Falun, 977 kc/s, 307 metres. 5.45,** Gramophone Music. **6.45,** French Lesson, relayed from **Malmö, 1,301 kc/s, 231 metres. 7.30,** Talk: The Swedish Coast. **8.0,** Concert of Contemporary Swedish Music, the Composers conducting. Soloist: Anders de Wahl (Speaking Voice). First Movement from the Symphony No. 1 in C Sharp Minor, August Strindberg's In Memoriam (Rangström); Adagio from the Symphony, Op. 20 (Wiklund); Scherzo and Finale from the Symphony No. 3 in E (Alfvén); Ranjana—Poem for Speaking Voice (Rabindrath Tagore), with Orchestral Accompaniment (Schildknecht); First Movement from the Symphony, Alles endet was entsteht (Berg); Andante from the Symphony in F (Lindberg); Finale from the Symphony No. 2 in F (Alterberg). **9.45,** Weather and News. **10.0,** Cabaret Programme. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Light Music on Gramophone Records. **12 Noon,** Orchestral Concert, conducted by Maurice de Villers: Ballet from Faust (Gounod); Ballet from Sylvia (Delibes); Ballet from Manon (Massenet); Overture, Stradella (Flotow); Waltz, Etoile Polaire (Wahlteufel); Dance of the Hours, from La Gioconda (Ponchielli); Selection from Ariadne auf Naxos (R. Strauss); Pianoforte Solo, Jardins sous la pluie (Debussy); Byzantine Suite (Ganne). In the interval at **12.45 p.m.,** News, Time and Exchange Quotations. **2.0 to 4.0,** Interval. **4.0,** Quintet Concert, relayed from **Paris (Radio Coloniale), 11,905 kc/s, 25.2 metres. 4.45,** Talk: The Town of Le Querey. **5.0,** Dance Music by the Orchestra, conducted by M. Roskam. **6.0,** Talk on History. **6.15,** Talk: Problems of the Day. **6.30,** Chamber Music: Pianoforte and Violin Sonata in G (Beethoven); Melodies (Sporck); Petites Histoires (Montefuillard). **7.30,** Time Signal and News. **7.45,** Alsatian Music on Gramophone Records. **8.15,** Press Review in German and Lottery Results. **8.30,** Programme relayed from **Paris.** After the Transmission, Press Review in French.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.,** Concert from **Langenberg. 2.0,** Programme arranged by the Post Office, with Gramophone Records. **2.30 to 3.0,** Advanced English Lesson. **3.30,** Talk: Flowers. **4.0,** Talk for Women. **4.30,** See **Munich. 5.45,** Time and Announcements. **6.0,** Geheimnis der Landschaft—Radio Sequence (Hans Teichmann) on the Fiftieth Birthday of Ewald Banse. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** See **Leipzig. 8.40,** Reminiscences of the Great War. **9.0,** Programme relayed from **Berlin (Witzleben). 10.10,** Time and News. **10.45,** Dark is Life and dark is Death—a Sequence from Poems by Li-Tai-Be for two Voices (arr. Wilhelm Locks); Era Fassbinder, Emil Hess (Recitations) and Wilhelm Locks (Organ). **11.15** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**6.30 p.m.,** Songs from Operettas. **6.45,** Ballet Music from The Three-cornered Hat (Falla). **7.0,** Arias from Opera. **7.15,** News, Racing Results, Exchange, and Market Prices. **7.25,** Local News. **7.30,** Accordion Solos. **7.45,** Military Music. **8.0,** Arias from Opera. **8.15,** Instrumental Solos. **8.30,** Balalaika Music and Russian Songs. **8.45,** Songs from Sound Films. **9.0,** Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. Light Music in the interval. **10.0,** Accordion Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Choral Music. **11.15,** Dance Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C. **11.30,** Songs from Operettas, Old Vienna Moon; The Desert Song; The Blue Danube; Bitter Sweet; Voices of Spring; You will remember Vienna. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 (Wednesday),** Orchestral 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

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**5.15 to 6.0 p.m.,** Dance Music from the Savoia, Milan. **6.35,** Giornale Radio and Agricultural and Dopolavoro Notes. **7.0,** Time and Report of the Royal Geographical Society. **7.5** (approx.), Songs on Gramophone Records. **7.20,** Giornale Radio. **7.45,** Popular Music on Gramophone Records. **8.0,** Announcements. Report on the Cycle Tour of Italy, Giornale Radio, Weather and Gramophone Records of Variety Music. **9.0,** Variety Programme. **10.0,** Talk. **10.15,** Dance Music. **11.0,** Giornale Radio and Close Down.

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; 15 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.**—**6.5 p.m.,** Talk: Milk in the Household. **6.30,** French Lesson. **7.0,** Concert of Light Music: March, Frohe Zukunft (Ludwig Payr); Overture, Die drei Wünsche (Ziehrer); Waltz, Klänge aus der Favorita (Karl Engelhardt); Ballet Suite from Tatjana (Lehár). **7.30,** Time and Announcements. **7.35,** Concert (contd.): Melody (Josef Mayer-Aichhorn); Potpourri, Von Wien durch die Welt (Hruby); Souvenir d'amour (Wacek); Schlagerrezept (Karl Danberg); Waltz, Frühlingsgrüsse (Josef Eber); Viennese Song, Es singen die Vogerln ganz anders in Wien (Gangiberger); Phäaken-Marsch (Schieder). **8.15,** Talk with Experiments: The Heart Beat regarded as an Electrical Vibration. **8.45,** Topical Talk. **9.0,** Symphony in A Minor, No. 6 (Gustav Mahler), by the Vienna Symphony Orchestra, conducted by Dr. Anton Webern. **10.30,** News. **10.45,** Dance Music on Gramophone Records.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.40 a.m.,** Polish Press Review. **11.50,** Aviation Weather Report. **11.57,** Time and Fanfare from the Tower of St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Gramophone Records of Light Music. **1.20,** Weather Report. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Announcements. **3.35,** Review of New Books. **3.50,** Light Music on Gramophone Records. **4.25,** Talk for Teachers. **4.40,** Talk on Gardening. **5.0,** Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by W. Bierdjajev; Soloist, A. Zeitelbaum (Pianoforte): Overture, Oberon (Weber); Concerto in A Minor for Pianoforte (Grieg); Suite from Raymonda (Glazunov). **5.55,** Programme Announcements. **6.0,** Light Music from a Café. **7.0,** Miscellaneous Items. **7.20,** Agricultural Report. **7.30,** Talk: Melodrama and Musical Comedy. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by J. Dworakowski; Soloist, J. Oziminski (Violin): Overture, Ascanio in Alba (Mozart); Selection from The Pearl Fishers (Bizet); Serenata (Amadei); Parade des embonpoints (Aubert); Violin Solo, Suite, Mosaic (Halvorsen); Waltz, Ange d'amour (Waldteufel); Selection from The Queen of Spades (Tchaikovsky); Potpourri, Papa Offenbach (Morena); Violin Solos: (a) Atlantique, (b) Papillon (Andrejewski), (c) Fantasia on Gounod's Faust (Wieniavsky); Song without Words (Mendelssohn); The Forge in the Forest (Michaelis-Hohenstein); Selection from Coppélia (Delibes); Cadet March (Sousa). In the interval, Sports Notes and Radio Journal. **10.0,** Reading. **10.15,** Song Recital. **10.45,** Light Music on Gramophone Records. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music Relay.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.30 p.m.,** Announcements. **7.50,** Talk on the following Transmission. **8.0,** Programme to be announced. In an interval, News and Weather. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

Foreign Programmes continued on page XIII.

PROGRAMMES CONTINUED

The Wireless World

THE PRACTICAL RADIO JOURNAL

23rd Year of Publication

No. 716. FRIDAY, MAY 19TH, 1933. VOL. XXXII. No. 20.

Proprietors: ILIFFE & SONS LTD.

Editor:
HUGH S. POCOCK.

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.
Telegrams: "Cyclist, Coventry." Telephone: 5210 Coventry.

BIRMINGHAM:
Guildhall Buildings, Navigation Street, 2.
Telegrams: "Autopress, Birmingham." Telephone: 2970 Midland (3 lines).

MANCHESTER: 260, Deansgate, 3.
Telegrams: "Iliffe, Manchester." Telephone: Blackfriars 4412 (4 lines).

GLASGOW: 26B, Renfield Street, C.2.
Telegrams: "Iliffe, Glasgow." Telephone: Central 4857.

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.

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EDITORIAL COMMENT

Location of the Speaker

The Case for a Separate Unit

ON many occasions in the past we have questioned the advisability of the slavish adoption on the part of manufacturers of the common arrangement of incorporating the loud speaker in the same cabinet with the receiver itself. As a matter of *their* convenience, this arrangement has a good deal to commend it, but from the *listener's* point of view there are very strong arguments which can be put forward to support a departure from this policy in favour of the separation of the speaker from the set.

Where the speaker is housed with the set designers are confronted with a serious problem in trying to stop the vibrations set up by the speaker from influencing the valves, and the higher the efficiency of the set the greater is the risk that this trouble will develop.

In discussing this subject in January 1932, we urged that manufacturers should consider the advantages of a design where the speaker could be located in some position other than that chosen for the set, and we said it must very frequently happen that the user wishes to place his speaker in some particular position in his room but that this position might be, and very often would be, a most inconvenient spot for the set as a whole.

But our recommendation at that time did not bear much fruit as manufacturers were so firmly rooted in the idea of self-contained models, and we recollect that one manufacturer, in particular, expressed the view that to follow such a proposal would be a distinctly retrograde step. Whether or not such a view is justifiable may shortly be put to the test, for American designers are now freely discussing separation of the speaker from the receiver as likely to prove an outstanding attraction for their sets of next season, whilst still enabling the dimensions of the set itself to be kept down without the inevitable impairing of quality which results from confining the dimensions of the speaker within fine limits. The idea is heralded in America just now as if something entirely new had just been thought of and no doubt salesmen will find plenty of points to bring home to the public the advantages of the new style radio sets.

A well-known authority in America, discussing this subject recently, has stated "Clearly the loud speaker must be separated from the set, equipped with sufficient baffle area and placed, inconspicuously perhaps, in some other part of the room." And again, "the very advantage of tuning and adjusting volume and tone from the point in the room where the listener will sit is of great importance."

West Regional

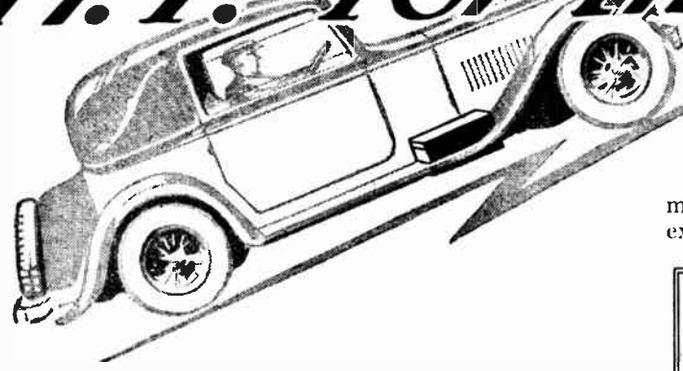
A Technical Achievement

WE congratulate the B.B.C. on the completion of the West Regional station, which is located at Washford Cross, a few miles from Minehead, in Somerset.

The station is built to practically the same plan as Brookman's Park and constitutes the last of the regional transmitters as originally planned in the Regional Scheme.

West Regional and Brookman's Park are destined to share a common wavelength of 261.5 metres for the transmission of the National programme, and it is expected that tests will be started about June 1st. If these stations of high power and comparatively close proximity can be linked successfully it will indeed be a technical achievement of first-rate importance to broadcasting. We wish the engineers every success in their tests.

H.T. for the Car Set

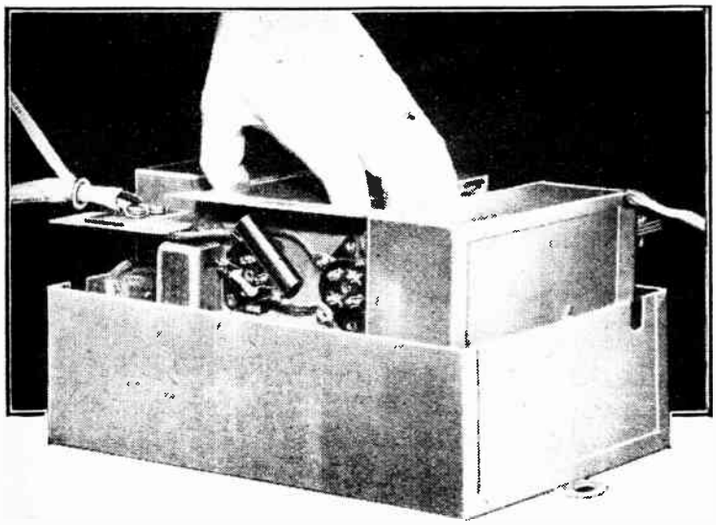


Stepping-up the Starter Battery Voltage

By A. DINSDALE

THE "Tuned Vibratory Transformer" was used during the war to obtain a high voltage from an L.T. accumulator battery. Now an American correspondent describes a modernised and improved device of this nature which operates from the car battery and gives a liberal supply of H.T. current for the receiver.

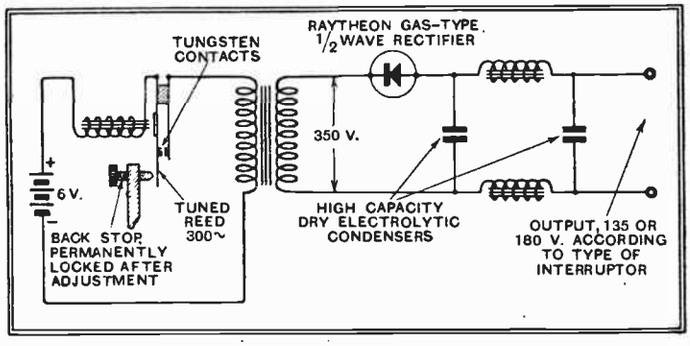
TWO years ago, in an effort to introduce an innovation in their respective industries, American radio and automobile firms got together and proceeded to introduce radio sets into motor cars. The early sets, as may well be imagined, were scarcely "a joy for ever"; in fact, they are known to have caused many headaches for those who produced them. And this is not to be wondered at, for engineers who for years had been fighting to perfect the all-mains receiver



The American Elkonode H.T. Unit is easily removed from its metal case. Power is derived from a 6-volt car battery.

suddenly found themselves called upon to dig out the long-forgotten technique of the battery-operated receiver. In addition, interference from car ignition and other sources had to be tackled and eliminated.

The situation to-day is that it is estimated that 175,000 automobile radio sets were in operation last year, and the trade expects to sell 200,000 more this season. At recent automobile



Schematic circuit diagram, showing the separate interruptor unit.

shows in various parts of the United States automobile manufacturers found that one out of every ten car buyers is interested in "auto radio." There are at least twenty-four motor car radio sets on the market, made by leading radio manufacturers. Some of these sets can be adapted for motor-boat use, some are dual-purpose, and some are designed almost exclusively for motor boats. Sixteen leading car manufacturers now build aerials into their current models as standard equipment.

It is noteworthy that the public, in taking an interest in this new development, has become so accustomed to good-quality reception that it has demanded equally good reception in its motor car, taking no interest whatever in the difficulties involved. Thus, manufacturers have been forced to supply good-quality reproduction and simple, trouble-free operation in quick time, in order to satisfy the market. Sets make use of from four to eight valves, with a dynamic speaker of the permanent-magnet type fitted under the dashboard. Operating controls are often mounted on the steering column. These consist of a key-operated switch for turning on the set, and two small knobs, one for tuning and one for volume control.

The car or boat battery provides the L.T. power for these sets. It may be noted here that American cars still use 6-volt batteries almost exclusively. The H.T. supply has, up to now, been supplied from H.T. batteries—and that is the weakest link in the chain.

Eliminating the Short-lived H.T. Battery

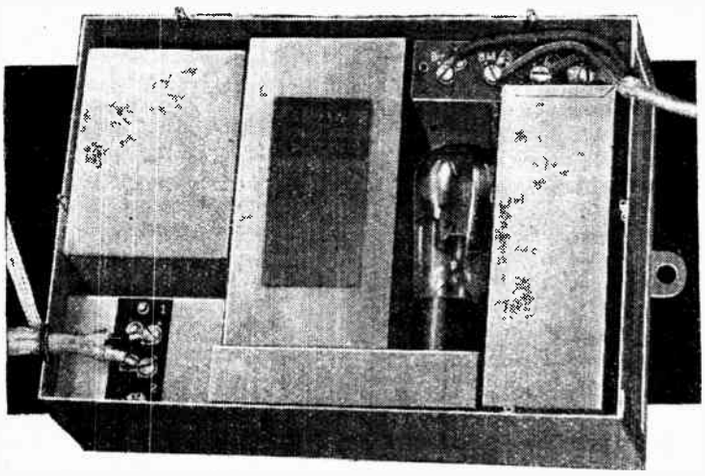
When automobile radio began to be introduced two years ago the Elkon organisation, makers of metal rectifiers, turned its attention to the problem of eliminating the expensive and short-lived H.T. battery. The final result is an eliminator which consists essentially of an H.T. transformer, the primary of which is supplied by the car battery through a mechanical interruptor; the output of the secondary is rectified, smoothed, and fed to the radio receiver. The unit, which measures 10in. × 7in. × 3¼in., is enclosed in a sturdy steel case, cadmium plated to prevent rusting. It may be fitted in any convenient position anywhere in the car—under the bonnet, under the chassis, under or behind seats, in the dickey or luggage compartment. Armoured input and output leads of ample length are supplied, and with the armoured covering adequately earthed at every point of contact with the frame of the car the position of the unit is immaterial.

H.T. for the Car Set—

Within the outer casing of the device are mounted the various units which comprise it, these units also being enclosed in cadmium-plated steel cases, thus following out the American "shield within a shield" policy of radio receiver design. The vibrator is of simple but sturdy design, and consists of a single magnet coil and a tuned reed vibrator with tungsten points. The reed is carefully tuned to a vibration frequency of 300 cycles exactly, and when finally set up all adjustments are permanently locked up immovably. The vibrator has a guaranteed life of 2,000 hours without adjustment. When it finally wears out the manufacturers recommend its replacement at a cost of nearly $5. To facilitate replacement, the connections to the vibrator emerge from the case in the form of standard valve legs, so that the unit plugs into a valve socket.

Replaceable Interruptor

The pulsating output current of the transformer (which is also a separate unit) has a voltage of 350, and is fed to a standard Raytheon filamentless, gas-type, half-wave rectifier. Thus, ordinary driving or heavy road shocks can cause no rectifier damage. The output of the rectifier is then fed to the final unit, a well-built and generous filter system which completely eliminates ripple, noise, and any radio frequency (ignition) disturbances from the plate supply circuits. High-capacity, dry electrolytic condensers form part of the smoothing circuit.



Interior of the unit, showing principal components. Top left : transformer ; centre : interruptor unit and rectifier ; right : smoothing equipment.

The heart of the device is, of course, the interruptor, and this largely determines the permissible D.C. output voltages and current. Also, it determines the eliminator load on the car battery. In the interests of economy and flexibility, therefore, the manufacturers supply six types of interruptor, any one of which may be plugged into the eliminator without changing the other units. The characteristics of these six types are as follows :—

	Watts Output.	Amps. Input.	180 Volts at mA.	135 Volts at mA.
Type 1	2.2	1.1	12	16
Type 2	2.7	1.2	15	20
Type 3	3.6	1.5	20	27
Type 4	4.5	1.8	25	33
Type 5	5.4	2.1	30	40
Type 6	6.3	2.45	35	46

Thus, for any given receiver, it is only necessary to select the appropriate interruptor. Because of the bulk and expense of H.T. batteries, most auto radio manufacturers have restricted themselves to 135-volt valves. Only a few of the more progressive have gone in for 180-volt valves. With this new eliminator available, however, it is likely that higher voltage valves, with consequent increased output power from the receiver, will shortly be used, although a great deal of volume is not necessary within the confines of a motor car.

Connected to the shielded input cable is a small relay placed in series with the receiver filament circuits. Thus the eliminator is switched on or off automatically with the receiver.

Interference Suppressors

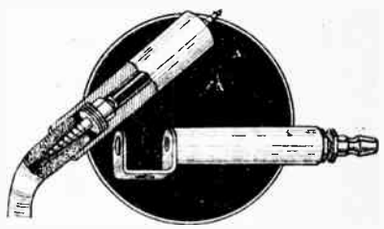
The market price of the unit in America is $20, which is a reasonable price to pay for freedom from the H.T. battery nuisance. It is interesting to note that the unit is suitable for use on aircraft and for low-power transmitters ; it should prove an especial boon to those whose homes are not yet provided with electrical supply mains.

Various types of interference have, of course, been encountered in the operation of radio sets in motor cars, but all these have been successfully overcome. The principal source of trouble, the ignition system, has been rendered completely harmless by the insertion in each H.T. lead, as close to the sparking-plug as possible, of a simple resistance. The value of this resistance is too insignificant to cause any appreciable H.T. voltage drop, and yet it is sufficiently high to kill completely any H.F. oscillations set up by the spark ; without the resistance the spark-plug leads form oscillatory circuits which radiate H.F. energy.

Another annoying type of interference is similar to, and as difficult to locate, as our old friend "body rattle." It is usually indicated by "bumps" and "pops" in the loud speaker as the car moves, especially when travelling over a rough road. This type of interference is usually eliminated by thoroughly tightening all parts of the chassis and body. In some extreme cases it will be necessary to earth parts of the body that are "free" or "floating"—i.e., metal parts that are not in good electrical connection with other parts of the chassis.

A Simple Code

The interruptor itself is silent in operation, even when the car is stationary, for its case is generously lined with sound-proofing material. Electrical interference from this source will not be experienced so long as all leads are thoroughly shielded, including the aerial lead-in up to within a few inches of the aerial.



Although "car wireless" has not yet made much headway in this country interference suppressors for the ignition equipment are already available. These special Erie resistors are encased in porcelain tubes.

It is interesting to note that the cars of many American broadcasting station officials are radio equipped, so that they may at all times be in touch with their stations. Some stations have developed special codes for communicating with their executives in an emergency, when all other means of communication fail to locate them. For example, when all is well, station WOR will identify itself simply as "WOR—Newark." When the Chief Engineer is wanted in a hurry and nobody knows where he is the identification is changed to "WOR—Newark, New Jersey." And when the Station Manager is wanted the announcement reads "WOR—the Bamberger Broadcasting Service in Newark, New Jersey." When one of the engineering department executives of the Columbia Broadcasting System is badly wanted, the System's key station, instead of identifying itself simply as "WABC—New York," will announce "This is Station WABC, in the City of New York." These code announcements never fail to bring the wanted person to the 'phone within a matter of seconds, or maybe a few minutes if he is out on the road and has to find a 'phone.

Yachting enthusiasts find a radio set not only entertaining but also valuable, in that it enables them to receive weather reports, and since dry H.T. batteries do not thrive in a moist, salty atmosphere, an eliminator is a highly welcome substitute.

UNBIASED
BY FREE GRID

Sealed Lips

YOU will probably remember that the other week I gave you an account of how I sat in a talking theatre and heard the running commentary from the screen *via* a radio receiver and the usual talkie amplifier. Interest was added by a large map of the course thrown on the screen, and I expressed the hope that something similar would be done in the case of the Derby and similar important outside broadcasts.

I am now told that the whole thing is illegal, as it was a deliberate flouting of the B.B.C.'s oft-repeated warning that outside broadcasts must not be communicated to the public.

A large number of readers have written asking me the name of the cinema, but in the interests of humanity I cannot reveal it, as the powers that be are waiting to pounce on the unfortunate manager of the place with an outsize in summonses. I myself have been harassed, cajoled and brow-beaten by the authorities in an endeavour to get the name of the place from me, but my lips are sealed.

My Noisy Flat

FOLLOWING the prevailing fashion, I have recently taken up my abode in one of the many palatial flats which are now springing up everywhere. But I have bitterly repented my move, and am negotiating for a return to my old haunts.

The main trouble is the confounded noise of the traffic coming up from the London streets—so different from the peace and quietness of the sylvan retreat to which I have been accustomed. The

Against my midriff.

first morning I found the noise too nerve-wracking even for the dictation of correspondence. No matter how loudly I bawled I was unable to make the light of intelligence dawn in the eyes of my female secretary.

With that grain of resourcefulness which never entirely deserts me I took a taxi across London to the "W.W." laboratories, and, with the aid of one or two minions who live and have their being there, was able to sling together a passable amplifier which I interposed between a microphone and a pair of headphones clamped on my secretary's head.

Alas for my lack of foresight; the noise was amplified as much as my speech. I was compelled, therefore, to resort to my old trick of holding the microphone against my midriff. The noise problem is now solved. As a matter of fact I have mounted a very flat microphone on a special belt which presses against my midriff next to my skin, the connecting lead coming down my trouser leg.

The idea is not an entire success, however, as I find that when dictating letters I can no longer follow my custom of pacing up and down the room without constantly tripping over the lead. This necessitates the repeated readjustment of the microphone position, and much loss of time results, it being obviously necessary for my secretary to retire during this process. Frankly, I can see nothing to relieve the situation but a dignified withdrawal to the country, there to link my microphone to my secretary's headphones via the Post Office land lines, or, alternatively, to equip myself with a short-wave transmitter.

A Chance for the Government

OVER a year ago I expressed the opinion that television (or radioscopy, as I prefer to call it, being strictly brought up to prefer all-Greek words and to eschew Latin and Greek hybrids) would never make headway while the present system of moving mechanical parts was persisted in. Since that date several eminent authorities have endorsed my opinion.

It almost seems as though the whole business ought to be handed over to radio amateurs, who might be able to put the same sort of jerk into it that they did in the matter of broadcasting in 1922 and in short-wave pioneering during the decade following. Government departments and commercial interests, hovering over the work of amateurs like vultures, as they have done in the past, could then follow their custom of swooping down and taking all the credit, as is their wont, and then radioscopy would take its place on an equal footing with its twin sister, radiophony.

Hanky-panky at Pangbourne

IT so happened that the other day I was on a hiking tour in the neighbourhood whence the B.B.C. nightingale broadcasts emanate, and, happening to turn into a local hostelry for refreshment, I had the good fortune to drop into a seat next to an ancient rustic who looked as though he might be a companionable conversationalist.

After I had caused his tankard to be refilled he began to give me the current gossip of the hamlet in the broadest "Berkshire." It was not until he touched upon the subject of the nightingale broadcasts, however, that I really began to sit up and take notice. Hastily calling for his tankard to be replenished once more, I began judiciously to pump him, and soon learnt some interesting but hitherto unpublished facts concerning the B.B.C.'s activities in the neighbourhood.

The clock which we have heard chiming-in so appropriately during the broadcasts is not situated in the old village church, nor is its striking spontaneous, as we have been led to believe The striking of the

Had typed out the dope.

hour actually emanates from a long disused clock over certain stables, the B.B.C. engineers prodding it into unwonted activity for the occasion. Another fact which I learned from my rustic friend was that a whole day had been devoted by the B.B.C. myrmidons in trying to induce the oldest inhabitant to say his little piece in front of the "mike."

They had typed out the dope for the old man to read in order to avoid any "technical hitch" which might result from an impromptu performance. Unfortunately, however, it was found that he and punctuation were strangers to each other, and it was thought that lack of intelligibility might lead listeners into the wicked belief that they were hearing a captive nightingale, languishing in some foreign zoo. In the end, therefore, the B.B.C. callously discarded him and the little stronghold of rustic histrionics which he was endeavouring to uphold.

With a bitter pang, born of regret that such an unfortunate state of affairs should exist in such a lovely part of the country where, as Heber puts it, "Every prospect pleases and only man is vile," I left the "Nightingale and Needle" and wandered off sadly but steadily into the night.

The Double Diode Triode

Practical Data for the New Osram MHD4 Valve

THERE is no doubt that the double diode triode, in the same way as the "variable mu" of two years ago, introduces a new phase in set design. Without the "variable mu" the double diode triode would have an extremely limited field of usefulness; without the double diode triode the full advantages of the "variable mu" are not realised. The two valves together form a complementary combination with fascinating possibilities particularly in the direction of automatic volume control.

By C. N. SMYTH, B.Sc., and J. STEWART, M.A., B.Sc.

Technical Staff, The General Electric Co., Ltd.

THE use of the double diode triode[1] as a means of providing automatic volume control has recently been described, and it is the purpose of this article to give practical operating data for the first British example of this new type of multiple valve. As the various circuits for quiet, amplified and delayed A.V.C. have already been given, it remains to put forward the detecting and amplifying aspects of the valve.

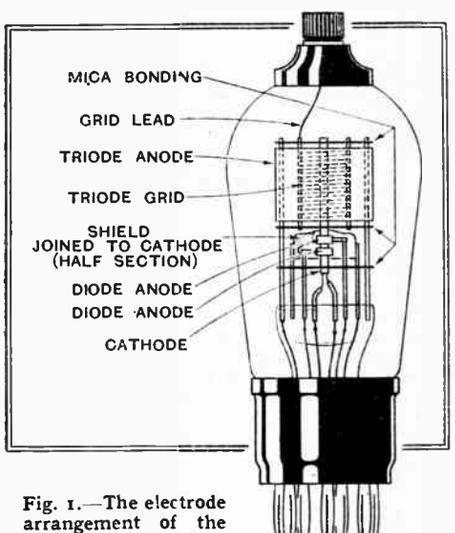


Fig. 1.—The electrode arrangement of the Osram MHD4. The grid connection of the triode is at the top of the bulb and the other electrodes are brought out to a 7-pin base now standardised for multiple valves.

The general layout and construction are shown in Fig. 1. It is seen to consist of a normal triode with the grid connected to a terminal on top of the bulb, and small auxiliary anodes placed round the lower end of the cathode. These auxiliary anodes are very carefully screened from the grid and anode of the associated triode in order to keep the capacities between the two sets of electrodes as small as possible. If this is not done H.F. voltages or high audio frequencies may be passed through the valve and cause loss of efficiency or bad quality reproduction.

The screening is obtained by shrouding the small anode with a metal cover and, additionally, by taking the grid out at the top of the bulb and thus having no grid lead within the pinch of the valve. In order to accommodate the increased number of electrode connections in the MHD4—as the new valve is called—the new type of seven-pin base which has been standardised in this country for multiple valves will be employed.

The characteristics of the valve are shown in Fig. 2, average values being as follows: The amplification factor is 40, the A.C. resistance 16,600 ohms, and the mutual conductance 2.4 mA/volts, these constants being measured at an anode voltage of 100 and zero grid volts.

The use of a diode followed by a triode, thus separating the functions of detection and amplification, is now well known. The advantages of this scheme over other forms of rectifier are threefold. First, the input impedance of the diode rectifying circuit is high, secondly, the diode provides nearly perfect rectification, and thirdly, no high-frequency voltages are passed on to the triode amplifying valve. Thus it is able to handle a much larger input than a similar triode used as a grid detector.

The Osram MHD4 comprises diode and triode elements in the same bulb, thus giving increased convenience and decreased cost with no loss in efficiency. Two separate diode anodes are provided in order to render possible full-wave rectification or various different types of A.V.C. circuits.

The advantages of diode detection in giving a linear response are well known. It is not, however, commonly realised that a diode detector imposes very little damping on the preceding tuned circuit. In fact, in this respect, diode detection has only one rival—an anode-bend screen-grid detector. This latter rectifier is only of practical utility when it is of the self-biased type, and even then it is non-linear for small inputs.

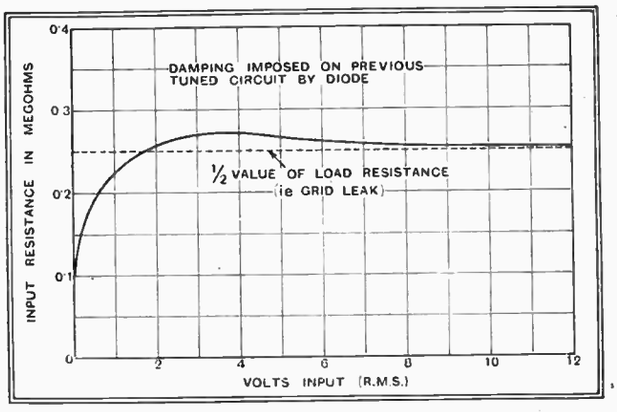


Fig. 3.—Damping imposed on preceding tuned circuit by one diode.

Fig. 3 shows the effective input shunt resistance of one diode of an MHD4 valve, measured by the damping produced on a tuned circuit connected across the input. In this case the load resistance (corresponding to the grid leak in the case of a triode valve) was 0.5 megohm, and it will be seen that, except for very small inputs, the damping produced by the diode valve is approximately 0.25 megohm for a diode load resistance of 0.5 megohm. It can be shown theoretically that, for large inputs, the effective input resistance of a diode rectifier circuit is one-half the value of the load resistance.

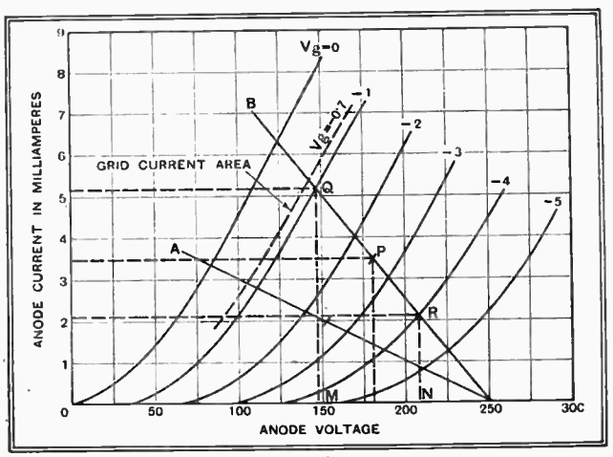


Fig. 2.—Anode volts/anode current characteristics for the MHD4 valve. Two load lines have been drawn (A) for 50,000 ohms and (B) for 20,000 ohms.

[1] See article entitled "Automatic Volume Control," *The Wireless World*, February 17th, 1933.

The Double Diode Triode—

The effective input resistance of the MHD4 valve does not at any time fall below 70,000 ohms, and only reaches this minimum value for very small inputs.

Figs. 4 and 5 give the rectifier characteristics of an MHD4 valve operated as a

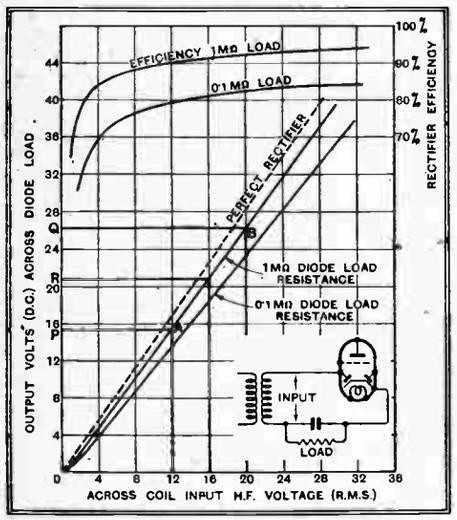


Fig. 4—Rectifier characteristics of the MHD4 valve operated in a half-wave circuit.

half-wave rectifier and as a full-wave rectifier, using either one diode or two diodes in parallel. As an example in the use of these curves, consider a single diode rectifier with a 1 megohm load resistance and an H.F. input of 16 volts carrier, modulated 25 per cent. Thus the H.F. input swings between the voltages. 12 and 20, and the working point moves between A and B, giving a peak L.F. output developed across the load resistance ($\frac{1}{2}$ voltage PQ) of 5.4 volts. The D.C. bias available for A.V.C. purposes is represented by the point R, or 20.8 volts. It will be seen that greater efficiency and linearity are to be obtained when using a 1 megohm load resistance, but this gain is only obtained at the expense of some high-note loss, owing to the larger time-constant of the load resistance condenser combination. The use of

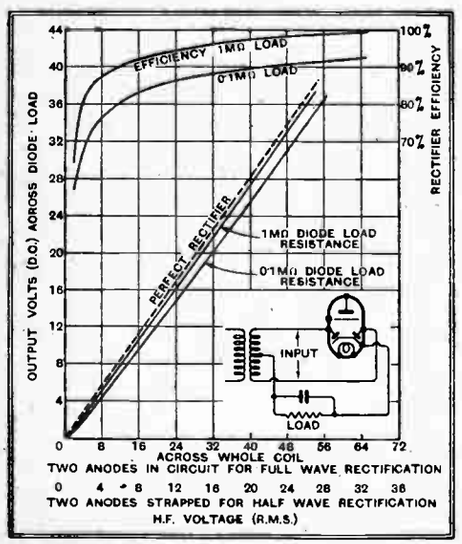


Fig. 5.—Rectifier characteristics when both diodes are used.

an 0.5 meghom load resistance is recommended with the MHD4.

Leaving the question of rectification behind, we have to consider the most effective way of utilising the triode of the MHD4 in order to obtain faithful reproduction and the necessary overall sensitivity, together with any A.V.C. action which may be required.

Amplified A.V.C.

To obtain this performance the following three factors must be carefully considered: the value of the anode load resistance, the value of the auto-biasing resistance, and the output obtainable from the valve. The signal - handling capacity of the valve must not be forgotten, and special attention must be paid to this point if amplified automatic volume control is to be used. These points can be determined directly from the anode voltage/anode current characteristics of the valve which are shown in Fig. 2 for several values of grid voltage. Two load lines have been drawn (A) for a 50,000 ohm resistance load and (B) for a 20,000 ohm load, assuming an H.T. supply of 250 volts in each case.

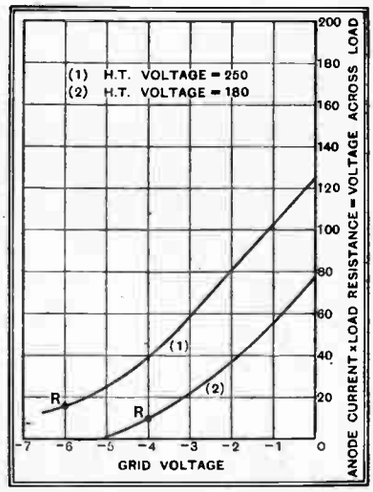


Fig. 6.—Graph showing variation of voltage across anode load resistance with change of grid voltage. Curve (1) is taken at 250 volts H.T. and curve (2) at 180 volts.

Taking line (B) as an example, it can be seen that a grid bias of 2.5 volts will bring the working point of the valve to P. If a 1.5 volt peak value audio frequency is applied to the grid, the grid potential will vary from Q to R, and the voltage across the output load from M to N. This represents 62 volts; therefore the output will be 31 volts peak.

In the case of the 50,000-ohm load the maximum output becomes 37 volts peak.

If amplified A.V.C. is being employed no biasing resistance is required, for the grid bias on the triode is supplied by the rectified radio-frequency signal, and is, in fact, approximately equal to the peak value of the signal applied to the detector. In practice, the bias will vary from 0.7 volts to 5 volts, and if distortion is to be prevented care must be taken to ensure that anode-bend rectification does not take place. This may occur with large signals unless the D.C. voltage across the load resistance in the anode circuit is more than 2.5 times that required for full A.V.C. action. This point is illustrated in Fig. 6, which shows the relation between grid volts and anode current with a 20,000 ohm load resistance in the anode circuit. If appreciable distortion is to be prevented the grid must not be allowed to run more negative than point R on the curves. The steady bias on the valve should not exceed half the value corresponding to R, or, if it does, care must then be taken not to apply too large an audio-frequency signal to the grid.

For large signals sufficient output is obtainable to drive a pentode (PT4 or MPT4), or even a power triode (PX4) directly off the MHD4 by means of resistance coupling, but if the set is not very sensitive or has not a very large range of A.V.C. control, then it may be advisable to employ a parallel-fed transformer coupling. A suitable circuit for this is shown in Fig. 7.

When simple A.V.C. is employed the audio-frequency voltage obtained across the anode resistance is ample to load a PX4 fully without a transformer coupling, due to the higher radio-frequency amplification which is employed in this type of set. From the foregoing it will be seen that the MHD4 has fascinating possibilities.

Matching R. & A. Reproducers

REALISING the importance of correct matching between the loud speaker and the valve in the output stage of a receiving set, Reproducers & Amplifiers, Ltd., of Frederick Street, Wolverhampton, have just issued an informative leaflet in which full particulars of all the output valves in common use are set out in tabular form. In addition, the correct

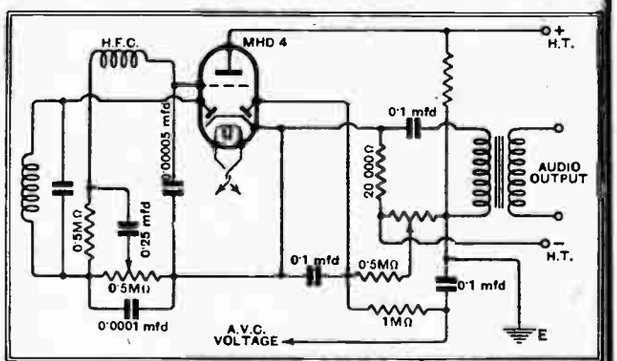


Fig. 7.—The double diode triode may be coupled to the output valve of the receiver by means of a parallel-fed transformer when the range of A.V.C. control is not very large.

transformer ratio or, alternatively, appropriate tappings on the output transformer are given for the three principal moving coil loud speakers manufactured by the company, namely, the "Bantam," "Challenger," and "Victor" units.

All owners of R. & A. loud speakers should find this leaflet of great value, and copies may be obtained from the above address on receipt of a 1½d. stamp to cover postage.

News of the Week.

Events of the Week in Brief Review.

Still They Come

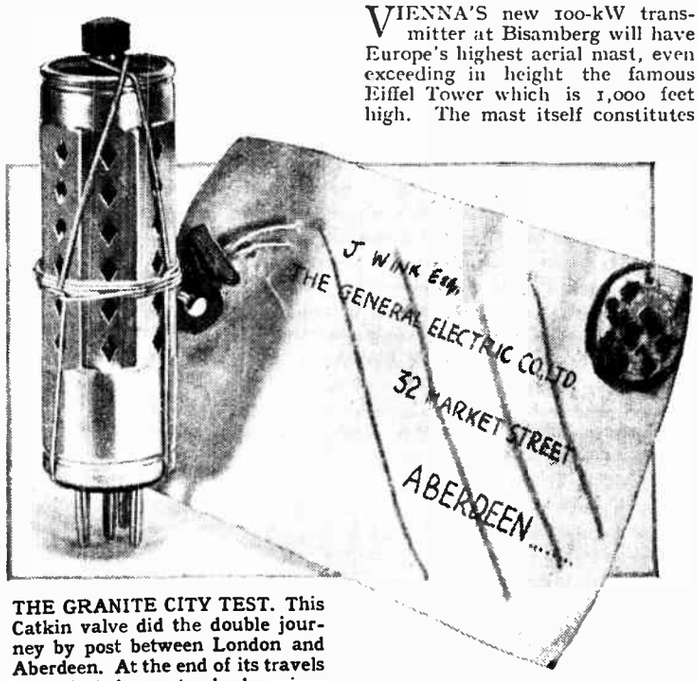
JUGOSLAVIA has two new broadcasting stations "on the stocks." One at Uszkub is nearing completion, and work is beginning on the new station in Spalatao, Dalmatia.

More Kilowatts

THAT Spain has no intention of falling behind in the race for broadcast power is evident from an announcement by the Spanish Ministry of the Interior, which states that a new 100-kW broadcasting station is to be erected shortly in Madrid. It will be entirely under State control.

Queer Calculations

NOW that the licensing of French radio receivers is about to take place, the officials are trying to estimate the number of receivers in the country. The most conservative calculation has been 350,000—a figure that is laughed at by the majority of wireless traders, who consider that a million would be nearer the mark. This atmosphere of doubt shows how nebulous and chaotic radio conditions are in France.



THE GRANITE CITY TEST. This Catkin valve did the double journey by post between London and Aberdeen. At the end of its travels it was tested on a standard receiver in *The Wireless World* Laboratories and functioned perfectly.

U.S. Asks for King's Speech

THE World Broadcasting System, an American organisation which is establishing a "library" of electrical transcriptions of broadcast speeches for the U.S. National Museum, has asked the British Museum to send a copy of the recording of King George's Empire Speech last Christmas. In return the British Museum is offered a transcription of President Roosevelt's inauguration address.

New Hitler Move?

IT is rumoured that the entire German broadcasting system will shortly be taken over by the new Ministry for Propaganda. At present the service is controlled by the Post Office and the various State Governments.

"That-will-doodle-do"

CONNOISSEURS of the fowl run have declared that the cock-crow used as an identification signal by the Czechoslovakian stations denotes a bird long past its prime, so the broadcasting authorities have recorded the note of a young cockerel.

To Oblige the Ships

MONTE CENERI, the Italian speaking regional station at Tessin, Switzerland, has changed it wavelength from 680 to 720 metres. The station, which has been testing for the last month, has interfered with ships' stations when working on the original wavelength.

The Highest Mast

VIENNA'S new 100-kW transmitter at Bisamberg will have Europe's highest aerial mast, even exceeding in height the famous Eiffel Tower which is 1,000 feet high. The mast itself constitutes the aerial, and the uppermost parts operate on the telescopic principle for rough tuning purposes. The station is to open on Sunday, May 28th, using a wavelength of 507.2 metres.

Wide-awake Japan

JAPAN has just celebrated her eighth anniversary of the founding of the broadcasting system. Tremendous advances have been made in the last two or three years, as can be gauged from the fact that the number of licence-holders has been doubled since 1930, and now stands at 1,400,000. Of these 600,000 are in Tokio.

60 kW from Lyons

LISTEN for loud signals from Lyons la Doua on 465.8 metres. We learn that the new 60 kW transmitter is nearing completion, and that tests will begin in the very near future.

New German Interval Signals

MUNICH now whiles away the intervals with the "Song of the Bells" from Wagner's "Parsifal." Breslau initiated a new interval signal on May 1st consisting of the first bars of the well-known "Hohenfriedberger-Marsch."

The Useful Super-Het

FROM our contemporary *Le Petit Nicois*:—

First Friend: "Oh, a super-heterodyne, with push pull amplifier. That must have cost you a lot?"

Second Friend: "On the contrary, I have saved money; it has enabled me to buy the neighbouring house at half price."

"Ultra Shorts" from the Crystal Palace

FIVE-METRE transmissions will emanate for the first time from the North Tower of the Crystal Palace, Norwood, on Sunday next, May 21st, when Mr. L. H. Thomas (G6QB) begins regular tests with a power of 10 watts.

The North Tower is 550 feet high, and commands a view over eight counties. It should thus make an ideal jumping-off point for "optical" waves.

The British Radio Annual

THE British Radio Institution has just issued Volume II of the British Radio Annual, comprising a number of interesting papers dealing with various phases of wireless, which have been written by members of the Institution. The subjects covered include "The Electrical Condition of the Upper Atmosphere," "Considerations in Antenna Design," "Selectivity," "Weather Forecasting by Atmospherics," and "Echo Sounding." The Hon. Secretary of the Institution is Mr. J. D. Fox, 25, Kingswood Drive, Kings Park, Glasgow, S.4.

An "Autocar" Offer

IN its issue this week our associated journal, *The Autocar*, makes an announcement of great interest to all motorists. Briefly, *The Autocar* is offering at a purely nominal cost to all its readers a complete Bartholomew map of the whole country divided into twenty sections.

Each section is drawn to a scale of eight miles to an inch, is printed in colours, with main roads in red, and with mileages between towns clearly marked.

These maps are of the highest quality. A sample section is included in every copy of *The Autocar* printed this week. Full particulars regarding this offer will be found in this week's issue.

TWENTY-NINE YEARS AFTER. Sir Ambrose Fleming photographed last week with a Catkin valve and his original "Fleming valve" of 1904.

For Blind Listeners

BLIND listeners in Germany are to have the benefit of a special radio newspaper, printed in Braille, which is to be regularly published by the State.

Propaganda Banned

RUSSIAN broadcast programmes are tabooed in the German radio papers. The broadcasting authorities have just issued a request that all German journals should abstain from giving publicity to items broadcast from foreign stations in the German language for propaganda purposes.

Marconiphone Model 254

IN connection with the review of this receiver in last week's issue it should be noted that the price in radio gramophone form is 32 guineas, not 24 guineas as stated.

18-Centimetre Telephony

THE 18-centimetre wavelength transmitter and receiver illustrated on page 307 of our issue of April 28th was used in a demonstration by International Telephone and Telegraph Laboratories in conjunction with Les Laboratoires L.M.T. of Paris.

"Practical Short Wave Reception"

THE author of this article in our issue of May 5th regrets an error in the diagrams of Figs. 2 and 3. These should be shown with an aperiodic aerial winding, and not a direct coupled circuit.

In the same article, on page 317, lines 38 and 39, the words "oscillator" and "signal" should be interchanged.

Class "B" Ferrocart

READERS interested in *The Wireless World* Class "B" Ferrocart receiver described in our issue of April 7th last should note that a complete reprint of the constructional article is issued in handy form by the City Accumulator Co., Ltd., 4, Surrey Street, Strand, London, W.C.2, from whom copies can be obtained, free and post free.

Simplified Aids to Better Reception

SOME of the latest screened cable for aerial down-leads has remarkably low capacity, but even so, its use will generally result in the addition of several hundred micro-microfarads to the aerial capacity. Of this extra capacity, a proportion—but, in a modern set, usually only a small one—will inevitably reappear across the tuned input circuit of the receiver.

Screened Aerial Down-leads

The moral of this is that, after fitting a screened down-lead, the aerial circuit of a "ganged" set should always be retrimmed; less trimming capacity than originally will be required, and so the adjusting screw must be turned in an anti-clockwise direction.

A GOOD deal of experimental work in Class "B" amplification is being carried out, and it has already been found out that the circuits originally put forward do not by any means represent the only possible methods of application. Where it is desired, modifications may be introduced in various ways without impairing results. For instance, the circuit reproduced in Fig. 1 may suggest possibilities to those who are faced with the problem of adapting the new system to an existing set.

Class "B" Conversions

The diagram is prepared on the assumption that the original output valve will be converted to act as a driver; it emanates from the Technical Department of the Cossor valve concern, which has done a great deal of development work both with regard to the Class "B" valve itself and to methods of using it.

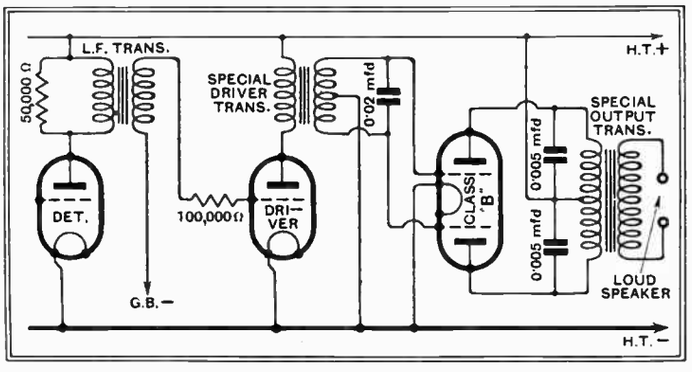


Fig. 1.—Skeleton diagram showing tone-correction devices, etc., for Class "B" amplification. Decoupling may be added where necessary.

In the diagram a resistance of 50,000 ohms is shown as being connected in shunt with the L.F. transformer primary; in addition, there is a stopping resistance in series with the L.F. grid. One or other of these resistances will generally be necessary, but both of them will seldom be required.

At first sight the 0·02-mfd. tone corrector condenser across the driver transformer secondary may appear to be on the large side; its capacity is subject to alteration in some cases, but the value given will seldom be excessive where a transformer with a step-down ratio is employed.

The purpose of the pair of 0·005-mfd. condensers in shunt with each half of the output transformer primary is to prevent parasitic oscillations in this stage.

A NUMBER of mains transformers made a year or two ago were provided with a 7·5-volt centre-tapped winding for feeding the filament of a power rectifying valve consuming 2½ amps. These valves are no longer in common use, but it does not follow that for this reason the transformer is valueless. In many cases, one-half of the 7·5-volt winding may be used to supply a modern 4-volt rectifying valve, particularly of the type consuming 1 amp.

Old-type Mains Transformers

Although the voltage existing between the centre tap and either end of the winding amounts theoretically to 3·75 volts, this figure is often exceeded, at any rate under light loads, and if the precaution of using short and heavy leads be observed, sufficient voltage will usually be available.

The fact that the centre tap can no longer be used as the rectifier output connection when this scheme is adopted need not be a deterrent. Almost always the connection may be made to either end of the rectifier filament without increasing hum.

IT has already been stated that the fitting of a gramophone pick-up to a "straight" set will almost always necessitate a readjustment of the trimming condenser which controls the tuned circuit immediately preceding the detector. The same applies to most superheterodynes, but as the tuned I.F. couplings are not fitted with auxiliary trimmers, the readjustment must be effected by means of the semi-variable condensers which are usually shunted across the windings. The only condenser that will need adjustment is that which tunes the secondary of the I.F. transformer preceding the detector valve.

Superheterodyne Radio-gramophones

It may be added that these remarks do not apply to sets which include anode bend detection; in such cases the pick-up is usually connected to the low-potential end of the detector grid circuit.

REPAIRS to the windings of a defective L.F. transformer are usually beyond the scope of the amateur, and if the manufacturer is unable to put matters right, the component must usually be scrapped. But before discarding it, it is always worth while to remove the external protecting shroud, and to make sure that the fault is not due to a defective connection between the leading-out wires and the inner ends of the terminals. Such faults are by no means uncommon, and they are usually quite easy to repair. It is also worth while to examine the joint between the heavy leading out wire and the finer wire of the winding proper.

Broken-down Transformers

A HOT electric soldering iron, if laid carelessly on the bench or table between jobs, may cause more or less serious damage, and it is wise to provide a stand or other form of support which will keep the business end of it well clear of woodwork, etc. A bracket, shaped more or less as shown in the accompanying sketch, serves this purpose admirably; it may be attached to the wall plug base as shown, or even to the wall.

Workshop Hints

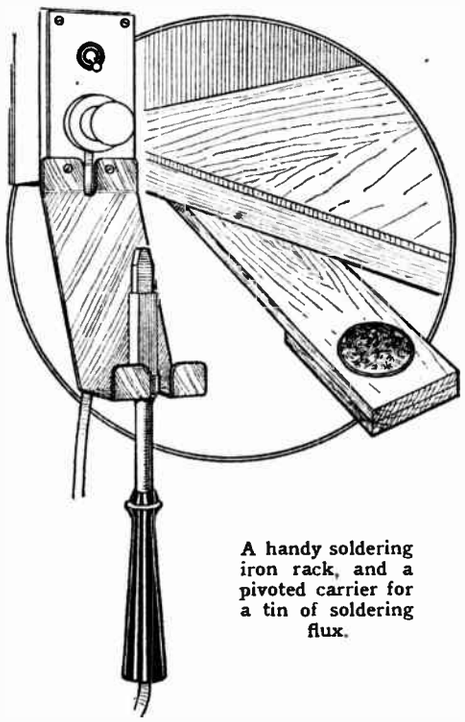
For constructing this bracket, sheet aluminium was originally employed. Almost any metal will do, but the use of a substance of high heat conductivity (and, incidentally, enough surface area)

Practical Hints and Tips—

helps to maintain an even temperature when the iron is out of use, but with current switched on, for long periods.

One of the advantages of a bracket mounted in this way is that accidental burning of the leads is rendered almost impossible.

Soldering flux can seldom be found when wanted; after a long search, the



A handy soldering iron rack, and a pivoted carrier for a tin of soldering flux.

open flux tin has, on more than one occasion, been found adhering firmly to the elbow of the would-be user's jacket! This and other messy possibilities are avoided by fitting a holder on the under side of the bench in the manner illustrated. The board in which a hole is cut as a receptable for the tin is arranged to pivot on a screw, so that it may be swung out of the way when not required.

For the Experimental Bench

IN experimental work involving a layout of gear spreading over a considerable area, it is convenient to have an earth wire running under the edge of the bench to which various parts of the apparatus may be connected by crocodile clips. Experience shows that a solid wire sooner or later gets stretched or accidentally broken and it will be found that a flexible spiral valence rod, as sold by the one-price stores, is neater and more permanent. With this arrangement it is also possible to dispense with the use of crocodile clips, for by pulling out the spiral slightly the ends of the earth leads may be effectively nipped between adjacent turns.

It may be asked whether the inductance of the spiral wire is likely to be detrimental. This can be safely neglected on all but ultra-short wavelengths as the diameter of the turns is only of the order of 2 mm.

Payment by Results

ALMOST everyone knows by now that the anode current consumed by a Class "B" or Q.P.P. output stage depends on the extent of modulation of the incoming carrier wave. During programme intervals, when modulation is not taking place, current is almost negligible. Although it is a natural corollary of the foregoing, it does not seem to be always appreciated that anode current consumption is also influenced by signal strength; by "turning down the wick," the amount of H.T. energy consumed for reproduction of a given programme will be much less than when it is reproduced at full blast. In a fairly modern set, the economy effected by reducing signal strength will be two-fold, as with a variable-mu H.F. stage the current of this valve will also be reduced.

When utmost economy is needed, provision might also be made for simultaneously applying rather more negative bias to the driver valve as well when volume is reduced. From the point of view of quality, this would be quite permissible, as with artificially weakened signals less than the maximum output is needed from this valve. Perhaps, however, this is carrying economy too far, as the saving would be small, and hardly worth while.

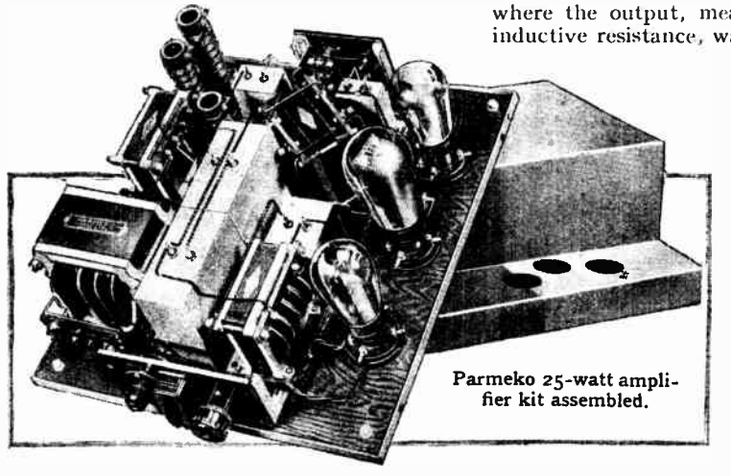
PARMEKO 25-WATT AMPLIFIER KIT

Two-stage A.C. Power Amplifier for Home Construction

THE name "Parmeko" has for long been associated with high-class public address equipment, and now, in order to meet the demand for a moderate-priced power amplifier, Partridge and Mee, Ltd., Percy Road, Aylestone Park, Leicester, have introduced a 25-watt unit in kit form. It is A.C. operated and will deliver about six watts undistorted power output, this being sufficient to operate several moving-coil loud speakers at full volume. Two stages are employed; the circuit consists of an input volume control, a Mazda AC/HL valve transformer coupled to a Marconi PX25 and a choke capacity output filter. Interposed between the L.F. transformer and the output valve is a small unit consisting of an H.F. choke, a resistance and a grid leak, its function being a parasitic oscillation suppressor.

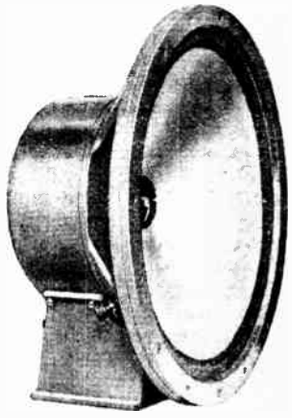
In the Parmeko amplifier the input volume control has a resistance of 500,000 ohms, a somewhat higher value than usual, but it is fitted so that when following the detector valve of a wireless receiver it can be used as a variable grid leak in a resistance- or choke-capacity inter-valve coupling.

The high tension supply is derived from a full-wave rectifying valve of the "C" class, giving some 450 volts after smoothing on full load. Good quality components are employed throughout, the mains transformer, smoothing choke and output choke are the firm's own make, while the various resistances are wire-wound and all condensers have an adequate factor of safety.



Parmeko 25-watt amplifier kit assembled.

Using a high-grade gramophone pick-up, and one of the latest models in the Parmeko range of permanent-magnet moving-coil loud speakers particularly good results were obtained on test. The output is well balanced with an adequate treble response to give brilliance to the reproduction without accentuating record surface noises. Despite the good response at the lower end of the frequency scale, very little mains hum was noticed.



"Parmeko Senior" loud speaker.

A more detailed investigation of the amplifier reveals that between 70 and 4,000 cycles the amplification is sensibly constant, but above this there is a slight falling off. At 6,000 cycles, however, an improvement occurs, and this is maintained up to 8,000 cycles, where the output, measured across a non-inductive resistance, was found to be about eleven decibels lower than at 1,000 cycles.

Included with the kit are two blue prints, one showing the theoretical circuit and the other a full-size wiring diagram. The latter could be employed as a template for laying out the components if desired. The price of the complete kit, excluding valves, is £14 10s. For those who wish to enclose the amplifier totally, a 22-gauge steel case, cellulose enamel finished, is available, the price being 21s.

The loud speaker used throughout our tests with the amplifier was the new "Parmeko Senior" model. It is a permanent-magnet type fitted with a 12in. diameter cone and handles a large input. An input transformer is contained in the base, giving two alternative ratios, viz., 1 : 11 and 1 : 22, and the price, in chassis form, is £7.

LABORATORY TESTS

NEW RADIO PRODUCTS REVIEWED

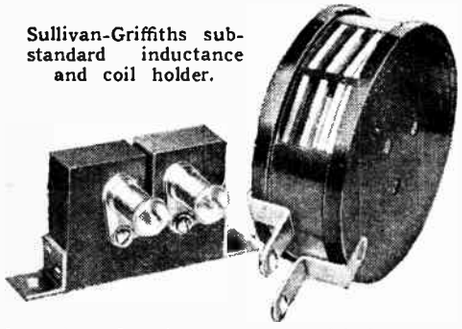
"Peak" aqueous-type 4- and 8-mfd. electrolytic condensers.

"PEAK" ELECTROLYTIC CONDENSERS

WILBURN & CO., 23, Bride Lane, London, E.C.4, have extended their range of "Peak" condensers, and now include two of the wet electrolytic type rated at 450 volts D.C. working. These are obtainable in 8-mfd. and 4-mfd. sizes, the prices being 5s. and 4s. 6d. respectively. The customary style of construction is adopted, a cylindrical metal container forming the negative electrode with the positive pole, or anode, passing through an insulated bush in the centre of the large fixing screw. Being of the aqueous type these condensers must be mounted in an upright position, only, however, to maintain the liquid in contact with the electrodes, since there is no possibility of leakage, for a leakproof vent is fitted on top of the container. Tests made with some specimen condensers show that the average leakage current is less than 0.5 mA. at 450 volts D.C. The condensers can be subjected to an overload of about 30 per cent. without damage, but it is advisable not to exceed the working voltage other than for short periods.

SULLIVAN-GRIFFITHS SUB-STANDARD INDUCTANCE COILS

INDUCTANCE coils accurately adjusted to certain known values form an essential part of laboratory equipment, but in view of the work involved in manufacture and measurement their prices have, of necessity, hitherto been high. With the view to bringing these within the reach of many of the smaller laboratories in the country, H. W. Sullivan, Ltd. Leo Street, London, S.E.15,



Sullivan-Griffiths sub-standard inductance and coil holder.

have introduced a new range of inductances classed as second-grade coils. They are, in effect, inexpensive copies of their high-grade standard inductances, being constructed on exactly the same principle, and but for the exceptionally high standard attained in all Sullivan laboratory equipment would otherwise be described as first-grade coils. They have a high degree of constancy and are suitable for use in laboratory calibrated resonance circuits and for all apparatus in which a coil of known inductance is necessary.

Although the accuracy of the initial adjustment to nominal value is not high, the stated actual inductance of each coil as marked on its carton is measured to within fine limits. Coils of low inductance have an accuracy better than 0.5 per cent., whilst an accuracy of 0.05 per cent. is given for coils of 2,000 mH. and over. If a higher order of accuracy is required it is suggested that an N.P.L. certificate be obtained, for the coils are fully worthy of this, as their constancy is quite as good as the accuracy to which such measurements can be effected.

The price of these sub-standard inductances is 25s. each, and the special coil holder costs 5s. 6d.

DALLOW MONODIAL CABINETS

DESIGNED especially for the Monodial superheterodyne receivers, these radio-gramophone cabinets bear the hall-mark of the craftsman, being in every respect high class pieces of furniture. Two models similar in general outline and size were submitted for our examination. Both are made of walnut, handsomely grained and finished with a high polish.

Dallow radio-gramophone cabinets for the Monodial Super receivers.

The receiver compartment, which is in the upper part of the cabinet and just below the motor board, will accomodate a chassis measuring 18½in. x 13in., and provides 12in. head room. Below this is the loud speaker compartment, and here there is ample space for the power pack. A baffle board, cut from ½in. thick wood having a hole 7in. in diameter, is fitted. The back is removable and acoustically open.

Including the recess in the lid the gramophone compartment allows 3½in. head room, which is ample for all pick-ups and tone arms in general use. A long piano-type hinge is fitted, also a strong supporting arm to hold the lid open. The motor board is ½in. thick and made of nine-ply wood walnut finished on top. In view of the thickness of the wood we do not anticipate any trouble arising from cabinet resonance.

Two models similar in general outline and size were submitted for our examination one is provided with side pillars inlaid with thin strips of brass and costs £6 6s., while the other is relieved with bands of a darker veneer down the sides and round the edges of the lid. This model costs £5 19s. 6d.

The makers are The Dallow Manufacturing Co., Ltd., Forge Mill, Milford, near Derby.

McDANIEL MAINS TRANSFORMERS

TWO mains transformers both of the "A" type and designed for use in receivers having up to three valves in number, but excluding the rectifier, have been received from G. C. McDaniel and Co., 154, Hainault Road, Romford, Essex. One comes within the category of the "constructor's type," being fitted with terminals, while the other is a manufacturer's model, or stripped type, in which the various windings are brought out for direct connection to their respective components or other convenient anchorage points.

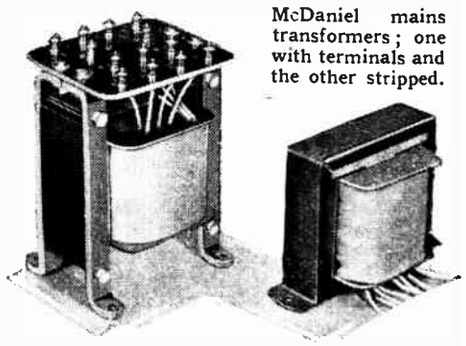
Both designs allow for supplying heater current to three A.C. valves, the filaments of a one-amp. rectifier valve and 250-0-250 volts, nominal, for the H.T. supply. The primary winding is tapped for mains of 200, 230 and 250 volts A.C. at 50 cycles.

Although both types employ the same size stampings the core in the finished model contains nearly 50 per cent. more iron than the stripped type and, as a consequence, is the more efficient of the two. Nevertheless, there is no trace of overheating in the smaller transformer; indeed, both run perfectly cool.

On test the constructor's model provided the following H.T. voltages after smoothing and using a choke of 100 ohms D.C. resistance.

Current.	D.C. Volts.	Current.	D.C. Volts.
10 mA.	340	40 mA.	281
20 ,,	315	50 ,,	265
30 ,,	297	60 ,,	246

On full load the output from the 3-amp. L.T. winding was 3.82 volts, while the rectifier filament was operated at 3.92 volts.



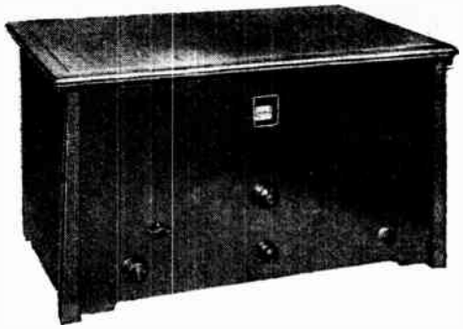
McDaniel mains transformers; one with terminals and the other stripped.

The high voltage A.C. output was slightly higher in the case of the stripped model, being 276 volts as compared with 254 volts for each half of the winding on full load. The L.T. supplies were not materially different, for with 3 amps. flowing in one case and one amp. in the other the measured voltages were 3.88 and 3.85 respectively.

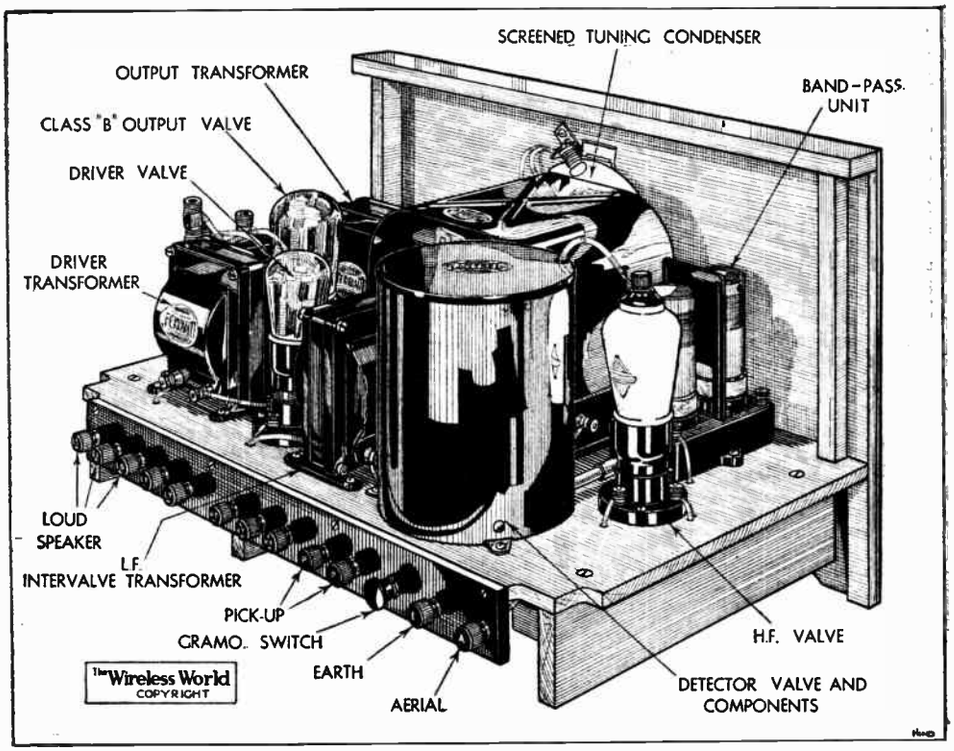
The price of the finished model is 22s., and that of the stripped type 12s.

FERRANTI Class "B" Band-Pass Four Constructors' Receiver

Four-valve Battery Set Embodying the Latest Technique



FEATURES. *Four-valve circuit with one H.F. stage transformer coupled to regenerative grid detector, which in turn is linked by a driver stage to a Class "B" output valve. Undistorted output, 2 watts; average H.T. consumption about 10 milliamperes. Single-tuning control with illuminated dial and wavelength calibration.* ***Price:*** *Set of components, with valves, £12 17s. Without valves, £10 10s. 9d. Cabinet and baseboard, 30s. extra.* ***Makers:*** *Ferranti Ltd., Hollinwood, Lancs.*



THE straight set with one H.F. stage boasts an easily understood technique, and this is, at least, one of the reasons why it still has many adherents. It is sensitive enough to provide good entertainment from a large number of foreign stations, and leaves nothing to be desired on the score of quality of reproduction. In the matter of selectivity, however, it can very easily fall short of the required standard unless the tuning scheme contains a filter designed on scientific lines. The band-pass circuit of the Ferranti Constructors' set under review is particularly well conceived, and with regard to its adjustment nothing has been left to chance.

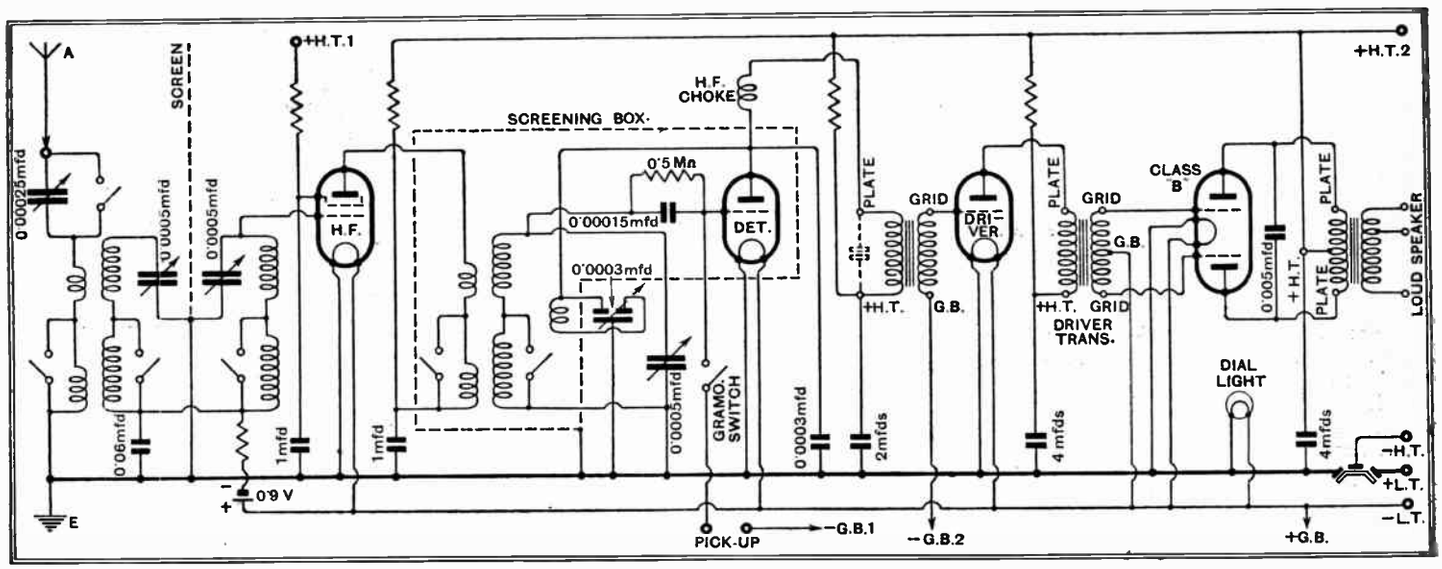
The three-gang condenser and the tuned circuits which it controls are accurately balanced by the makers before being sent out, and no trimming is necessary. As a result, there are no "initial" adjustments, and as soon as the set is put into commission it will give of its best, and the selectivity will be found to be unusually high for this type of circuit.

There are other virtues. The power output from the Class "B" valve is enormous, although the H.T. current consumed is comparatively small. A silver voltmeter test indicated that during a 7½-hour programme of typical composition the total current taken by the receiver averaged under 10 mA., showing that quite a modest-sized H.T. battery can be used, even when about 1½ watts speech are being dissipated.

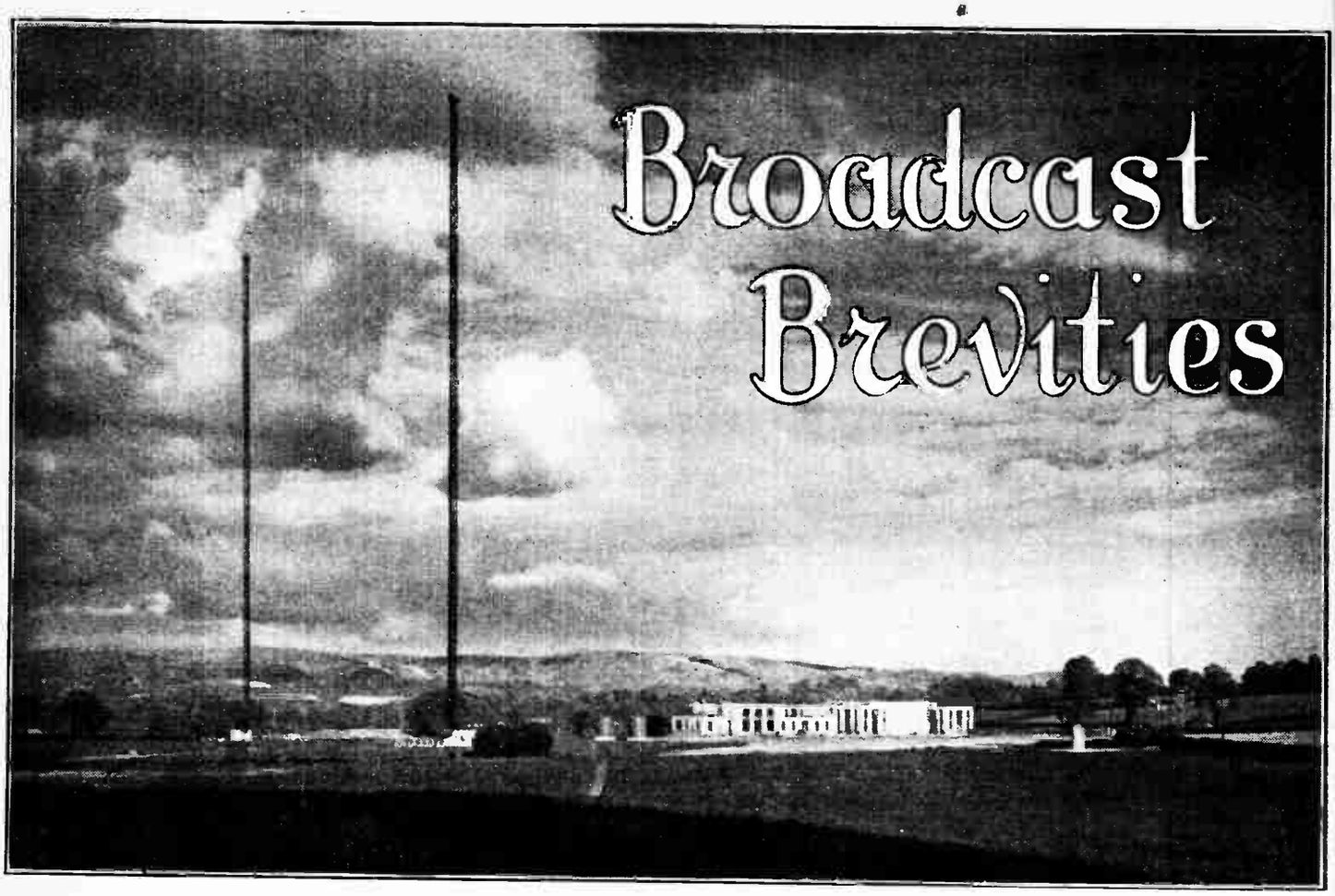
The circuit is straightforward, and there are no economies which might lead to instability when the H.T. battery begins to age. A lavish decoupling scheme is to be found in the H.T. feeds, and double-wound transformers are used in the band-pass primary and the H.F. intervalve coupling. Reaction applied to the intervalve coupling was found to be progressively effective, and practically no backlash was observed.

An AF5 intervalve transformer links the detector to the driver valve, and the latter feeds into a 1-to-1 ratio Ferranti driver transformer with a secondary of commendably low D.C. resistance (80 ohms per half). The output transformer provides three ratios for use with low-resistance speech coils, and correct matching is best found by trial and error. The four valves required are the Cossor 220SG, 210HL, 215P, and the new Ferranti HP2.

For excellence of components and general high standard of performance the Ferranti Class "B" constructors' receiver can be recommended with confidence.



Complete circuit diagram. Comprehensive decoupling in the anode feeds ensures absolute stability.



Broadcast Brevities

By Our Special Correspondent

An Exciting Test

THERE is quite a stir in the B.B.C. Engineering Department over the forthcoming tests in synchronising West National with the National transmitter at Brookmans Park on a common wavelength of 261.5 metres. I understand that the first test may be made on or about June 1st.

Mr. Ashbridge's Secret

The two transmitters will, of course, employ tuning-fork control in order to maintain absolute synchrony. The system works quite satisfactorily where distant stations on low power are concerned, and I have heard of no complaints regarding the synchronising of Scottish National and Bournemouth on the 288.3 wavelength; but two 50-kW stations within 150 miles of each other offer a more formidable test. Mr. Ashbridge, Chief Engineer of the B.B.C., declined to prophesy when I asked him whether the forthcoming experiment was likely to prove successful. "What if it should fail?" I queried. "Even then," said Mr. Ashbridge, "we have 'something up our sleeves.'"

Possibilities . . . .

The remark suggests limitless possibilities, but the Chief Engineer declined to disclose his plans in advance.

Is it possible that the B.B.C., aided by their good friends from the Post Office, will secure another wavelength for Britain at the Lucerne Conference? Or will the B.B.C. engineers try first one wavelength and then another to synchronise with West National? I think we must look upon this problem as another of those secrets which the B.B.C. Chief Engineer must always be "holding up his sleeve."

Listeners Abroad

When the B.B.C. embarks on a wavelength experiment interest is not confined to listeners in this country. Who knows how many zealous Czechs in Moravska-Ostrava may be profoundly agitated by the synchronisation tests on 261.5 metres? If the engineers decide to synchronise with North National instead, it might mean misery in Tallinn or Zagreb.

A Pious Hope

By the way, the new West Regional station stands on quite the most picturesque of the sites occupied by the B.B.C. high-power stations, and I sympathised with the courteous engineer who escorted me round the building last week when he breathed the hope that one day he might be given a resident appointment!

Our title illustration shows the new West Regional Twin Wave Station of the B.B.C. at Washford Cross near Minehead, Somerset. Regular transmissions are now made on the Regional wavelength of 309.9 metres and tests will shortly begin on the National transmitter, which is to share with London National the wavelength of 261.6 metres.

Cardiff Dwarfed

As the photograph on this page shows, the new station is situated in rich pastoral country. Half-way up the 500ft. masts one can see the Bristol Channel, and, to judge by appearances, the transmissions should have a wide sweep over a service area which will make the range of the present Cardiff transmitter seem insignificant. Wales should certainly have nothing to grumble at either on the transmission or programme sides.

From the remarks of the West Regional director, Mr. E. R. Appleton, during the Press visit, it really looks as if the B.B.C. will please everybody!

Ironical

By the way, while Mr. Appleton was uttering words of cheer for the benefit of listeners in the West, I understand that his house in Cardiff was being burgled, thieves making off with his wireless set. I wonder why?

A Chat with Control

ONE of the most modest of all departments at Broadcasting House, the Balance and Control Section, has suddenly found itself in the full glare of notoriety, in consequence of the misdirected energies of certain critics whose musical knowledge is probably far in excess of their technical attainments.

Last week, determined to get at the truth, I dived down into the bowels of the earth in Portland Place and chatted with the engineer who was then engaged in rehearsing for the evening's vaudeville concert.

"Musicians First"

Yes, *rehearsing*. For the Balance and Control Department rehearse just as conscientiously as conductors, singers and vaudeville stars. It was interesting to note the psychological reaction when I quoted to the engineer the remark of one of my correspondents: "The truth about Balance and Control is that it is in the hands of engineers, not musicians."

Speaking (as they say in the police courts) very slowly and in tones of great emotion,

the Balance and Control official said: "We in this section are musicians first and engineers afterwards."

The Ear Test

If certain critics could have stood with me beside the official at the control desk they would immediately have realised the truth of this remark. Balance and Control officials do not employ the meter, but rely entirely upon what they hear on a moving-coil loud speaker.

Two members of the section are ex-musical directors of the B.B.C., and every one of them is trained to read a full orchestral score.

Two Sections

Actually, the work of Balance and Control in the B.B.C. is divided into two big sections, the first dealing principally with the musical programmes such as opera and orchestral concerts, while the other branch covers the production side and is concerned with vaudeville, drama, and even talks. But both branches observe the same technique.

In the Silence Room

As we sat in the little Silence Room looking on to the vaudeville studio while Danny Malone and Ronald Frankau were heard in turn on the loud speaker, the official described just how the job is carried on.

Actually, there is truth in the rumour that more than one hand is at work controlling the music on its journey from the microphone to our loud speakers, but the main responsibility lies on the shoulders of the man in the Silence Cabinet who controls the minute currents which are passed to the A amplifier.

The Man Upstairs

The engineer in the control room upstairs watches the input to B amplifier, checking modulation by the familiar ammeter needle. At times some adjustment may be necessary at this stage, but, in the main, it is the Balance and Control official who narrows down the microphone output to the 28-decibel range which is the maximum which can be comfortably handled by a modern transmitter.

Marking the Score

The whole art of Balance and Control consists in securing a proportionate increase or decrease in volume. This is one reason why musical scores are carefully marked in advance so that when a moderately loud portion of the music is being handled there is still a sufficiently large decibel range in reserve to cope with the double sforzando which may suddenly leap out ten bars later.

Co-operation

One cannot fail to be struck by the atmosphere of co-operation between producer, artistes, and the Balance and Control section. The artistes seem to realise that the man in the Silence Cabinet has one aim in view: to produce the best possible results, and this is why, at the end of every "turn," the performer looks enquiringly through that little oblong window to see how his or her efforts have "got over."

For the Disgruntled

When I returned to ground level and daylight I felt more than ever convinced that listeners have nothing to worry about where Balance and Control is concerned, and that the disgruntled few would learn a bitter but salutary lesson if they were compelled to listen to an uncontrolled concert with the 'phones padlocked and immovable.

The Late Mr. Stobart

THE death of Mr. J. C. Stobart has aroused real regret among the B.B.C. staff, among whom this strong, quiet, humorous man moved as a genuine friend.

Mr. Stobart was in Broadcasting House only a day or two before he died.

A Great Worker

Most people will remember him as the author of the "Grand Good Night," the last of which he gave at the beginning of this year in rather poignant circumstances, the microphone being installed beside his sick-bed. But, of course, the "Grand Good Night" was only a side issue in Stobart's activities; he put in an immense amount of work for the furtherance of the B.B.C.'s religious aims, in the general supervision of the Children's Hour, and the "Week's Good Cause" appeals.

Opera from Munich

I HEAR the B.B.C. are negotiating for relays of grand opera from the Munich National Theatre during the latter half of July and the beginning of August.

Until, in fact, the "Proms" begin.

Music and Drama from Canterbury

THE Festival of Music and Drama which is to be held in Canterbury Cathedral in June will provide two relays, one for Regional listeners, on the 7th, and the other for National listeners, on the 8th. The Regional relay will consist of a Serenade performance and the National relay of an orchestral concert. Adrian Boult will on both occasions conduct Section F of the B.B.C. Orchestra, which will be led by Arthur Catterall.

Does this Help?

PEOPLE are still trying to solve that eternal riddle: the identity of A. J. Alan. Here is another clue. The famous raconteur signs his cheques "A. J. Alan."

Tunes from the Talkies

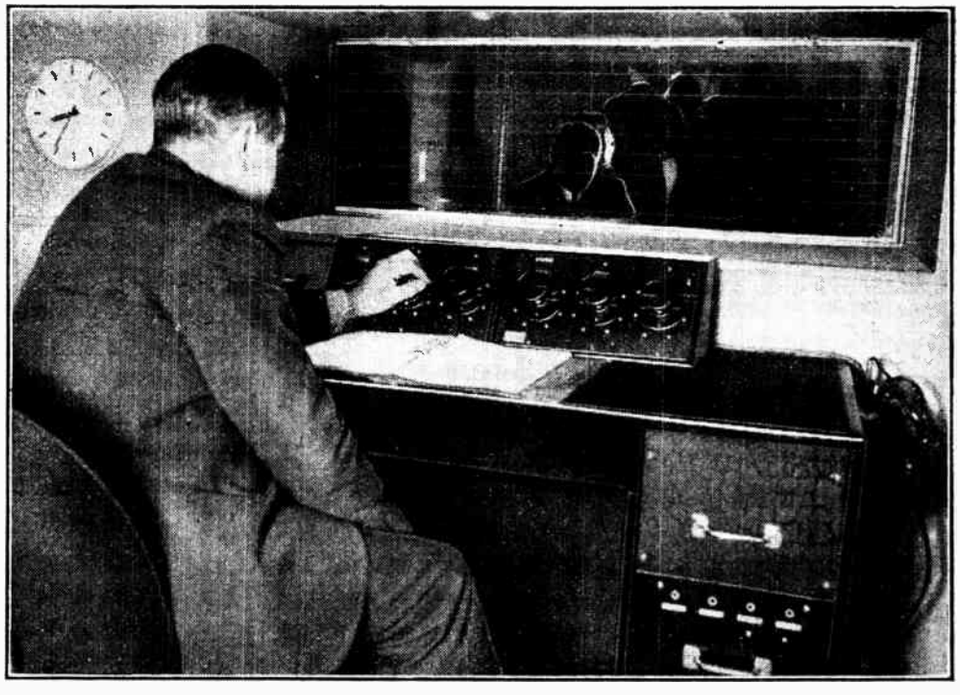
ANOTHER special programme is under discussion by Henry Hall and the B.B.C. Dance Orchestra for May 27th. Its title, "Tunes from the Talkies," reveals its nature, and, as the theme songs of many famous talkies are the daily backbone of a large number of dance-band performances, Henry's programme is certain to be well received.

Forty Years On

BOURNEMOUTH Municipal Orchestra will broadcast a special programme on May 21st to mark the completion of forty years' unbroken service under Sir Dan Godfrey. The orchestra's record includes 32,000 concerts, of which 2,600 have been symphony concerts, 600 performances of Beethoven symphonies, and 300 of the symphonies of Brahms. Ben Davies, who first sang with the Bournemouth Municipal Orchestra in 1893, will be the soloist on May 21st, and the programme will include Festival March from Tannhäuser, the first item played by the orchestra on May 22nd, 1893.

The Archbishop's Blessing

FROM the Empire Day luncheon at the Junior Carlton Club, London, on May 24th, a speech by Mr. J. H. Thomas, M.P., will be broadcast in the National programme. The Archbishop of Canterbury's blessing on the Empire will also be heard.



BALANCE AND CONTROL. The Chief of the "Productions" department of the B.B.C. Balance and Control Section is here seen in his silence cabinet adjoining the vaudeville studio in which a Ridgeway Parade is being broadcast.

Why Engineers Look Stern

THE other day a B.B.C. engineer sent an enquirer brief instructions for calibrating a receiver. In the course of his remarks he said: "Place 180° on the dial at 3 o'clock." By return of post came the query: "Do you mean G.M.T. or B.S.T.?"

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, London, S.E.1, and must be accompanied by the writer's name and address

British Sets in Egypt

I AM curious to know how it is that here in Egypt it is so difficult to obtain British-made radio sets. American, German, and French sets are easily obtainable at reasonable prices.

With sterling so low, it seemed that the English-made sets would flood the market, particularly as the Empire broadcasting scheme had proved so successful.

One explanation might be that until recently the home manufacturer was not interested in short-wave development, and that therefore the Egyptian market offered no scope.

Although Egypt is not an ideal country for reception on long or medium waves, it is within reasonable distance of a number of European broadcasting stations, in addition to having its own local stations. Short-wave reception is excellent, and the British community is demanding the medium-short wave set which is supplied satisfactorily by the American article. It seems a pity that the Britisher here must receive the Empire broadcast on an American or German set.

Is it the matter of royalties which brings about this state of affairs? Certainly the British manufacturer has to pay no more duty than the foreign competitor to export sets into Egypt, yet here we may purchase a 1933 short and medium, all mains superhet receiver of American manufacture at £25. In view of the fact that the new 20 kW. Marconi-built station will be operating here in the near future, British manufacturers should seize the opportunity of gaining the business thus opened.

V. G. RUSHWORTH.

Cairo, Egypt.

Automatic Volume Control

MR. BISSET seeks to justify the present use of the term Automatic Volume Control, and bids us stick to it. As regards the sticking to it I am afraid there is no option, for anybody who attempted to rule otherwise would provide a first-class revival of the Canute comedy. But I, personally, shall use the term under protest, for I think that Mr. Bisset has failed to make out a case for it.

He admits that the manual volume control, where no other is fitted, serves two purposes: (1) To compensate for inequalities in the signal strength at the aerial end, and (2) to set the volume to the desired level (*e.g.*, to prevent the gentle voice of the announcer from being reproduced at the same volume as a brass band).

Although these functions are often both performed by the same knob, logically they are quite distinct, and are preferably carried out by separate knobs, even if they are both hand operated. The reason is that the detector valve works best at one particular amplitude. The first duty should, therefore, be done by a predetector control, which reduces the signal from all stations to the level that suits the detector, and which would, if there were no further control, work the loud speaker at the greatest volume of which the output stage is capable.

The first control, then, does not alter volume at all, because a constant voltage at the detector means a constant volume from the loud speaker. It is therefore wrong to call it a volume control, even though it may be possible to control volume by it.

The true volume control is preferably a post-detector one, so that even if only sleeping-baby volume is required the detector is still working as before.

Owing to the fact that, except for comparatively nearby stations, it is necessary to have one hand always grasping the first knob, in the tiresome attempt to compensate for fading, it has been found much better to let this department be looked after automatically. Its sole purpose being to adjust the gain of the pre-detector portion of the receiver to the amount necessary for the station which is tuned, far or near, it is not unreasonable to distinguish it by the term Automatic Gain Control.

The description A.V.C. strictly refers to a device which, as Mr. Bisset rightly suggests, is yet in the remote future, namely, one which automatically adjusts the volume to suit divers circumstances, such as baby's bedtime. The risk of the term being actually required for this purpose would appear to be so remote that there is not much reason for hesitating to pilfer it for application to automatic gain control.

M. G. SCROGGIE.

London, S.E.19.

DISTANT RECEPTION NOTES

SOME time ago I expressed in these notes doubts regarding the possibility of operating, without serious mutual interference, two high-powered stations only a few hundred miles apart simultaneously on the same wavelength. I had particularly in mind the B.B.C.'s scheme for working the London National and the West National on 261.5 metres; but the matter is important to long-distance enthusiasts, for were the system successful here it would probably be tried elsewhere. It was believed that the West National would have so short a range in an easterly direction and the London National in a westerly that, in service areas at any rate, no trouble would be experienced by listeners. The West Regional station has been in action for a week or two now on 309.9 metres and it is possible to form an idea from its doings of the way in which the scheme is likely to work out. A recent trip to the West Country has enabled me to compare the strength with which this station and the London Regional and National are received in different places.

At fifteen miles from Brookmans Park, the field strength of the local stations is, of course, enormously greater. At forty-five miles from Brookmans Park and rather more than a hundred from Washford Cross all three stations are good, though the two London transmitters are still the more strongly received. Tests at these distances lead one to feel that there would certainly be mutual interference between transmissions on the same wavelengths. The most interesting tests were those made at Marlborough, which is almost exactly half way between the West and London centres, being approximately seventy-five miles from each. Here the London Regional is strong and steady, though both the West Regional and the London National fade to some extent at times. With a three-valve set (S.G.-Det.-Power) neither of the last two normally requires any reaction. They are received at equal strength, and there can be no question that one-wave transmissions from Brookmans Park and Washford Cross could not be received satisfactorily.

Good reception is being obtained from the following: Radio-Paris, Warsaw, Motala, Luxembourg and Oslo, whilst Zeesen and Kalundborg are considerably below par at the moment. On the other hand, Moscow RVI (Old Komintern) and Moscow WZSPS (Trade Union) are to be received very well.

On the medium waves the pick of the stations at present are: Brussels No. 1, Florence, Prague, Langenberg, Lyons Doua, Rome, Stockholm, Leipzig, Strasbourg, Brussels No. 2, Milan, the Poste Parisien, Breslau, Göteborg, Hilversum, Heilsberg, Turin, Trieste and Nürnberg. Other stations which occasionally give a good account of themselves are Hörby, Belgrade, Madrid, Berlin Witzleben, Stalino, Hamburg, Brno, Bratislava and the new Milan transmitter.

D. EXER.

SOUND SALES CLASS "B" UNIT

THERE must be a large number of constructors who contemplate converting their existing battery sets to Class "B" amplification, but who do not wish to make much alteration in the layout or wiring. It is to these that the new Unit, made by Sound Sales, Ltd., Tremlett Grove Works, Junction Road, Highgate, London, N.19, incorporating Class "B" amplification, should make special appeal. The necessary equipment is contained in an attractive brown bakelite case with clearly marked terminals.

Connecting the unit to a receiver is simplicity itself as the existing loud speaker is disconnected and the output terminals of the set are taken to the input terminals of the unit. By this means the last valve of the receiver becomes the driver and all the necessary coupling components, including the output matching device, are provided.

Sound Sales "Sound" Unit. The recess is a seven-pin valve holder for the Class "B" valve.

This development should prove attractive to battery set users in view of the fact that nearly seven times the normal output is obtained for a small increase in H.T. consumption. The price of the unit is 35s.

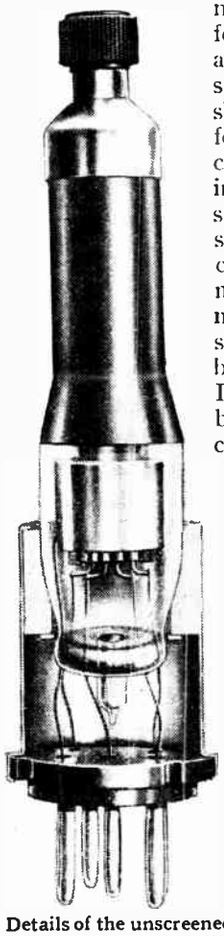
The Catkin Valve

More About Construction—A Practical Test

Catkin valves when packed occupy about one sixth the space of their glass counterparts.

IF one were to penetrate the fastnesses of any of the service departments of the large wireless set manufacturers and were to enquire what was their chief activity, the answer would undoubtedly be "valve replacement." Although called upon to fulfil the most complicated function in a receiver, the valve, unfortunately, is one of those component parts which lend themselves least to modern manufacturing methods.

The use of glass for the bulb and "pinch" makes close tolerances for these parts difficult, and so from sample to sample there may be slight variation in performance. The glass container, with its irregularly gettered surface, provides a source of electric charges of indeterminate value which may influence to a slight extent the fields between the electrodes. Incidentally, the glass bulb is fragile, increases bulk, and is a hidden source of gas. The glass pinch of orthodox design has to accommodate so many leads in such a small space that there are measurable capacity effects. Furthermore, the capacity is not "pure," and can be looked upon as a condenser having a resistance of high value shunted across it.



Details of the unscreened S.G. valve showing the rubber mounting.

By almost entirely eliminating glass and introducing an all-metal construction into their new Catkin valves, the Marconi and Osram companies have instantaneously removed these and a number of other disadvantages. Not content with this complete breach of tradition, the makers have also made radical departures from the conventional in electrode assembly which have resulted in a hitherto unattainable consistency of characteristic and a considerably greater robustness.

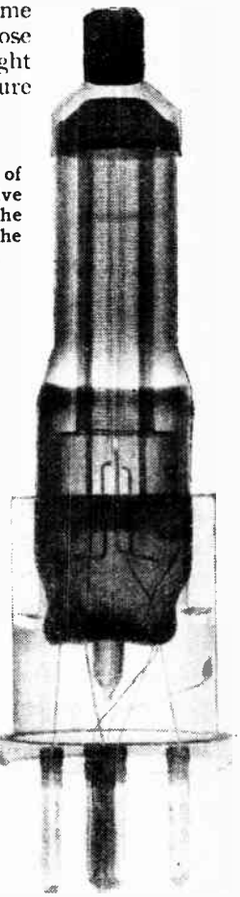
A Catkin screen-grid valve without any packing whatsoever (photographed elsewhere in this issue) has survived the return journey by post from London to Aberdeen—an ordeal which, without

The triode and pentode (unscreened). The rapid cooling of the anode in the case of the pentode gives an increased A.C. watts dissipation.

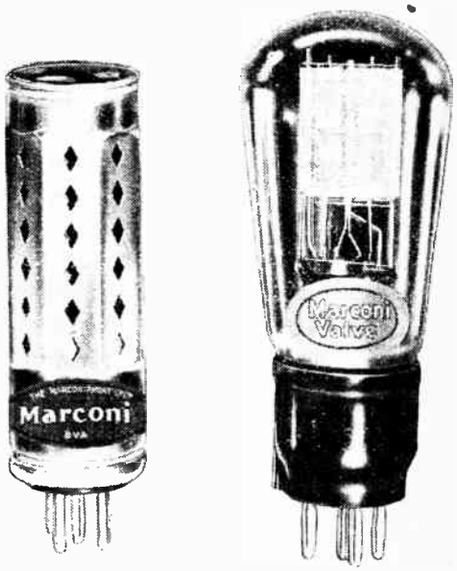
offence to the Post Office, involved more man-handling and rough usage than an ordinary listener would give it during its life.

Tested in a Receiver

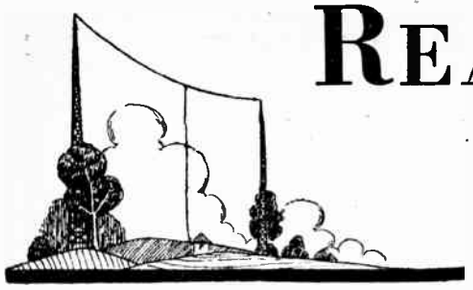
Although the electrical characteristics of the new valves are nearly the same as those of their glass counterparts, it was anticipated that the collective result of so many mechanical improvements would mean that a receiver in which these valves were substituted would give a better all-round performance. An experimental superhet. was fitted with Catkins, and it was at once apparent that the number of whistles had been reduced, pointing to a welcome reduction of those harmonics brought about by curvature of characteristic. Each valve in the set could be tapped with the metal end of a screwdriver and practically no microphony was observed. As an oscillator the MH4 gave normal results, and the reasonably long grid base of the VMS4 proved quite satisfactory for A.V.C. General sensitivity was above normal, this being probably due to reduced valve base losses and therefore decreased damping of the various tuned circuits. The Catkin pentode was a distinct improvement over the glass type, and approximately 3 watts speech output could be safely extracted from it owing to the greatly improved cooling of the anode.



An X-ray photograph of the screen-grid valve which clearly shows the rigid support given to the electrode assembly.



A screened Catkin compared with a glass-bulb valve of similar type.



READERS' PROBLEMS

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

Grid Circuit Decoupling

IN the "Hints and Tips" section of *The Wireless World* for April 14th it was suggested that high-capacity low-voltage condensers of the dry electrolytic type might with advantage be connected in shunt with the self-bias resistance of an L.F. or output valve. The object is to avoid loss of bass, more particularly with resistance-coupled or resistance-fed auto-transformer amplifiers, with both of which ordinary decoupling systems are ineffective.

Some uncertainty seems to exist as to the precise type of circuit for which this method of decoupling is applicable, and a querist asks us to give a circuit diagram.

The arrangement in question is illustrated diagrammatically in Fig. 1 (a). The use of a condenser in this manner must not be confused with that shown in diagram (b), which represents the ordinary decoupling condenser, which, in the case of parallel-fed auto-transformer coupling, would not have the desired effect.

Until we become more accustomed to the use of electrolytic condensers, it will perhaps be as well to emphasise the fact that the correct polarity of the terminals of these condensers must be observed when making connections. In grid bias circuits the negative terminal must, of course, be connected to the earth line of the receiver, the positive terminal being joined to the cathode, or (what amounts to the same thing) to the centre point of the potentiometer or filament transformer, where a directly heated mains-operated valve is employed.

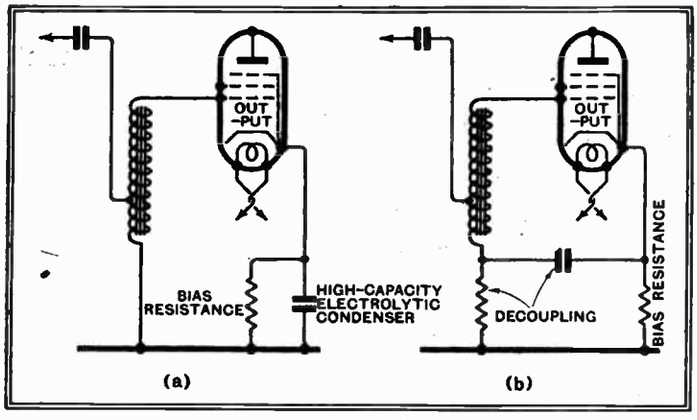


Fig. 1.—Diagram (a) shows the use of a high-capacity electrolytic condenser for grid-circuit decoupling. The more conventional resistance-condenser decoupling circuit is shown in diagram (b).

S.G. Voltage

WHEN variable-mu battery valves are used, it is generally best to feed their screening grids directly from a suitable tapping point on the H.T. battery. The use of a potentiometer network, as in mains sets, is uneconomical, for the reason that, if reasonably constant voltage is to be maintained, the potentiometer must be of such a low resistance that it consumes considerably more current than the valves.

This is in answer to a reader who asks whether it would be worth while to fit a potentiometer for feeding the screening grid of his single H.F. stage. The only advantage to be gained by doing this is that the number of leads to the H.T. battery would be reduced, and so perhaps the operation of replacing batteries would be simplified. It is worth while observing that the designers of commercial sets, who have to study these matters, do not apparently consider that the extra current consumed by the potentiometer is justified, even when the set is to be used by the uninitiated, for whom everything must be made as simple as possible.

Insulation and Capacity

WE are asked to repeat the method of procedure for testing condensers by means of head telephones and a dry cell.

Although not entirely conclusive, this method of testing is to be recommended, as it gives an indication of satisfactory insulation in the condenser, and also shows in most cases that at least some capacity exists in it—in other words, that the condenser is not disconnected internally.

The procedure is to join the phones and battery in series across the terminals of the condenser under suspicion. On completing this testing circuit, a click should be heard in the phones, but if everything is in order there should be no appreciable sound on breaking the circuit.

The click at "make" is produced by the flow of charging current into the condenser; its loudness will depend on capacity, and it will be barely audible when dealing with small mica condensers. Any click that may be heard on breaking the testing circuit is an indication that direct current is flowing through the condenser, and so its insulation is defective.

One Set : Two Speakers

A CORRESPONDENT, who normally uses a moving-coil loud speaker with his receiver, finds that, as a result of temporarily connecting a moving-iron instrument in parallel, the reproduction of the original speaker is adversely affected; there is a serious falling off in both quality and quantity. We are asked to say whether it is possible, by adopting a special method of connection, to obtain good results from both loud speakers simultaneously.

In practice we are afraid that it will be found virtually impossible to obtain normal quality from both of the loud speakers. However, as it is probable that the highest quality of reproduction will not be expected from the moving-iron instrument, we suggest that it should be joined in the manner indicated in Fig. 2. Provided that the impedance of the moving-iron loud speaker is high at all frequencies, as compared with that of the original instrument, the quality and volume of the latter should not be noticeably affected. The impedance of the extra loud speaker is increased artificially by inserting a resistance as shown; the value of this resistance is best determined by trial, but it will probably be in the neighbourhood of 10,000 ohms.

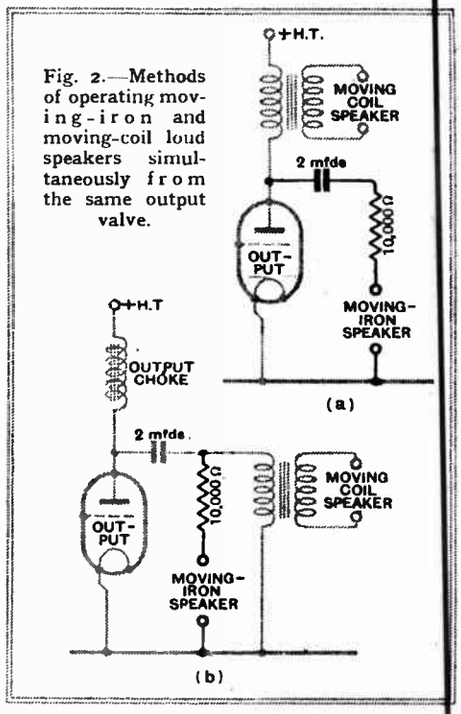


Fig. 2.—Methods of operating moving-iron and moving-coil loud speakers simultaneously from the same output valve.

Although this arrangement will generally prove to be a practical one, it cannot be put forward as perfect; bass reproduction of the moving-iron loud speaker is bound to suffer. The general volume level will be reduced as well, but this may not matter, as this type of loud speaker can seldom deal with anything like the full output of a modern high-power valve.

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.

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In view of the phenomenal interest which is being taken in this wonderful circuit,

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we have reprinted 10,000 copies of the original constructional article which appeared in "The Wireless World" of April 7th last, and these are being offered free to all readers of "The Wireless World" on receipt of application. Wireless dealers will be supplied gratis with as many copies as can conveniently be disposed of amongst their customers.

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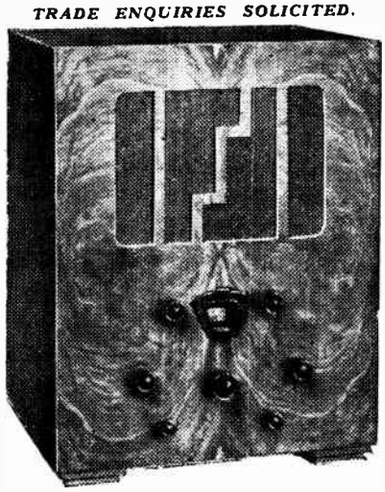

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A large number of "WIRELESS WORLD" readers have expressed their appreciation of this excellent cabinet, which was chosen by the designer, of the Class "B" Ferrocart Receiver. It is fashioned on modern lines, finished in beautifully figured walnut, and special care has been taken to ensure that cabinet resonances are eliminated.

Height, 19¾ in. Width, 15 in. Depth, 12¾ in. Complete with Loud-speaker Baffleboard, "Konductite" metal-lined baseboard and removable back. Front drilled ready to take the "Ferrocart" Receiver, if desired, without extra charge.

***Cabinet with metal-lined baseboard* - 32/6**

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Size: 6"×6"×3½"
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THE LOGOHM RESISTANCE BRIDGE

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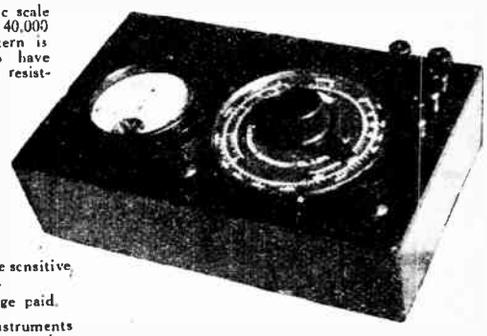
The price is carriage paid. **70/-**



The Mark II instrument is for those who have sufficient resistance measurement work to want a complete instrument and contains a suitable sensitive galvanometer and a battery.
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ADVERTISEMENTS for these columns are accepted up to **FIRST POST** on **MONDAY MORNING** (previous to date of issue) at the Head Offices of "The Wireless World," Dorset House, Stamford Street, London. S.E.1, or on **SATURDAY MORNING** at the Branch Offices, 19, Hertford Street, Coventry; Guildhall Buildings, Navigation Street, Birmingham, 2; 260, Deansgate, Manchester, 3; 26b, 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.

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IMPORTANT NOTICE.

Owing to the Whitsun Holidays, the issue of "THE WIRELESS WORLD" for June 9th must be closed for press earlier than usual.

MISCELLANEOUS ADVERTISEMENTS for insertion in that issue can be accepted up to FIRST POST FRIDAY, June 2nd.

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N.P. Trade Price Lists and Photographs of Battery Chargers: "Senior Two" will do 1 to 36 2v. cells; also H.T. 120v. at ¼ amp., 105/-; H.P. terms; Westinghouse rectifiers.

N.P. Valve Chargers, one, two, or four circuits, from 65/-; state requirements.

N.P. Trickle Chargers, 2v., 4v., and 6v. tappings, ½ amp. 35/-, 1 amp. 39/6; with ammeter, each extra 8/-.

N.P. Have a Few Soiled Instruments, bargains; lists.—Nash Products, Ltd., Stechford, Birmingham, 9. [2670

DAVENSET Garage Charger, 230-volt, perfect condition, £7; Valley chargers, 30/- each.—Evans, 3, High St., Rhymney, Mon. [2654

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TRICKLE Chargers, 2-6v., incorporating Westinghouse rectifiers, ready for immediate use, ½ amp., 11/9; 1¼ amp., 19/11; Tantalum chargers, 7/6; postage 9d.; send for list and guarantee.—Arden Agency, Wollaston, Wellingborough. [2617

A.C. or D.C. Chargers for 2 to 200 cells at Low Prices; state requirements; dynamos and rotaries in stock, all sizes, Brown's Generometer, battery supersedes for H.T. for 2v. or 6v. input, 37/6 and 52/6; television and sewing machine universal motors, 25/-; lists.—Electradix Radios, 218, Upper Thames St., E.C.4. [0258

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Chargers and Eliminators.—Contd.

(This advertisement continued from previous page.)

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.×1¼in., a super job, 2% regulation; 35/- shrouded, with terminals, less terminals, 30/- open type 26/-; post 1/3.

VORTEXION.—Autos to B.E.S.A. specification, 100 or 110 volts to 200 or 220 or 240 volt, 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 1/3; 2,000 watt autos, £4/10.

VORTEXION.—Chokes, 20 h. at 120 m.a., 8/6; 30 h. at 60 m.a., 5/6; 30 h. at 150 m.a., open type 10/6, shrouded 12/6; post 1/-.

VORTEXION.—1,000 volt 600 m.a. transformers, weight 34 lb., £4/10, or similar wattage; carriage free.

VORTEXION. 4+4 mf. 500 peak electrolytics; 4/6.

VORTEXION.—Transformers made to your specification.

VORTEXION (S. A. Brown), 182, The Broadway, Wimbledon. Tel.: Liberty 2814. [2670

CABINETS.

RADIOGRAM Cabinets; fully illustrated list free; remarkable values.—Gilbert, Cabinet Maker, Swindon. [1686

DYNAMOS, ETC.

ROTARY Converter, 60v. D.C. in, 45v A.C. out, ball bearing; 30/-.—Stainsby, Wooley, Hexham. [3644

ROTARY Converter, 12in., 200-350 volts output, 50/-; wanted, M-L. 24 or 32 input, 400 ont.—Jersey, Cumnor Hill, Oxford. [2527

D.C. to A.C. New Converter, input 200-230v. D.C., output 80 watts, 1 phase, 50c. 230v., complete with filter; £5/5 on rail.—Robertson, College Gate House, Bury St. Edmunds. [2634

CONVERTER Crypto, D.C. 220, output 400 watts A.C., interference units, starter, resistance for D.C. input, Ironclad switch, etc., as new; £10.—Armstrong, Folders Lane, Burgess Hill, Sussex. [2653

GRAMOPHONES, PICK-UPS, ETC.

SIMPSON'S Electric Turn-table, 12in., 230v., 50c., one week's use only; 23/6.—Gotliffe, Moor and, Retford, Notts. [2666

LOUD-SPEAKERS.

LOUD Speaker, Blue Spot 66K unit, complete, in case; 15/-, postage extra.—52, Halstead Rd., London, N.21. [2687

COLUMBIA A.C. and D.C. Moving Coil Speakers, fitted variable ratio transformers in attractive figured oak cabinets; from 37/6 complete.

ALL Types of Moving Coil Speakers, pots and windings, etc.; going cheap.—R. Newman, 309, Roman Rd., Bow, E.3. [2418

15/6 carriage paid.—Celestion Sonnolex moving coil loud speakers (list price 27/6), guaranteed brand new; satisfaction or money back.—Radio Supplies, 20, Ramsgreave Drive, Blackburn. [2694

R.K. 12in. Cone M.C. Speaker, with output tmfr for A.C. 100-250, D.C. 200-250, in solid walnut pedestal cabinet, 30in. high; cost £22, sacrifice £7/10; new and unused; maker's catalogue on request.—Box 6948, c/o *The Wireless World*. [2661

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

27/6 !!—6v. D.C. speaker, as above; £2/7/6, speaker as above for 100-250 A.C.

SIMPSON'S Electric Turntables, 25/-; carriage paid; cash with order, or c.o.d.

B.T.H. Brand New Public Address Amplifiers, 4-stage, including microphone stage, 2 types, 12 watts and 6 watts outputs, 12-watt type has 2 P.P.5/400s in output, 6-watt type has 2 P.P.3/425s in output, 12-watt type price £15, 6-watt type £12/10; B.T.H. cinema type pick-up, 16in. tone arm brand new, 17/6.—Ward, 12, Tredegar Rd., Bow, E.3. [2608

B.T.H. R.K. Moving Coil Speakers, guaranteed new, unused, manufacturers' surplus, original price 6 guineas, highly sensitive and wonderful tone response, will handle up to 10 watts output, available for 6v., 100v., 200v., 30/-; also A.C. models, £2/10; carriage paid, c.o.d., or cash with order; the best value in speakers obtainable to-day.—Seekamp, 46, Farringdon St., London, E.C.4. [1425

CHAL-ELECTRIC Offers Brand New Set Manufacturers' Surplus (coming to the end) Moving Coil Speakers: Rolas F.6, in the following voltages, list 35/-, at 17/6, 110-175 volts (2,000 ohms), 90-130 volts (2,500 ohms), 200-250 volts (6,500 ohms), complete with transformer, state if power or pentode; senior models, F.7 (9in. cone), voltages as in F.6, list 46/6, at 25/-; permanent magnets, F.6P.M., list 49/6, at 28/-; F.7P.M., list £3, at 33/-; all carriage paid, cash with order or c.o.d.—Chal-Electric, 6, Conduit St., London, W.1. [2677

MOVING Coil Speakers (in all about 50), brand new set manufacturers' surplus: Lamplough Silver Ghost moving coil speakers, 6½in. cone, 90-130 volts, 2,500 (ohms), listed 35/-, at 15/- each; Rolas, F.6, 90-130 volts (2,500 ohms), 110-175 volts (2,000 ohms), 200-250 volts (6,500 ohms), with transformers, list 35/-, at 17/6; F.7, list 46/6, voltages as above, 25/-; permanent magnets, F.6P.M., list 49/6, at 28/-; F.6P.M., list £3, at 33/-; Ultra (a really hefty job), list £4/10, at £2/5; all carriage paid, cash with order or c.o.d.—Mayfair Radio, 31, George St., Hanover Sq., London, W.1. [2675

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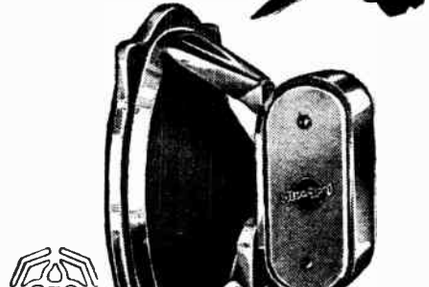

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M.L.4s, A.C./Ps, 41M.P.s, P.M.24s, 8/-; A.C./H.L.s, 164Vs, 354Vs, A.C.2/H.L.s, 41M.H.L.s, U10s, U.U.60/250s, M.H.4s, M.H.L.4s, 7/6; V.S.2s, 215S.G.s, 220S.G.s, P.M.12s, P.M.12As, 9/-; 442 B.U.s, D.W.3s, 8/6.

ALL Types of Brand New American Valves in Stock, first class makes: 247s, 235s, 224s, 236s, 237s, 233s, 244s, 12/-; 227s, 226s, 280s, 245s, 9/6; 242s, 232s, 11/-; U.X.210s, 15/-.

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NEWMAN, 309, Roman Rd., E.3. [1659

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LOTUS Mains Chokes; listed 15/-, 7/6 each.

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350-0-350v., 120 m.a., 4v. 2-3a., C.T., 4v. 4-6a., C.T., 4v. 1-2a., C.T.; 16/-, post 1/-.

400-0-400v. 90 m.a., 4v. 2-3a., C.T., 4v. 3-5a., C.T., 4v. 1-2a., C.T.; 14/6, post 1/-.

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LINE Transformers (auto-wound), 0-100, 110, 200, 220, 240v., 60 watt, 8/-, post 9d.; 120 watts, 11/-, post 1/-; 180 watts, 15/-, post 1/3.

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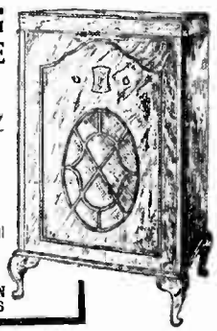

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SUITCASE Cabinets in Best Crocodile Leather, 14in. 14in. 8, ample room for 12in. turntable and pick-up; 15/-, new; Magnavox D.C. 144, with transformer, 2,500 ohms, 15/6, Lewcos and Wearite super het. coils, 5/-; oscillators, 6/6; B.T.H. D.C. speaker, corrugated cone, 2,500 ohm, 14/-. Note: We carry a large stock of assorted radio parts of every description and of the best quality.

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VALVES.—As new; M.S.4, 7/6; A.C./P, 8/6; D.S., 10/6; A.C./S2, 9/-; S4V.A., 9/-; D.L., 8/-.

POLAR Star 3-gang Condensers, 16/6; with drive, 18/6; Radiophone 3-gang condensers, fully screened, with trimmers, Radiopack type, 9/-, post 9d.; Polar Uniknob 2 gangs, with drive, 7/6; Radiophone 4 gangs, 12/6; with cover and drive, 16/-.

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R. [2643

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ONE B.T.H. M.G., as above, input 220v. D.C., output 475v. 200 m.a., £5/10; smoothing equipment for item (5), including H.T. and L.T. chokes, cut-out, condensers, etc., £3/10.

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10 Various Ultra Type Sets in Sloping Cabinets, £1 each; 2 Amplion P.A. speakers, with 6v. dynamic units, approx. 10ft., folded horns in waterproof cabinets, as new, £6/10 each; K.G.I. P.E.C., as new, 15/-.

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ONE-WATT Resistors, colour coded, all values; 100 ohms to 5 megohms, 8d. each, or 7/6 any dozen; Pluto pattern walnut table cabinets, 8/6; Wego non-inductive 0.01 condensers, 7d.; Benjamin 5-pin chassis V-holders, 1/3 for half dozen; Lamplugh moving coil speakers, boxed, 2,200 ohms, 14/-; Utility 2-gang 0.0005, with all fittings, 7/6. Mains Radio Development Co., 4-6, Muswell Hill Rd. London, N.6. [2692

FERRANTI Push-pull A.F.5C, O.P.M.1C, pair 28/6.—Logan, 196, Woodstock Rd., Belfast. [2642

OSTAR-GANZ
HIGH VOLTAGE MAINS VALVES
These valves work direct on either A.C. or D.C. supply. No transformers or resistances required. Remarkably free from mains hum.

A.520. G.P.	17/6	E.G.50. 50 m.a. Half Wave	14/6
W.310. R.C.	17/6	E.G.100. 125 m.a. do.	15/6
U.920. L.F. Power	17/6	N.G.40. 40 m.a. Voltage doubler	29/6
L.1525. Super Power	18/-	V.G.45. 45 m.a. Full Wave	42/6

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WESTINGHOUSE Rectifiers, as new, H.T.8, 10/6; H.T.5, 7/6; 6-volt, half-amp., 5/6.

MAINS Valves, as new, emission guaranteed, 244v., 6/-; P.M.24a, 7/6; 84V.A., M.S.G.L.A., 3/6; 41M.H., 7/-; D.S., D.S.B., D.P.T., 9/- each.

ROLA and Magnavox Type 144 Moving Coil Speakers, for power or pentode output, 6,500 ohm field, for 200-250 volts excitation, 14 - each.

T.C.C. Condensers, working at 250 volts D.C., 4×4×2×1, 3/6; 2×2×2×1×1, 2/6, both types separately earthed; type 65, 1 mfd. 1/-, 2 mfd. 1/4, type 50 2/-; tubular type, with wire ends, 0.0001, 300 volts A.C., 5d.; 0.01, 250 volts A.C. working, 6d.; T.C.C., wet electrolytics, working 440 volts D.C., 8 mfd. 3/6, 4 mfd. 3/-.

GARRARD Large Single Spring Motors, No. 20, made for the Columbia Graphophone Co., complete with turntable, handle and stop, 12/6, in perfect condition, large double spring motor to play 4 12in. records, complete as above, 21/-, also made by Garrard; Dubilier block condensers, 2×2×1×1×1×1, 500 volts D.C., 4/6; 2 mfd., in bakelite case, 1/9.

MARCONI Ideal Transformers, 4-1 ratio, in perfect condition, 6/-; W.B. 5-pin valve holders, sub panel type, 3d. each; Loewe vacuum type resistances, with wire ends for soldering, 3d. each, 2/- per dozen; 3,000, 10,000, 15,000, 25,000, 50,000, 100,000 ohms, quarter, half and one meg, 0.005 condensers.

BRITISH Radiophone 3-gang 0.0005 Condensers, with trimmers, 8/-; manufacturers' type, 2 mfd., in tin case, 250 volts working, made by T.C.C., 1/- each.

S.G. Brown Crystal Amplifiers; original cost £5/5, 7/6, in excellent condition.

S.G. Brown Vee Unit and Chassis, complete, new and unused, 12/6; Ferrant B1 choke, 10/6; A.F.6, 15/-.

TUNGSRAM Mains Screened Grid Valves, as new, emission guaranteed, type A.S. 4,100; 7/6.

2-VALVE A.C. Mains Chassis, complete with Ormond tuning condensers, mains transformer, Westinghouse H.T.8 rectifier, and all component parts, wired ready to take valves and speaker; 32/6.

MAGNAVOX D.C. Moving Coil Speakers, type 144, for Pentode, output field resistance 2,500 ohms, with input transformer, 17/6.

UTILITY Mite Drum Dials, with 0.0005 dielectric condensers, 2/-; 2-gang 0.0005, with external trimmer for front section, fully screened, with disc drive and brown knob; 10/6.

3-GANG 0.0005, fully screened, with trimmers, disc drive, dial light, and brown knobs, 14/6, all brand new and boxed; Gambrell mains transformers, 6 volts 6 amps., C.T., 170-0-170 volts, 60 milliamps., 5/-.

CONDENSER Blocks, 500 volts D.C., 4×2×2×1, 3/6; smoothing chokes, as follows, by reliable makers, 750 ohms, 40 henries, 20 milliamps., 3/-; read in same order 1,400 60, 30, 4/6; 650, 50, 20, 2/6; 590, 20, 70, 4/-; 640, 30, 60, 4/-.

MAINS Transformers, all types. 200-240 input, 250-0-250, 60 milliamps., 4 volts 4 amps., C.T., 4 volts 2 amps., C.T., 10/-; 350-0-350 60 milliamps. filament, as above, 11/6; for H.T.8 rectifier and 4 volts 2 amps. C.T., 4 volts 1 amp. C.T., 6/6; for H.T.5 rectifier and 4 volts 3 amps., 5/6.

KIT of Parts for an Excellent Class B Amplifier, London made transformers, 1-1 overall input, 1, 2, and 3 to 1 output, 2 0.005 condensers, W.B. valve holder and Cossor 240B valve; all parts guaranteed and exchanged if faulty, 35/-.

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PEPPER Draws Your Attention to Bargains Offered in Last Week's Issue, page 5, columns 1 and 2.

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8D. Each.—Scradex tubular condensers, 0.005 mfd. to 0.1 mfd., non-inductive 400v. D.C. working.

LISTS of Scradex Products from Trevor Pepper, Wakegreen Rd., Birmingham, 13. [2651

RAYMART'S Weekly Bargains.—Largest stocks in Midlands surplus radio, electrical, and P.A. gear.

ROTARY Convertors.—M.L. 200v. 90 W., £5; 220v. 50 W., £4; E.D.C. 230v. 50 W., with filter, £7; Crypto, 110v. 600 W., £7/10, all silent double wound and 200-230 A.C. output.

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CONDENSERS.—Radiophone screened superhet, 4-gang, 10/-; Polar screened 2-gang, 9/6; Ameco semi-screened 3-gang, 10/-; T.C.C., 4+4+1, 3/9; Wego, 4+4+2+2+2+2, 6/6.

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RADIOPHONE, 110 k.c. superhet Radiopak, 47/6 (cost 75/-); Ormond P.M. moving coil, £1; both perfect.—Aldridge, 29, Chatterton Rd., London, N.4. [2667

W.W.3 (cabinet, M.C. speaker), £4; A.F.5, 15/-; set Colvern coils (K.B.I.C.s and K.B.G.R., on base), 15/-.—Box 6930, *c/o The Wireless World.* [2641

O.P.M.2, 6/-; B.T.H. pick up and arm, nickel, 13/11; Claritone ditto, 8/11; B.T.H. eliminator, 12/-.—Mackay, Station Rd., Corstorphine, Edinburgh. [2668

KREXO, the new plug-in stabiliser for all receivers using L.F. stages, no wiring to alter; price 2/- each, post free by return.—Krexo Radio, 20, Union St., Jersey, C.I. [2635

WEST END RADIO for Genuine Radio Bargains.—Pye 20 henry H.F. chokes, new, 3/3; large selection of Erie resistances, 6d. each; Collaro A.C. gramophone motors, £3 model, 35/-.

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BROWNIE No. 3 Crystal Sets, new, 12/6 type, 6/11; ex-G.P.O. Galvanometers, 5/-; Rola and Magnavox slightly used 6,500 ohms D.C. speakers, 12/6.

HEAYBRED Mains Transformers, 350-0-350v., 60 m.a., 4v. 4a., 4v. 2a., 7/11; Igranic 180v. H.T. transformers, 3/11.

UTILITY 3-gang 0.0005 Screened Condensers, boxed, 12/6; British 2-gang ditto, 7/11.

3-VALVE A.C. Chassis, in working order, £3; 2-valve ditto, 30/-; 2-valve D.C. chassis, 25/-.

BROOK 2-valve D.C. Set, complete, £4; 2-valve A.C. ditto, £4/10.

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B.T.H. Senior P.U. and Arm, £1; Ogam M.S.4, 7/6; 2 Cossor 215 S.C. met., 7/6 each; Mullard D.G., 7/6; R.I. L.F. choke, 5/-.—E. Lamont, 7, Dean St., Edinburgh. [2647

BRITISH Radiophone Radiopak Super Het 4-gang, 0.0005, fully screened with trimmers; list 37/6, our price 9/11; c.o.d., postage paid.—Kay, 167, City Rd., London, E.C.1. [2542

FERRANTI Eliminator, type B.E.M.1, 200v. 100 m.a.; transformers, P10, 4v. 4a., 6v. 3.2a., 45v. 5 m.a., A.F.5r, O.P.3(c); offers.—Nettleton, 77, Albert Ave, Sedgley Park, Prestwich, Manchester. [2663

MOVING Coil Milli-Ammeters, 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. [0355

FAY £8/8 Home Recorder, as new, £4/10; U8 rectifier, as new, 12/6; V.M.S.4, as new, 11/-; M.S.4, 9/-; Sifam 0-1 ampmeter, 12/6; Burndept pick-up, filter, volume control, 35/-.—Angel, Tanghall Lane, York. [2639

HAND Telephones, 4/6; pedestal telephones, 7/6; bell ringing magnetos, 4/-; twin gong phone bells, 3/-; large size, 6/-; microphones, 4/6, 2/6 and 1/-; microphone transformers, 2/6; earphones, 9d.; automatic dials and switch, 2/-.—Below.

WIRELESS Transmitters for Morse, 12/6; morse keys, 4/- and 2/6 each; 2-valve receiving sets, 10/-; transmitting microphones, 5/-; new mine exploder, 25/-.—Below.

PLATING Dynamo, 6-volt, voltmeter, ampmeter, large regulator, copper knife switch, complete, £5; A.C. generator, 100v. 20a., self exciting, £4/10; Venner recording switch, 110v. D.C., 25/-; ampmeter, 0-400 amps, with shunt, 25/-.—Below.

ROTARY Converters, input 6-12v. D.C., output 30v. 1a. A.C., 15/-; ditto, 50v. D.C. input, 75v. 50 m.a. A.C. output, 17/6; ditto 220v. D.C. input, 145v. 40 m.a. A.C. output, 45/-; converter for D.C. mains charging, 220v. input, 30v. 6a. output, 45/-; large motor generator, 4kW. 100v. motor, 50 cycles, 3 ph., generator 100v. 40 amps, as new, £8.—Below.

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Components, etc., for Sale.—Contd.

SET Class B Amplifier Components.—2 Cossor valves, 2 Multitone transformers, Celestion P.M. 19 speaker, new, 50/-; also battery Baby Superhet, parts, with Q.P.P. output, as new, offers.—O. H. B., 22, Argyll Mansions, Chelsea. [2645

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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 Transformers, 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 Transformers, 200v. 100 m.a., rectified, with 4v. 3.5a., c.t., L.T., and screened primary, 15/-; with Westinghouse rectifier, 26/-.

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. (c.t.), and 4v. 2-3a. (c.t.), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts 100 m.a., 4v. 4-5a. (c.t.), and 4v. 2.5 amps. (c.t.); 15/-.

PREMIER Mains Transformers.—4 volts 3 amps., C.T., 7/6; 4 volts 5 amps., c.t., 8/6; 6 volts 2 amps., 7/6; 9 volts 1 amp., 7/6; 12 volts 1 amp., 7/6; 14 volts 4 amps., 12/6; 22 volts 1 amp., 10/-.

PREMIER Auto Transformers, 100-110, 200-250 volts, or vice versa, 60-watt, 7/9; 100-watt, 10/-; 180 watt, 15/-.

SPECIAL Offer of Manufacturers' Type Mains Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a. (c.t.), and 4v. 3a. (c.t.), 8/6; 175v. 50 m.a., 4v. 4a., 4v. 1a., 5/6; 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., and 6v. 1a. (all c.t.); 17/6.

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

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

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

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/-; larger model, output 200v. at 50 m.a., S.G. and 120v. taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers: 2v. at half-amp., 8/6; 2, 4, and 6v. at half-amp., 17/6; 2, 4 and 6 volts at 1-amp., 22/6; 12v. at 1-amp., 27/6; 6v. or 12v. at 2 amps., 35/-; 12v. at 1.5a., 30/-; 6v. at 3a., 39/6; 12v. at 3a., 52/6; three separate 12v. 1a. circuits, 75/-.

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

WESTINGHOUSE Metal Rectifiers; 120v. at 20 m.a., 6/6; 180v. at 30 m.a., 8/6; 250v. at 60 m.a., 10/-; 200v. at 100 m.a., 11/-; 300v. at 60 m.a., 11/-; 8v. at half-amp., 6/6; 6v. at 1a., 9/6; 12v. at 1a., 12/6; 6v. at 2a., 20/-.

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

B.T.H. Induction Type (A.C. only) Electric Gramophone Motors, 100-250 volts, 30/- complete; double spring gramophone motors, with 12in. turntables, 15/- complete.

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AMPLION Moving Coil Speakers, type E.M.643, dual fields, 2,500 and 5,000 ohms (100-250v.), with output transformer, 12/6 ditto 200-250v. A.C., 22/6.

AMSCO 3 gang 0.0005 Condenser, with trimmers (listed 30/-), our price 7/6; Pola 0.0005 and 0.00035 bakelite dielectric condensers with knob, 1/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes and disc drive, 0.0005, 10/-; Ormond all-brass 2-gang condensers, semi-shielded, 0.0005, 3/6.

WESTERN Electric Condensers, 250 volts working, 1 mfd. 6d., 2 mfd. 1/-.

T.C.C. Condensers, 750v. working, 2 mfd. 4/-, 4 mfd. 6/-; 400v. D.C. working (300v A.C working), 4 mfd., 4/-.

T.C.C. Condensers, 250v. working, 4×4×1 mfd., 5/-; 300v. working, 4×4×2×2×2 mfd., 7/-; 375v. working, 6×4×2×2×2 mfd., 10/-; 300v. working, 4×4×2×1 mfd., 6/-.

400 Volts Working 3 separate 4 mfd. condensers, 8/6; Western Electric 400v. working, 0.01×0.01 mfd., 1/-.

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.

(*This advertisement continued in col. 3.*)

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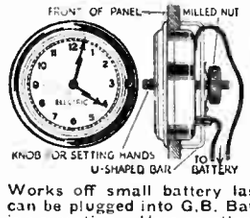

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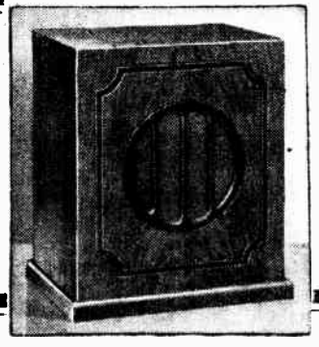

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W.W.38

WEDNESDAY

MAY THE TWENTY-FOURTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Empire Day luncheon speeches by Mr. J. H. Thomas and the Archbishop of Canterbury.
LONDON	Act 1 of "La Tosca" (Puccini), from Covent Garden.
REGIONAL	Relay from the Palace Theatre, Halifax.
MIDLAND REGIONAL	The music of Arthur Sullivan and Edward German.
NORTH REGIONAL	Relay from the Palace Theatre, Halifax.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
BELFAST	The music of Wagner, orchestral concert.

ABROAD

BERLIN (Witzleben)	9.0 p.m. Music of the time by Frederick the Great, from Charlottenburg Castle.
COPENHAGEN	8.30 p.m. Radio Ball for the Older Generation.
FRANKFURT	8.0 p.m. Operetta Overtures.
HAMBURG	8.0 p.m. Mozart Concert, conducted by J. Eibenschutz.
HUIZEN	8.40 p.m. Carillon recital from the Royal Palace, Amsterdam.
MUNICH	7.0 p.m. Max Reger Concert (relayed by other German Stations).
RIGA	7.5 p.m. Operetta: "The Land of Smiles," by Lehar.
STRASBOURG	10.45 p.m. Symphony Concert, conducted by M. Munch.
STUTTGART	8.0 p.m. National Dances.
TURIN	8.30 p.m. Concert in celebration of the National Festival (also from **Florence, Genoa, Milan, Rome and Trieste**).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **CORK, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report and Popular Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** German Lesson. **7.30,** Time Signal. **7.31,** First Dublin Company Boys' Brigade Brass Band. **8.0,** Soprano Solos by Chrissie Manning. **8.10,** Talk: Ballad History of Ireland, by John Brennan. **8.40,** Soprano Solos by Chrissie Manning. **8.50,** Station Orchestra. **9.10,** Tenor Solos by Sean O'Carroll. **9.25,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time, News, Weather and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Trio: Selection from Fidelio (Beethoven); Mélancolie (Granier); Violin Solo: Ballet Music from Sylvia (Delibes); En badinant (d'Ambrosio); Andante (Glazunov); Selection from La Bohème (Puccini). **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Relay from the Ayuntamiento. **9.0,** Popular Music on Gramophone Records and News. **10.0,** Chimes from the Cathedral. Weather and Exchange. **10.5,** Concert by the Station Orchestra: March (Tichy); Selection from La Alsaciana (Quiepo-Guerrero); Selection from Der Rosenkavalier (R. Strauss); Interlude from Pepita Jimenez (Albéniz); Cantabile, Diana (Lefèbre); Overture, A Life for the Czar (Glinka). **11.0,** Reading from the Poems of Emilio Carrere, with Introductory Talk. **11.15,** Concert by the Toldra Sextet from the Granja Royal. **12 Midnight,** News and Variety Music on Gramophone Records. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio, Weather, and Sports Notes. **8.30,** Time and Announcements. **8.40,** Patriotic Music. **9.30,** Chamber Music Concert: Selection from Zampa (Hérold); Pianoforte Solo, Sonata clavicembalistica (Cantù); Soprano Solos: (a) Malinconia (Alfano), (b) Madrigal (Staffelli); Melody (Respighi); Pianoforte Solos: (a) Pierrot si diverte (Ferrari), (b) Nella tormenta (Ferrari); Soprano Solo: Nuit d'Espagne (Massenet); Gavotte (Hamud). Talk in the interval. **10.30,** Variety Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.30 p.m.,** Folk Song Recital by F. Bosnjakovic. **8.0,** Radio Play. **8.30,** Concert of Slav Music by the Radio Orchestra. **9.30,** Jugoslav Songs. **10.10,** News. **10.20** (approx.), Cigány Music from a Hotel.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert of Light Music. **2.45,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Reading: From my Air Travel Diary (Carl Maria Holzapfel). **4.0,** See **Hamburg. 5.0,** Reading (Dr. Unger). **5.30,** Chopin Recital by Gisela Binz (Pianoforte): Three Preludes; Nocturne in F Sharp; Two Mazurkas; Waltz in A Flat; Berceuse; Tarantella. **6.0,** A Poem. **6.5,** Recital of Duets by Eva Katharina Jekelius-Lissmann and Gerhard Jekelius: In der Sternennacht (Cornelius); Ich und Du (Cornelius); Es rauscht das Wasser (Brahms); Die Nonne und der Ritter (Brahms); Vor der Tür (Brahms); Wiegenlied (Schumann); So wahr die Sonne scheinet (Schumann); Du mein einzig Licht (Folk Song); Nachtlied (Folk Song); Du, du liegst mir im Herzen (Folk Song); Schwefelhölzle (Folk Song). **6.35,** Wireless Technical Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Report on the First Production of the Play Totila (Wilhelm Kube) in the Municipal Theatre, Frankfurt an der Oder. **8.45,** Dance Music by the Ludwig Rüth Band. **9.15,** Radio Report on the D.L.G. Horse Show. **9.30,** Dance Music (contd.). **10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Heilsberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN; 715 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Recital of Folk Songs. **6.40,** The Witzleben Station informs its Listeners . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.5,** Announcement. **8.10,** The Starry Sky—the Myths, History, and Future of Life among the Stars—a Sketch (Jochen Klepper). **9.0,** Berlin Art Week—Part Relay of a Concert of Chamber Music from Charlottenburg Castle. The Orchestra, conducted by Hans von Benda. Soloists: Eigel Kruttge (Harpsichord) and Paul Luther (Flute); Concerto in D Minor for Harpsichord and Strings (C. P. E. Bach); Concerto in C for Flute and Strings (Frederick the Great); Symphony in D (C. P. E. Bach). In the interval at **9.25,** Radio Report from Charlottenburg Castle. **10.10,** Weather and News. **10.15** (approx.), Dance Music from the Moka Efti. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News and Market Prices. **7.40,** Tourist Talk. **7.55,** Lottery Results. **8.0,** Agricultural Report. **8.15,** News. **8.30,** Concert of Gramophone Music. **9.0,** Concert by the Station Symphony Orchestra. Soloists: Mlle. Suzy Andry (Songs), M. Padenaz (Comedian), M. Rouilon (Flute).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.10 p.m.,** See **Brno. 10.0,** See **Pragne. 10.30,** See **Brno. 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.—1.5 p.m.,** Weather, followed by Gramophone Concert of Romantic Music. **1.45,** Time and News. **2.5,** Puccini Concert on Gramophone Records. **2.45,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Market Prices. **3.50,** Talk: Thoughts on Silesian Patriotism. **4.15,** Recital of Silesian Songs by Käthe Prochaska (Soprano): Four Songs (R. Wetz): (a) Morgenlied, (b) Spielmannslied, (c) Du, (d) Dass ich dich liebe; Three Songs (A. Mendelssohn): (a) Der Husar, (b) Goldhahn, (c) Aus dem Nachtlied Zarathustras; Three Songs (H. Buchal): (a) Verwehter Klang, (b) Wie ich sterben möchte, (c) Ruf des Schicksals. **4.45,** Book Review. **5.0,** Märchenerzählungen, Op. 132, for Viola and Clarinet (Schumann). **5.30,** Talk: Situation in Destiny—the Plight of the Frontierlands. **5.50,** Market Prices. **5.52** (approx.), Trio in E, Op. 498, for Viola and Clarinet (Mozart). **6.20,** Talk: The Tasks of Silesia in the New Germany. **6.50,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Programme to be announced. **9.0,** Music from the Charlottenburg Castle, See **Berlin (Witzleben). 10.0,** Time and News. **10.30,** Talk: German Legendary Figures. **10.50,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.0 p.m.,** Talk. **4.10 to 6.15,** Relay from **Olomouc. 4.10,** Military Band Concert. **4.55,** A Play for Children. **5.20,** Report from the Aerodrome. **6.5,** Review of Periodicals of the Olomouc Districts. **6.15,** Talk for Workers. **6.25,** German Transmission, Talk on Old Olomouc. **7.0,** See **Prague. 7.10 to 10.0,** Relay from **Olomouc** (contd.). **7.10,** Introductory Talk to the following Transmissions. **7.15,** A Farm in Haná—Radio Report. **7.30,** Report from an Agricultural Machinery Factory. **7.45,** Report from a Cheese Factory. **8.15,** Address by the Mayor of Olomouc. **7.25,** Orchestral Concert, conducted by A. Heller, relayed from the Olomouc Municipal Theatre. **9.25,** Recitations. **9.40,** After the Ball—Play (Bystrina). **10.0,** See **Prague. 10.30,** Light Music, relayed from the National Café, Olomouc. **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 P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Dance Music on Gramophone Records. **5.0,** Concert by the Radio Orchestra, conducted by Franz André: Funiculifunicula (Denza); Selection from Le Postillon de Longjumeau (Adam); Rondo capriccioso for Violin (Saint-Saens); La Boite à joujoux (Debussy); Song Waltz (Stolz); Christiné Potpourri (Salabert); Selection from Tip-toes (Gershwin); Selection from La Cocarde de Mimi Pinson (Goublier); Scènes pittoresques (Massenet); Spanish Dances (Granados). **6.0,** Talk: Gymnastics. **6.15,** Gramophone Records of Popular Music. **6.25,** Songs with Lute Accompaniment. **6.45,** Life is not a Dream—Sketch (Léon Donnay). **7.0,** Gramophone Concert: Prelude to Le Deluge (Saint-Saëns); Si je le savais (Tchaikovsky); Spanish Dance from La vida breve (Falla); Ronda Aragonesa (Granados). **7.15,** Talk: Traffic in Towns. **7.30,** Talk on Hygiene. **8.0,** Recital of Brahm's Waltzes for Mixed Quartet and Pianoforte Duet. **8.25,** The Twenty-fourth of February—Play in One Act (Alexandre Dumas). **9.0,** Trio Concert: Trio in C, Op. 87 (Brahms); Trio in D, Op. 70, No. 1 (Beethoven). **10.0,** Le Journal Parlé. **10.10,** Old and Modern Dances on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Gramophone Concert: Overture 1914 (arr. Debroy); Selection from Countess Maritza (Kálmán-Colin); Serenade to Lisette (Caludi); Golliwog's Cake Walk (Debussy); Comme au plus beau jour (Popper); Selection from Hans the Flute Player (Ganne); Chanson d'Arlette (de Taye); Selection from Enlevez-moi (Gabaroche); Kol nidrei (Bruch); Selection from The Cinema Star (Gilbert); Dance of the Tumblers (Rimsky-Korsakov-O'Donnell). **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. Soloist: Wigy (Violin). Spanish March, Merida (Guiliani); Waltz (Ziehrer); Selection from The Carnival Fairy (Kálmán); Serenade for Violin (Drdla); Dance of the Merry Mascots (Ketelbey); The Garden of Love (Haydn Wood); Potpourri, Contrasts (Robrecht). **5.0,** Dance Music, relayed from the St. Sauveur Palais de Danse. **6.0,** Popular Music on Gramophone Records. **6.15,** Reading. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Peter Schmoll (Weber); Procession (De Boeck); Sérénade carnavalesque (Erlanger); Selection from Hansel and Gretel (Humperdinck); Elégie for Violin (Deleroix); Dance Scenes (Richter). **7.15,** Talk: Flemish Proverbs. **7.30,** Review of International Events. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloists: Brenders (Pianoforte) and Steurs (Accordion). Hungarian March (Berlioz); Concerto for Pianoforte and Orchestra (Gershwin); Suite, Jazz in the Zoo (Basilewsky); Trumpet Solo from Jack in the Box (Satie); Waltz, Wiener blut (Joh. Strauss); Gavotte and Minuet (Lully); Valse des blondes (Ganne); Schottische (Finck); Foxtrot, Swanée Stoump (Knight-Tower); Waltz, Give me a Moment please (Whiting); Manolita (Borchard); Tango, A mi madre (Pizarro); Rumba (Sentis); Java, Manuela (Raiter); Russian Dance (Bulerian); Spanish Dance (Albéniz); Tarantella (Rossini); Flemish Dances (Blockx). In an interval at **8.45,** Recitations. **10.0,** Journal Parlé. **10.10,** Concert by the Max Alexys Orchestra, relayed from the Ancienne Belgique.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Radio Orchestra: March (Blankenburg); Overture, Iphigénie en Aulide (Gluck); Rococo Suite (Aill out); Selection from Tannhäuser (Wagner); Selection from Paganini (Lehár); The Caravan in the Desert (Niemann); The Forge in the Forest (Michaelis). In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Pianoforte Recital by Mlle. Musca Litvin: Two Etudes (Chopin); Theme and Variations (Tchaikovsky); Cordoba (Albéniz); Fire Dance (Falla); The Juggler (Toch). **8.30,** Talk. **8.45,** Violin Recital by V. Filip. **9.15,** 'Cello Recital by G. Cocea. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres from 8.15 p.m.** till Close Down.—**5.30 p.m.,** Song Recital by a Choir. **6.15,** Talk. **6.45,** Light Music on Gramophone Records. **7.35** Exchange. **7.45,** Talk. **8.10,** Racing Notes. **8.15,** Concert of Operetta Music by Viktor Jacobi and Paul Abraham. The Budapest Concert Orchestra conducted by Wilhelm Komor, and Soloists. In an interval at **10.15** (approx.), News. **11.15,** Pianoforte Recital by Géza Frid: Fantasias in C Minor and D Minor (Mozart); Eight Preludes—in C, G, E Minor, B Minor, A, C Sharp Minor, C Minor, and G Minor (Chopin); Four Pieces (Debussy): (a) Doctor Gradus ad Parnassum, (b) Serenade for the Doll, (c) The Little Shepherd, (d) Golliwog's Cake Walk; Four Etudes (Frid).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW. **—12.0 Noon,** Time and Chimes from the Town Hall. **12.2,** Concert by the Max Skalka String Ensemble, relayed from the Hotel Angleterre. **2.0 to 3.0,** Interval. **3.0,** Gramophone Concert. **3.30,** Concert by the Morgens Hansens Instrumental Ensemble: Overture, Der Schauspieldirektor (Mozart); Suite No. 2 from L'Arlésienne (Bizet); Nocturne and Czardas from Belshazzar's Feast (Sibelius); March (Holzmann); Selection from La Belle Hélène (Offenbach); Air from Countess Maritza (Kálmán); Russian Sketches (Fetras); Intermezzo from Suor Angelica (Puccini); Dance of the Hours from La Gioconda (Ponchielli). In the interval at **4.15** (approx.), Talk for Women. **5.35,** Exchange and Fish Market Prices. **5.50,** Agricultural Talk. **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Time Signal from the Town Hall. **8.2,** Talk: The Danish Krone. **8.30 to 12.0 Midnight,** Radio Ball for the Older Generation—The Station Orchestra and Soloists; Conductor, Lanny Gröndahl. **8.30,** Four Melodies (H. C. Lumbye): (a) Mac Mahon March, (b) Pepita Polka, (c) Caecilie Vals, (d) Columbine Mazurka; Svenk Maskerade; Hopsa. **9.0,** Four Songs. **9.15,** Polka, Trictrac (Waldteufel); Waltz, Soirée d'été (Waldteufel); Cora Mazurka (Möller); The Lancers (Mikel); Finger Polka. **9.50,** Reading. **10.5,** Danish Dance Music for Strings and Clarinet; Polka (J. Bach); Vesten om (Jensen); Waltz, Vejledalen (Iversen); Polka, Mary (Christensen); Tyrolese Waltz (Simonsen); Galop (Simonsen); Mazurka, Skaerslipper (Jespersen); Waltz, Alt Wien (Zichrer); Polka from The Geisha (Jones). **10.45,** News. **11.0,** Pianoforte Recital by Viktor Fischer: Polka, Petersborgerinden (H. C. Lumbye), (b) Juleaften Vals (H. C. Lumbye); Polka (Carl Lumbye). **11.15,** Dance Music: Sekstur (Jensen); The Skater's Waltz (Waldteufel); Rits rats; Amalie Polka (Jensen); Petra Mazurka (Jensen); March, The Washington Post (Sousa); Waltz, Solvmyrther (G. Lumbye); Hopsa (Poulsen); Kankan (Erichsen); Galop, En Traeffer (Kral). **12.0 Midnight,** Time Signal and Chimes from the Town Hall.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

SUN. MON. & TUES. PROGRAMMES

MAY 24th **WEDNESDAY** *continued*

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. **5.30 p.m.,** Special Request Concert for Portsmouth and Southsea Listeners: Selection from the Merry Widow (Lehár); Songs: (a) Grannie's Old Arm Chair, (b) Just an Echo in the Valley; Handsaw Solo, Roses of Picardy (Haydn Wood); Regimental Marches; Song, Killarney (Balfe); Tipperary (Judge Williams); Selection from The Desert Song (Romberg); Selection from The Maid of the Mountains (Fraser Simpson); Song, Who am I? (Clifford); Vienna, City of my Dreams (arr. Reeve). **6.15,** Concert for Isle of Wight Listeners: The Dance of the Tea Dolls; I kiss your hand, Madame; A Thousand Maidens Fair; Duet, Shout for Happiness; The Butterfly; In Old Madrid; That's my Song; Black Eyes; Duet, You're the one I care for; Falling in Love again; Swinging in a Hammock; Love's Dream after the Ball. **7.0,** Programme in French. **10.0** till Close Down, Programme in English by the I.B.C. **10.0 p.m.,** Dance Music by the Ibeolians: Moon; Bahama Mama; You're my everything; If you were only mine; Moonlight, the Danube and You; Sweet Sixteen and never been kissed; Is I in love—I is; We just couldn't say Goodbye; Wherever you are; Too many Tears; Love, you funny thing; We all wanna know why; I got Rhythm; Gettin' Sentimental. **11.0,** Empire Concert: The Thistle (Myddleton); The Empire (Tulip); In the Sudan (Sebek); Festival of Empire (arr. Mackenzie Rogan); New Colonial March (Hall); National Emblem March (Bagley); Naval Patrol (Williams). **11.30,** Concert of Songs and Organ Solos: Darby and Joan (Molloy); The Flight of Ages (Bevan); Organ Solo, On Wings of Song (Mendelssohn); D'ye ken John Peel (Traditional); The Meynel Hunt (Cotton); Organ Solo, Temple Bells (Woodforde-Finden); The Children's Home (Cowen); Vale (Russell). **12 Midnight,** Club Concert for Londonderry Listeners: Londonderry Air (Traditional); Songs: (a) Just one more chance (Johnson), (b) Silent O'Moyle (arr. Hughes), (c) The Meeting of the Waters (arr. Hughes); Mignonette (Friml); Songs: (a) Please don't talk about me (Stept), (b) Wandering Days (Strickland); Organ Solo, Mother Machree (Ball); Songs: (a) To you it's only Ireland, (b) Just Plain Folk (Gilbert), (c) Eileen Allanah, (d) The Irish Emigrant, (e) The Heart of the Sunset (Nicholls); Medley of Irish Airs. **1.0 a.m. (Thursday),** Mandoline Band: Loin du Bal (Gillet); In Old Seville (Ege and Rosen); Solo, Capriccio Mazurka (Arienzo); Duet, Par old Pal o' Mine; La Czarine (Ganne); Tesoro Mio (Becucci); Solo, Czardas (Monti); Napolitana (Hey and Meisel). **1.30,** Vocal and Orchestral Concert: Wonderful you; Every little kindness; When the Lilac blooms again; Selection from Bow Bells; Love is a Dreamer; Would yer; For the likes of you and me. **2.0,** Dance Music by the Ibeolians: How do you do, Mr. Brown; Everyone says I love you; Leave a little for me; Mariette; Please; Little Lady; Here lies Love; It's Winter again; You're telling me; Look who's here; Always in my Heart; Cinderella's Wedding Day; Strange Interlude; Business in Q. **2.57,** I.B.C. Good-night Melody. **3.0 a.m.,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**6.0 p.m.,** Talk. **6.25,** Topical Talk. **6.50,** Time, Programme Announcements, Weather, and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Concert of Operetta Overtures: Cagliostro (Joh. Strauss); Ein tolles Mädel (Zielner); Die Frau Meisterin (Suppé); Gasparone (Millöcker); Frühlingsluft (Strauss-Reiterer); Das Süsse Mädel (Reinhardt); Die keusche Barbara (Nedbal); Berliner Luft (Lincke). **9.0,** See **Berlin (Witzleben). 10.0,** A German Almanack. **10.15,** Time, News, Weather, and Sports Notes. **10.45,** Serenade from **Munich. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.** (from **Hanover**), Concert by a Symphony Orchestra, conducted by von Sosen: March, Vom Fels zum Meer (Liszt); Overture, King Stephen (Beethoven); Symphonic Poem, Korsholm (Järnefelt); Ballet Music from Anstin (Marschner); Coronation Waltz (Joh. Strauss); German Triumph March (Reinecke). **5.0,** Talk; Heredity and the German Race. **5.30,** Hamburg, Bremen and Lübeck—Report on Events in the Senates and House of Burgesses of the Hanseatic Free Cities. **6.0,** Dance Music from the Faun. **6.35,** Talk for the Country Woman. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Mozart Concert, conducted by José Eibenschütz; Soloist, Frieda Jürges-Boeckmann (Pianoforte): Overture, Don Giovanni; Concerto in E Flat, for Pianoforte and Orchestra; Symphony in E Flat. **9.15,** Thor Goote reads from his own Works. **9.45,** Time, Weather, Announcements, Sports Notes, and Police Report. **10.5,** Topical Talk. **10.20,** Concert by the Station Chamber Orchestra, conducted by Gerhard Maasz: Overture, Alfonso und Estrella (Schubert); Suite, Rossiniana (Rossini-Respighi); Finnish Lyric (Palmgren); Russian Dance (Bullerian); A Fairy Tale (Suk); Pianoforte Solos: (a) In Primavera (Novak), (b) Frauenbildnis (Graener), (c) Dance Melody (Willner); Extracts from Ein Tausend Johre Hamburg (Erdlen); Song and Czardas, Mariska (Lehár); Suite from The Merchant of Venice (Sullivan); Bombardon-Marsch (Brüll).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert. In the Interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Agricultural Prices and Exchange. **3.20,** Talk for Housewives. **3.30,** Programme for Children. **4.0,** Talk for Parents. **4.30,** Concert by the Orchestra of the Königsberg Opera House; Conductor, Karl Hrubetz: Overture, Hunyadi Laszlo (Erkel); Waltz, Dame in Braun (Robrecht); Im heiligen Hain (Lindemann); Dances of the Nations (Mannfred); March (Hrubetz); Overture, Prinzess Goldschuh (Rust); Odalisken—Walzer (Reiterer); Selection from Das Veilchenmädel (Helmesberger); Polka, Froh durchs Leben (Richelberg). **5.45,** Bridge Lesson. **6.15,** Agricultural Prices. **6.25,** Talk. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** News. **8.10,** See **Berlin (Witzleben). 9.0,** Dance Music by the Small Station Orchestra and the Paul Glatzel Band. **10.0,** Weather, News, and Sports Notes. **10.10 (approx.),** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Der Vampyr (Marschner); Suite No. 2 (Michel); Kaiser-Walzer (Joh. Strauss); Suite, Ein Schubert-Abend in Alt-Wien (Ralf); Selection from Der Freischütz (Weber); Overture, Lysistrata (Lincke). **12 Midnight,** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by De Notenkrakers. **12.25 p.m.,** Song Recital by A. de Booy. **12.40,** Concert (contd.). **1.10,** Song Recital (contd.). **1.25,** Interval. **1.40,** Programme for Women. **2.40,** Programme for Children. **5.10,** Orchestral Concert, conducted by H. de Groot. In the intervals at **5.40,** Gramophone Music, and at **6.40,** Talk. **7.39,** S.O.S. Announcements. **7.40,** Talk. **8.0,** Choral and Orchestral Concert relayed from **Leyden;** Soloists: Mme. J. Oskam van Rangelroon (Soprano), Mlle. Maartje Offers (Contralto), E. Miedema (Tenor), and W. Keizer (Bass): Frühlingsbotschaft (Gade); Tenor Solos: (a) Aria from I Pagliacci (Leoncavallo), (b) Aria from The Queen of Sheba (Gounod); Scènes alsaciennes (Massenet); Soprano Solo: Aria from Der Freischütz (Weber); Choir, Bass and Orchestra: Landerkennung (Grieg). **9.0,** Dramatic Programme. **9.25,** Concert (contd.): Rhapsody for Choir, Orchestra, and Contralto (Brahms); Tenor and Orchestra: Lohengrin's Farewell (Wagner); Academic Festival Overture (Brahms); Cantata for Mixed Choir, Orchestra and Soloists: Lauda Sion (Mendelssohn). **10.25,** News. **10.35,** Popular Music on Gramophone Records. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Christian Radio Society (N.C.R.V.).—**12.10 p.m.,** Quartet Concert. **1.40,** Programme to be announced. **2.10,** Talk for Young Stamp Collectors. **2.40,** Schubert and Cyril Scott Music on Gramophone Records. **3.10,** Song, Pianoforte and 'Cello Recital. **4.40,** Programme for Children. **5.40,** Brahms Concert. Sonata in F, Op. 99, for 'Cello and Pianoforte; Mezzo-Soprano Solo (on Gramophone Records): Vor dem Fenster, Op. 14, No. 1; Trio in C, Op. 87. **6.40,** Police Notes. **6.55,** News Bulletin. **7.10,** Mozart Music on Gramophone Records. Overture, Der Schauspieldirektor; Eine kleine Nachtmusik (Mozart); Selection from Les petits riens. **7.40,** Concert of Sacred and Classical Music. **8.40,** Carillon Recital from the Royal Palace, Amsterdam. **9.40,** News Bulletin. **9.50,** Gramophone Concert of Classical Music. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Results. **8.10,** Scientific Review. **8.20,** Music Review. **8.30,** Literary Talk. **8.45,** News. **9.0,** Concert relayed from St. Raphael. **12 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Military Band Concert: On the Quarter Deck (Alford); Medley of British Songs; National Emblem March (Bagley); Pomp and Circumstance (Elgar); March, King Cotton (Sousa); Old Comrades (Teike); Marche Militaire (Schubert); The Thunderer (Sousa). **12.30 a.m. (Thursday),** Vocal and Orchestral Concert: The English Rose (German); Take off your Coat (Longstaffe); I attempt from Love's Sickness to fly (Purcell); Merrymaker's Dance (German); The Vicar of Bray (arr. Tait); Ginchy Road (Edward); The Lincolnshire Poacher (Barrett); Country Dance (German). **12.57,** I.B.C. Goodnight Melody. **1.0** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Esthonian Lesson. **6.40,** Talk. **7.0,** Boy Scout Programme. Talk by S. Donner. **7.20,** Concert by the Boy Scouts Orchestra: In Treue fest (Blankenburg); Minuet in G (Moszkovsky); Liebeserenade (v. Blon); Waltz from The Nutcracker Suite (Tchaikovsky). **7.40,** Talk by Martta Homi. **8.0,** Songs by Bertel Saarnio. **8.20,** Concert (contd.): Song (Kuula); Karnevals-Botschafter (Joh. Strauss); Selection from The Thieving Magpie (Rossini). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Eysoldt. Soloist: Max Fleck (Tenor). March, Ehrenwache (Lehnhardt); Overture, Le Magon (Auber); Tenor Solos: (a) Ein Traum (Grieg), (b) Frühlingstraum (Schubert), (c) Ich trage meine Minne (Strauss); Nordisches Capriccio (Donisch); Selection from Othello (Verdi); Love Song (Elman); Chant russe (Lalo); Fantasia, Reminiscences of Tannhäuser (Hamm); Humoresque (Dvorák); March, Freiheitsheiden (Blankenburg). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.0,** Educational Talk. **3.30,** Exchange and Time Signal. **3.50,** Programme for Young People. **4.30,** Concert by the Station Orchestra, conducted by Kühn. Soloist: Guermanova (Contralto); Overture, Fidelio (Beethoven); Song, An die Hoffnung (Beethoven); Elfenreigen (Klose); Song, Hymnus der Liebe (Reger); Festliche Ouvertüre (Siegl). **5.45,** Programme arranged by the Post Office. **5.50,** Reading in Dialect. **6.0,** Talk: The Economic Position of the Rhineland and Westphalia in the First Quarter of 1933. **6.20,** Italian Conversation. **6.45,** Weather, Time, Exchange, and Sports Notes. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** First News. **8.5,** Memorial Programme for the Anniversary of the Death of Annette v. Droste-Hülshoff. **8.30,** Friedrich List—Radio Play (Walter von Molo). **10.0,** News and Sports Notes. **10.25,** Young Hitlerites Programme. **10.50,** Concert and Dance Music. **12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

389.6 metres; 120 kW.; and **Dresden, 319 metres.**—**12.5 p.m.,** Concert by the Station Orchestra, conducted by Willy Steffen. In the interval at **1.0 p.m.,** News. After the Concert, News. **2.15,** Talk for the Eightieth Anniversary of the Death of Annette von Droske-Hülshoff. **2.30,** Interval. **3.0,** Pianoforte and 'Cello Sonata No. 3 in A, Op. 69 (Beethoven). **3.35,** Economic Notes. **4.0,** Programme for Young People: Radio Play and Songs. **5.10,** Talk: German Folk Dances. **5.50,** News, Weather, and Time. **6.0,** Book Review. **6.20,** Talk: Germany's Foreign Trade Policy. **6.45,** Reading. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Topical Talk. **8.15,** The Twenty-Second Musical Festival at Zerbst: Concert by the Orchestra of the Friedrichstheater of Dessau, conducted by Artur Rother: Musik für Orchester (Stefan); Little Symphony (Knape); Musik am Abend, Op. 44 (Graener). **9.15,** The People of the Sudetic Mountains—Radio Sequence (Kaergel). **10.15,** News. **10.30,** Concert of Light Music by the Emdé Orchestra: Fanfare March (Zinke); Waltz, Mein Lebenslauf ist Lieb und Lust (Strauss); Ukrainian Sketch (Dreyer); Noch sind die Tage der Rosen (Baumgartner); Potpourri, Vom Rhein zur Donau (Rhode); Norwegian Peasant Dance (schytte); Song from Der Rastelbinder (Lehar); Serenade (Lüling); Waltz, Die Schönbrunner (Lanner); Potpourri of Students' Songs (Mannfred); S'Röserl vom Wörthersee (Koschat); Two Viennese Waltzes, Op. 42 (Fuchs); Winterlied (von Koss); March, Unter dem Freiheitsstern (Blankenburg). **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. F. Miklavcic announcing. International Broadcasting Club Concert. One Step, Taboo, Taboo; Foxtrot, I don't want to go to bed; Slow Foxtrot, Ich liebe Dich, my dear; Foxtrot, Bon Voyage; Tango, He's got a wife and family at home; Tango, Will you dance through life with me?; Foxtrot, Yes, Mr. Brown; Foxtrot, Leave a little for me; Waltz, If you would learn to live. **6.0,** English Music on Gramophone Records. **6.30,** Talk: Modern Heroes. **7.0,** Russian Lesson. **7.30,** Literary Talk. **8.0,** Talk on Politics. **8.30,** Song Recital. **9.30,** Weather and News. **10.0,** Quintet Concert.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.10 p.m.,** Miscellaneous Items. **7.30,** See **Warsaw. 11.0,** Musical Programme by Mme. Theodozja Lisiewicz. **12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** An Hour in Vichy—Surprise Programme. **9.30,** L'ainé—Play (René Thomann). After the Play, News Bulletin.

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—**11.30 p.m.,** Concert of Andalusian Songs and Dances. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Thursday),** Talk. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, Talk for Women, Humorous Talk on Beauty Competitions, Talk on Books for the Blind, and Dance Music. **9.25,** News and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), The Midnight Sun—Radio Fantasia (Theo Fleischman), preceded by a Talk on the Author. **12.45 a.m. (Thursday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.10 p.m.,** See **Brno. 10.0,** See **Prague. 10.30,** See **Brno. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 160 kW.—**6.30 p.m.,** Concert, relayed from the Radio Theatre. **9.0,** News Bulletin. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**5.0 p.m.** (from **Nürnberg**), Concert by the Ferdi Werners Orchestra. March, Bremen-Flug (Redlich); Selection from Il Trovatore (Verdi); Waltz, Wiener Bilder (Ertl); Potpourri, Halloh, hier Wien (Morena); Viennese March, Herr Adabei (Bednarz); Bayerische Ländler (Fürst); Potpourri, Vom Rhein zur Donau (Rhode); March, Mein Regiment, mein Vaterland (Leuschner). **6.5,** Talk: The New Empire and the German Nation. **6.25,** Discussion with the Owner of a Small Business. **6.45,** Time Signal, Weather Report and Agricultural Notes. **7.0,** Transmission for all German Stations: Max Reger Concert by the Nazi Symphony Orchestra, conducted by Franz Adam. Four Tone Poems after Böcklin, Op. 128; Ballet Suite, Op. 130. **8.0,** Topical Programme. **8.15,** Concert by the Small Station Orchestra, conducted by Erich Kloss. **8.40,** Old Munich in May—Radio Sequence (Ernst Hohenstatter). **9.10,** Chamber Music Concert by the Stuhlfauth Quartet. Soloist: Hanna Eschenbrücher (Soprano). String Quartet in A (Protze); Two Serious Songs for Soprano, with String Quartet, Op. 8 (Pauels); String Quartet in One Movement, Op. 4 (Pauels). **10.20,** Time, Weather, News and Sports Notes. **10.45,** Serenade, conducted by Erich Kloss. **12 Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.3 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Gramophone Music. **5.45,** Press Review. **6.0,** French Lesson. **6.30** (from **Hamar**), Programme for Boys. **7.0,** Announcements, Weather and News. **7.30**

Educational Talk, relayed from **Trondheim, 605 kc/s, 495.8 metres.** 8.0, Time. 8.1, Concert by the Station Orchestra, conducted by Hugo Kramm. Soloists: Ida Björset (Pianoforte) and Mme. Elisabeth Reiss-Faerden (Pianoforte). Overture, Der Freischütz (Weber); Concerto in F, for Two Pianofortes and Orchestra (Mozart); Extracts from A Midsummer Night's Dream (Mendelssohn); Spanish Caprice (Rimsky-Korsakov). 9.10, Recitations. 9.30, Agricultural Report. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Song Recital by H. Herberth. 10.45, Dance Music on Gramophone Records.

DSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Concert of Patriotic Music: Marcia reale italiana (Gabetti); Giovinezza (Blanc); Songs and War Scenes. **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 Signal).—**6.45 p.m.,** Songs from Katinka—Operetta (Friml), with Commentary by Victor Larbey. **7.0,** Le Journal Parlé. **8.30,** Lili Boulanger Concert by the Radio Orchestra, conducted by Edouard Flament. Talk: Her Life and Compositions. Vieille prière bouddhique, by G. Paulet, the Russian Choir conducted by M. Vlassov, and the Orchestra; Duet from Faust et Hélène, by Mme. Greslé and G. Paulet; Clairières dans le ciel, by Mme. Modrakowska and M. Paulet, with Nadia Boulanger at the Pianoforte; Renouveau, by Mmes. Modrakowska and Greslé and M. Paulet and Prégent, Nadia Boulanger at the Pianoforte; Psalm 24, by G. Paulet, the Russian Choir conducted by A. Vlassov, and the Orchestra. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Popular Music on Gramophone Records. **8.0,** Talk on Social Insurance. **8.5,** Talk on Parasites. **8.15,** Interval. **8.30,** Etienne—Comedy in Three Acts (Jacques Deval). **10.45,** Dance Music, relayed from the Lido. **11.15,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather Forecast. **12 Noon,** Educational Talk. **12.15 p.m.,** Concert by the Radio Paris Orchestra: Selection from Les Mousquetaires au couvent (Varney-Casadesus). **12.30,** Organ Recital by G. Desserre, relayed from the Gaumont Palace: Overture, Pierrot Brigand (Ardely); Melody (Goetze); Selection from Rigoletto (Verdi); Old French Songs (Bronstet). **1.0,** Exchange, News and Weather. **1.5,** Orchestral Concert (contd.): Selection from Pepita Jiménez (Albeniz-Letorey); Funiculi-Funicula (de Cecco); Fretillon (Terrasse); Selection from The Quaker Girl (Monckton). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.40,** Popular Music on Gramophone Records. **7.0,** Medical Talk. **7.20,** Popular Melodies: Petite Suite (Fevrier); Song from Miarka (Georges); Melody (Pesse). In the interval at **7.45,** Commercial Prices and News. **8.0,** Literary Talk by Paul Reboux. **8.30,** News and Weather. **8.45,** Concert of Chamber Music: Sonate for 'Cello and Pianoforte (Lalo); Harp Solos: (a) Prelude and Dance (Büsser), (b) Jardin mouillé (Jacques de la Presle), (c) Clair de Lune (Debussy); Violin Solos: Quintet for Strings (Schubert). In the intervals at **8.40,** Fashion Notes, and at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC, KDKA, 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.45,** Trinity Hall Programme. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from **New York.** **8.45,** Microphone Melody Makers. **9.0,** Teaberry Baseball Scores. **9.5,** Mid-Week Musicale, from **New York.** **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Bass Solos by Fred Webber. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady. **10.45,** Little Orphan Annie, from **New York.** **11.0,** Palais D'Or Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 12.30 a.m. (Thursday), New York** Relay. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15,** The Townsend Murder Mystery. **12.30 a.m.,** Adventures in Money. **12.45 to 2.30, New York** Relay. **12.45,** String Symphony. **1.0,** Eno Crime Clues. **1.30,** Tasty-east Jesters. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Adventures of Sherlock Holmes. **2.30,** Programme to be announced. **3.0,** Time Signal and Revelers' Quartet from **New York.**

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.0 p.m.,** See **Brno.** **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** See **Brno.** In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Announcements in French for Foreign Listeners. **10.30,** See **Brno.** **11.0** (approx.), 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 **Lausanne**), Talk: The Modern Idea of Chemical Elements. **7.30** (from **Lausanne**), Talk on Bee-Keeping. **8.0** (from **Lausanne**), Song Recital by Mlle. Marthe. **8.25** (from **Lausanne**), Talk. **8.45,** Concert by the Station Orchestra. **9.50,** News and Weather. **10.0** (from **Geneva**), Talk: The Work of the League of Nations. **10.20** (from **Geneva**), Dance Music by the Broadcasting Serenaders. **11.0** (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.**—**1.0 to 2.15 p.m.,** Orchestral Concert. Songs of the Trenches. War Songs. Selection from Katja the Dancer (Gilbert); Racconto di fata (Culotta); Serenatella bruna (Rosati); Melody (Fall); Festa al villaggio (Billi); Prelude to Vecchia Milano (Vittadini); Flow on, Mississippi (Caffrey); I tuoi baci (Sciorilli). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.0,** Report on the Fourteenth Lap of the Cycle Tour of Italy. **5.10,** Announcements. **5.15,** Exchange. Report of the Royal Geographical Society and Giornale Radio. **5.30 to 6.15,** Orchestral Concert. Napoli (Pennini); Voce lontana (Montanaro); Ragazze allegri (Vidale); Selection from Gipsy Love (Lehar); Giga (Martucci); Selection from La danza di Olaf (Pick-Mangiagalli); Triana (Albeniz); Anna Maria (Heinz). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **6.57,** Report of the International Institute of Agriculture (in Italian and English). **7.10,** Tourist Report. **7.20,** Giornale Radio. **8.0,** Time. Announcements and Summary and Notes on the Day's Results of the Cycle Tour of Italy. **8.15,** Medical Talk. **8.30,** Giornale Radio and Sports Notes. **8.45,** Celebrations in connection with the National Festival. Anthems and Patriotic Songs followed by the Marcia Reale Italiana (Gabetti) and Giovinezza (Blanc). **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2AF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.0 to 9.0 p.m.** (approx.), **New York** Relay. **8.0,** Pop Concert. **8.30,** Texas Cowgirl. **8.45,** Charis Musical Revue. **11.45,** Stock Reports and Baseball Scores. **12 Midnight to 1.30 a.m. (Thursday), New York** Relay. **12 Midnight,** Royal Vagabonds. **12.30 a.m.,** Woodbury Programme. **1.0,** Band of Famous Brands. **1.15,** Rocking Chair Memories. **1.30,** General Electric Programme. **2.0,** Corn Cob Pipe Club of Virginia, from **New York.** **2.30,** Dance Hits of Yesteryear, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather. **12 Noon** (from **Berne**), Chamber Music on Gramophone Records. **12.30 p.m.,** News Bulletin. **12.40** (from **Berne**), Gounod and Donizetti Music on Gramophone Records. **1.25** (from **Berne**), Exchange, Time and Weather. **1.45 to 5.0,** Interval. **5.0** (from **Basle**), Programme for Children. **5.30** (from **Basle**), Concert by the Radio Quartet. **6.30** (from **Zürich**), Talk: Everyday Philosophy—Mankind and Divine attributes. **7.0** (from **Zürich**), Time, Weather and Market Prices. **7.10** (from **Zürich**), Gramophone Music. **7.30** (from **Zürich**), English Lesson. **8.0** (from **Zürich**), Bunte Stunde. **9.0,** Weather and News. **9.10** (from **Zürich**), Brahms Concert. **10.15** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW.—Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.0 p.m.,** Sextet Concert: March, La Promozione (Manente); Overture, Les Dragons de Villars (Maillart); Waltz (Wesley); Selection from Der Bettelstudent (Millöcker); Melody (Durand); Finnish Melodies; Polka Mazurka (Herman); March (Lundin). **5.5,** Programme for Children. **5.35,** Gramophone Music. **6.30,** Provincial Programme from **Sundsvall.** **7.30,** Concert of Folk Songs by the Wireless Male Voice Choir. Soloist: Olle Björling. **8.0,** Talk: Psychological Causes of Accidents. **8.30,** Military Band Concert, conducted by G. Leijdh, relayed from **Sundsvall**: Victory March (v. Blon); Waltz, Donausagen (Fucik); Potpourri (Löfgren); Saxophone Solo, Kunstreiter (Oertel); Selection from The Geisha (Jones); Little Dance Suite (Frimann); March (Olsson). **9.30,** Microphone Report. **10.0,** Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Modern Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time Signal and Exchange Prices. **1.5,** Operetta Music on Gramophone Records. **2.0 to 4.0,** Interval. **4.0,** Organ Recital, relayed from **Paris (Radio Coloniale), 11,905 kc/s, 25.2 metres. 5.0,** Orchestral Concert, conducted by M. Roskam. Overture, Frau Luna (Lincke); Waltz, Gipsy Love (Lehár); Intermezzo, Der Roschochzeitszug (Jessel); Selection from The Merry Widow (Lehár); La Cinquantaine (Gabriel-Marie); 'Cello Solo by M. Roskam; Suite gaie (Gabriel-Marie); Melody (Kalkman); El Paseo (Razigade). **6.0,** Concert, relayed from **Lille, 1,130 kc/s, 265.4 metres. 7.0,** Legal Talk. **7.15,** Talk on Electricity. **7.30,** Time Signal and News. **7.45,** Programme from **Paris (Eiffel Tower). 10.15,** Press Review in German, Lottery Results, and News. **10.30,** Light Music on Gramophone Records. **10.45,** Symphony Concert by the Municipal Orchestra, conducted by M. Munch, relayed from the Orangery Restaurant. Symphonic Suite, Scheherazade (Rimsky-Korsakov); Symphony No. 5 in E Minor, Op. 64 (Tchaikovsky). In the Interval, Press Review in French. **10.30,** Dance Music on Gramophone Records. **12 Midnight,** Close Down.

STUTTGART

MUHLACKER, 932 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.,** Gramophone Concert of German Fighting Songs. **2.0 to 2.15,** Programme arranged by the Post Office, with Gramophone Records. **3.0** (from **Freiburg**), Programme for Children. **4.0,** Recital of Children's Songs (Reinecke) by Hede Kraft (Soprano), Robert Ealdmann (Violin) and Otto Seyfert (Pianoforte): Eine kleine Geige möcht ich haben; Christkindchens Einlass; Lustiges Musizieren; An die Biene; Ein Serenädchen; Das Kind und der Kuckuck; Der Abendstern; Zwiegesang. **4.30,** See **Langenberg. 5.45,** Time, Weather and Market Prices. **6.0** (from **Karlsruhe**), Talk: Germany's Contribution to Chemistry, on the Occasion of the Thirty-Eighth Annual Meeting of the German Bunsen Society. **6.25,** Talk: Reminiscences of War Time on Board the Emden. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Munich. 8.0,** Concert by the Württemberg Symphony Orchestra, conducted by Arthur Haelssig. Part I—National Dances: Slav Dances Nos. 1 and 3 (Dvorák); Irish Dance: Molly on the Shore (Percy Grainger); Persian Dance (Mussorgsky); Russian Dance (Hans Bullerian); Norwegian Dance No. 2 (Grieg); Slovak Dances (Rudolf Felber); Italian Dance: Tarantella (Chopin-Glazunov); Provençal Dance: Farandole (Bizet). Part II—German Dances (Beethoven); Overture to and Ballet Music from Die Geschöpfe des Prometheus (Beethoven). **9.30,** A Radio Report from the Wine and Fruit Growing Centre of Oberkirch. **10.0,** Time and News. **10.20,** New Gramophone Records. **10.45,** See **Munich. 12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**6.30 p.m.,** Orchestral Music. **6.50,** Musical Programme and Talk. **7.15,** News, Racing Results, Market Prices, and Announcements. **7.25,** Local News. **7.30,** Opéra-Comique Music. **7.45,** 'Cello Solos. **8.0,** Marseilles Programme of Literature and Music. **8.30,** Viennese Music. **8.45,** Accordion Music. **9.0,** Concert by La Sirène Music Society, conducted by M. Ichac. Light Music in the interval. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Arias from Operas. **11.15,** Popular Songs. **11.30 to 12 Midnight,** Programme in English by the I.B.C., arranged by the International Broadcasting Company of London. W. Brown-Constable announcing. **11.30,** Dance-Tune Memories. Song of Happiness; The Longer that you linger in Virginia; The Queen was in the Parlour; O Donna Clara; I'm happy when I'm hiking; Moonlight on the Colorado; You will remember Vienna; The Love Waltz. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Thursday),** Bal Musette. **12.15,** Military Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.10 to 6.10 p.m.,** Concert by the Lute Quartet. Pastorale (Boccherini-Vizzari); Ochsen Menuett (Hadyn). Mandoline Solo: Serenata Lombarda (Alfieri). Guitar Solo: Canto d'amore (Munier); Träumerei (Schumann); An den Frühling (Greig). Mandoline Solo: Racconto strano (Calace); Mazurka (Calace); La capricieuse (Elgar); Festa del villaggio (Cannas); Spanish Fantasy (Redenghieri). **6.35** till Close Down, See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

273.7 metres; 7 kW. Relayed by **Milan, 331.5 metres; Genoa, 312.8 metres;** and **Florence, 500.8 metres.**—**5.10 to 6.10 p.m.** Song Recital. **6.35,** Giornale Radio, and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report and Gramophone Records of Songs and Dances. **7.20,** Giornale Radio. **7.45,** Gramophone Records of Variety Music. **8.0,** Announcements, Report of the Cycle Tour of Italy, Giornale Radio and Weather. **8.15,** Medical Talk. **8.20,** Concert in Celebration of the National Festival. Marcia Reale Italiana. Giovinezza (Blanc). Fascist Hymns: (a) The March of the Legions, (b) Hymn of the University Students, (c) Hymn of the Young Fascists. Triumphal Ode, II Decennale (Blanc). **9.0,** (approx.). A Comedy, followed by Gramophone Records of Light Music. **11.0,** Giornale Radio. **11.5 (Florence only),** Dance Music from the Chez moi, Rajola. **11.30** (approx.), Close Down.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 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 metres.**—**6.45 p.m.,** Report on the Industrial Outlook in Austria. **7.0,** Concert by the Pepi Wichart Schrammel Quartet. **7.50,** Time, Weather and Programme Announcements. **8.0,** Talk: The House of Austria (1526-1718). **8.25,** Two One-Act Plays (Raoul Auernheimer): (a) The Older Branch—Comedy, (b) The Bridge of Lies—Farce. **9.40,** News and Announcements. **9.55,** Concert by the Oscar Jascha Orchestra.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.40 a.m.,** Polish Press Review. **11.50,** Aviation Weather Report. **11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Light Music on Gramophone Records. **12.30,** Weather Report. **12.35,** Last Concert for Schools by the Philharmonic Orchestra, conducted by J. Oziminski. Soloists: Mme. S. Rabcewicz (Pianoforte) and G. Czapliéki (Songs). Introductory Talk; Overture, Bajka (Moniuszko); Larghetto and Finale from the Concerto in F Minor (Chopin); Three Songs (Moniuszko); Song, Le Guerrier (Chopin); Tarantella (Chopin); Dances from Halka (Moniuszko); Mazurka (Moniuszko). **2.0 to 3.10,** Interval. **3.10,** News Bulletin. **3.15,** Economic Report. **3.30,** Talk for Boy Scouts. **3.35,** Programme for Children. **4.0,** Popular Music on Gramophone Records. **4.40,** Talk in Ukrainian: Simon Petlura. **5.0,** Talk for Teachers. **5.15,** Light Music on Gramophone Records. **5.40,** Talk on Trades. **5.55,** Programme Announcements. **6.0,** Light Music Relay. News in the interval. **7.0,** Miscellaneous Announcements. **7.20,** Agricultural Correspondence. **7.30,** Literary Talk. **7.45,** Radio Journal. **8.0,** Variety Programme. **9.0,** Sports Notes. **9.5,** Radio Journal. **9.10,** Pianoforte Recital by Leopold Muenzer: Sonata in G (Mozart); Rondo (Huminel); Three Sonatas (Scarlatti); Two Impromptus (Schubert); Scherzo in B Minor (Mendelssohn); Rondo capriccioso (Mendelssohn); Wedding March from A Midsummer Night's Dream (Mendelssohn-Liszt); Three Etudes (Liszt). **10.0,** Topical Talk. **10.15,** Dance Music. **10.40,** Talk on Dreams. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music Relay.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY

MAY THE TWENTY-FIFTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Contrasts, a feature programme. Military Band.
LONDON REGIONAL	"Aucassin and Nicolette," a mediæval romance.
MIDLAND REGIONAL	"Etc. . . . Etc., one inconsequential thing after another," feature programme.
NORTH REGIONAL	The Yorkshire Mummers' Concert Party.
WEST REGIONAL	Orchestral and choral concert.
SCOTTISH REGIONAL	"Dunach," a short play in Gælic, by Don Robertson.
BELFAST	Light orchestral concert.

ABROAD

BERO-MUNSTER	8.0 p.m. Opera: "The Bridge of Sighs," by Crémieux and Halévy, from Basle.
BUCHAREST	7.40 p.m. The St. Matthew Passion, by Bach.
COPENHAGEN	9.0 p.m. Operetta: "A Waltz Dream," by Oscar Strauss.
HEILSBERG	8.20 p.m. Opera: "Hanneles Himmelfahrt," by Paul Graener.
HILVERSUM	7.50 p.m. Beethoven Concert, conducted by W. Mengelberg, from Amsterdam.
LANGENBERG	9.0 p.m. Symphony Concert, conducted by Buschkötter.
POSTE PARISIEN	9.15 p.m. Ravel Concert.
TURIN	9.0 p.m. Opera: "I Puritani" (Verdi), from the Politeana Fiorentino (relayed by **Florence, Genoa, Milan, Rome and Trieste**).
VIENNA	9.0 p.m. The Nelson Mass, by Haydn.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, and Popular Music on Gramophone Records. **6.0,** Programme for Children. **6.40,** News and Dublin Cattle Market Report. **7.0,** French Lesson. **7.15,** Programme by Val Vousden (Entertainer). **7.30,** Time Signal. **7.31,** The Station Orchestra. **8.0,** Bass Solos by P. W. Dockery. **8.15,** Pianoforte Recital by Lilian Conolly. **8.35,** Variety Half-hour by Tom Madden and Company. **9.5,** Light Music by the Station Orchestra. **9.25,** Soprano Solos by K. McCaffery. **9.45,** Sponsored Programme. **10.45,** Time, News, Weather, and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Trio. **8.0,** Request Gramophone Records. **8.30,** Exchange and Talk on Catalonian Literature, relayed from the University. **9.0,** Request Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather, and Exchange. **10.5,** Concert by the Station Orchestra: March, Imperial Edward (Sousa); En el patinillo (Rodriguez Rosés); A los toros (Turina). **10.30,** Programme by Pilar Cañete (Argentine Artist). **11.0,** Casa't mama—Comedy in Two Acts (Paol Aragay). 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 Report, Tourist Talk and Dopolavoro Announcements. **8.20,** Giornale radio, Sports Notes and Weather. **8.30,** Time and Announcements. **8.40** (approx.), Concert by a Military Band, conducted by Salvatore Rubino: Overture, Tannhäuser (Wagner); Selection from L'amico Fritz (Mascagni); Pastorale from the Quintet, Op. 37. No. 2 (Boccherini); Minuet from the Quintet. No. 6 in E; Concert Allegro, Moto perpetico (Paganini); Selection from Adrienne Lecouvreur (Cilea); Descriptive Piece, Reminiscences of Apulia (Van Westerhout). In the interval, Talk on Wireless. **10.30,** Light Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.30 p.m.,** Slav Music by the Radio Orchestra. **8.30,** Folk Music, Songs and Wind Instrument Concert. **10.15,** News Bulletin. **10.30** (approx.), Music relayed from the Ratnicki Dom.

BERLIN

DEUTSHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Violin Recital on Gramophone Records. **2.30,** Programme for Children. **3.0,** Talk: The Stars in German Folk Songs, Legends and Customs. **3.30,** Talk; Women in Modern Germany. **3.50,** Talk and Readings. The Letters of Caroline Schlegel-Schelling. Caroline von Humboldt. Clara Schumann and others. **4.10,** Violin and Pianoforte Recital by Erich Röhn and Helmuth Hidegethi: Prelude and Allegro (Pugnani); Romance (Svendsen); Hungarian Dance No. 2 (Brahms-Joachim); Waltz (Tchaikovsky); Andalusian Serenade (Sarasate). **4.45,** Programme from **Hamburg. 5.5,** Variety Concert. **6.0,** See **Leipzig. 7.0,** The Adventurer—Play (after the short story by Joseph von Eichendorff, arr. Günther Eich). **8.0,** See **Stuttgart. 9.0,** See **Frankfurt. 10.15,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0, Programme from Langenberg. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.20 p.m.,** Orchestral Concert, conducted by Clement Schmalstich: Suite, Auf der Wanderschaft (Klughardt); Waltz, Mein Lebenslanf ist Lieb und Lust (Jos. Strauss). **4.45,** Programme from **Hamburg. 5.5,** Spring Songs by the Station Orchestra, conducted by Maximilian Albrecht. **5.20,** Concert (contd.): Der Tag von Potsdam (Schmalstich). Accelerationen-Walzer (Joh. Strauss); Sonnenmeer, from Jubelnder Sommer (Leuschner); Invitation to the Dance (Weber); Hungarian Rhapsody No. 2 (Liszt). **6.10,** Talk on Exemplary Lives. **6.30,** Song Recital by Rudolf Watzke (Bass-Baritone). **6.55,** Märkische Himmelfahrt—Radio Play, (Ernst Keienburg). **8.0,** Announcement. **8.5,** Concert by the Station Orchestra, conducted by Dr. Helmut Thierfelder; Soloist: Rosalind von Schirach (Soprano): Overture and Song from Figaro (Mozart); Liebesgeständnis (Nicodé); Song, Und ob die Wolkesie verhülle, from Der Freischütz (Weber); Waltz, O schöner Mai (Joh. Strauss); Selection from Peer Gynt (Grieg). **9.0,** A Radio Report, by Hans Heinz Mantau and Fred Krüger. **9.20,** Concert (contd.): Overture, Oberon (Weber); Elsa's Dream, from Lohengrin (Wagner); Tarantella, from Venetia e Napoli (Liszt); Lyrical Monologue from Doge und Dogaressa (Roselius); Military March (R. Strauss). **10.0,** Weather, News, and Sports Notes. **10.15** (approx.), Dance Music. In the interval at **10.50** (approx.), By their Deeds ye shall know them—a Satirical Radio Sequence, with Poems. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischsr Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.40 p.m.,** Talk arranged by the International Labour Bureau. **7.55,** Lottery Results. **8.0,** Talk on Wine. **8.15,** News. **8.30,** Par Droit de Conquête—Comedy (Legouve).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**6.40 p.m.,** Concert by the Station Band, conducted by K. Nagl. **7.10,** Talk for Housewives. **7.15,** Gramophone Music. **7.25,** See **Moravská-Ostrava. 8.0** till Close Down, 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.—2.40 p.m.,** Talk: Spring in the Iser Gebirge. **3.0,** Talk: Silesian Art and the Modern Generation. **3.30,** Hans Henning Baron Grote reads from his own Works. **4.0,** Concert by the Station Orchestra, conducted by Franz Marszalek; Soloists: Hellmut Hallendorf (Tenor) and Bruno Janz (Violin): Overture, Mignon (Thomas); Ballet Scene for Violin (Bériot); Puppenwalzer, from Die Puppenfee (Bayer); Selection from Manon Lescaut (Puccini); Valse lente and Pizzicato, from Sylvia (Delibes); Selection from Das süsse Mädel (Reinhardt). **5.30,** Silesian Variety Programme. **6.0,** See **Leipzig. 7.0,** Weather for Farmers and Sports Report. **7.30,** Programme of Children's Songs, Folk Songs, Maxims, and Legends, by a Children's Choir, the Station Orchestra conducted by Ernst Prade, Margarete Raabe and Hermann Gaupp. **8.30,** Announcements. **8.40,** Military Band Concert. **10.0,** Time and News. **10.30,** Programme from **Langenberg. 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.25 p.m.,** Balalaika Concert of Russian Folk Music. **8.0** till Close Down, See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**10.0 a.m.,** Extracts from Mignon — Opera (Thomas), on Gramophone Records. **11.0,** Concert by Mickey's Club Jazz Attraction, conducted by M. Langlois. **12 Noon,** Gramophone Concert. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Farfadet (Adam); Waltz from Eva (Lehár); Selection from A Masked Ball (Verdi); Violin Solo: Polichinelle (Kreisler); A Musical Story (Wetzel-José); Selection from White Horse Inn (Stolz-Benatzky); Serenade (Bonincontro); Foxtrot (Romberg). **5.0,** Concert by the Station Orchestra, conducted by Franz André; Harlequin (d'Ollone); Air from Daphnis et Chloé (Offenbach); Extracts from Le Chemin du Paradis (Heymann); Farandole (Dubois). **5.30,** Programme for Children. **6.0,** Talk: Art in the Home. **6.15,** The Clock Symphony (Haydn) on Gramophone Records. **6.30,** Concert of Popular Music by the Small Station Orchestra, conducted by P. Leemans. **7.15,** Talk for Workers. **7.30,** Le Journal Parlé. **8.0,** Concert by the Station Orchestra, conducted by F. André; Soloist: Mme. Hélène Cortès (Songs); Norwegian Rhapsody (Lalo); La Féria (Lacôme); Pantins et poupées (de Taye); Songs: (a) L'alouette (Granier), (b) Aime-moi (Bemberg); Petite Suite (Ibert). **8.45,** Talk. **9.0,** Concert (contd.): Spanish Dances (Falla); Four Viennese Pieces (Kreisler); Humorous Scenes (Leonard); Songs: (a) Love Song (Scotto), (b) To the Stars (Denza); Danse macabre (Saint-Saëns); Sound Film Novelties. **10.0,** Le Journal Parlé. **10.10,** Popular Music on Gramophone Records. **11.0,** Concert by the Alexys Orchestra, relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**11.0 a.m.,** Gramophone Concert of Light Music. **12 Noon,** Concert by the Small Station Orchestra, conducted by M. Leemans: March from Madame Pompadour (Fall); Viennese Waltzes (Gilson); An den Frühling (Grieg); Ballet du printemps (Thomas); Variations (Proch), on a Gramophone Record; Melody (Rubinstein); Overture, Light Cavalry (Suppé). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert; Part I: Sacred Music; Part II: Variety Music: Egyptian March (Strauss); Frühlingserwachen (E. Bach); Feldeinsamkeit (Brahms); Selection from La Boite à joujoux (Debussy); Oriental Dance (Glazunnov). **5.0,** Gramophone Concert: Selection from Aïda Verdi); Cantate héroïque (De Vocht); Andante religioso (Lang); Elegiac Melody (Grieg); On Wings of Song (Mendelssohn); Mephistowalzer (Liszt). **5.45,** Programme for Children. **6.30,** Programme arranged by the J.V.K.A. **7.15,** Talk for Catholics. **7.30,** Programme for Women. **8.0,** Concert by the Symphony Orchestra, conducted by M. Jean Kumps; Soloist, M. Tontenel (Baritone): Spanish Rhapsody (Ravel); Pacific No. 231 (Honegger); Finale from Wallenstein (d'Indy). **8.45,** Talk on the Encyclical Rerum Novarum. **9.0,** Concert (contd.): Symphonic Variations on Istar (d'Indy); Baritone Solos: (a) Popular Flemish Song, Ik zag Cecilia komen, (b) Der Doppelgänger (Schubert); Two Basque Songs for Orchestra (Kumps); Baritone Solos: (a) Annie Laurie, (b) Popular Italian Song, Ti voglio bene assai; Slav Dances (Dvorák); De Vlaamsche Leeuw (Miry). **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert of Popular Music: The Clock is playing (Blaauw); Potpourri of Strauss Music: Cherry Blossom (Yoshitomo); Parody on Liszt's Second Rhapsody; Polka, Perles de cristal (Hamel); The Rosary (Nevin); No, No Lulu (Valny); Potpourri of Operetta Music by Offenbach. **11.0,** Dance Music from the Century Hotel, Antwerp.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Dinico Orchestra. In the interval at **6.0** Radio Journal. **7.0,** Educational Talks. **7.30,** The St. Matthew Passion (Bach), by the Radio Orchestra and the Bach Choir, conducted by Victor Bickerich. After the Programme, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **7.40 p.m.** till Close Down.—**5.30 p.m.,** Concert conducted by Otto Berg: Selection from Mignon (Thomas); Selection from The Pearl Fishers (Bizet); Waltz from Faust (Gounod); Selection from Samson and Delilah (Saint-Saëns); Selection from Thaïs (Massenet); Melodies from Lakmé (Delibes); Ballet Music from Hérodiade (Massenet). **7.0,** Programme for Young People. **7.30,** Sports and Racing Results. **7.40,** Recital of Hungarian Songs by the Karl Bura Orchestra and Soloists. **8.50,** Arme gute Anna—Comedy in Three Acts (Grete Harsanyi). **10.30,** News, followed by Dance Music from the Café Patria.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW. and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by Jogens Hansens Instrumental Ensemble: Overture, The Italian Girl in Algiers (Rossini); Waltz, from Faust (Gounod); Melody (Müller); Entr'acte from La Colombe (Gounod); Albumblatt, Op. 19 (Andersen); Chanson javanaise (de Sévérac); Minuet from the String Quartet in D (Mozart); Scherzo (Schubert). **1.30,** Programme for Boys. **2.0,** Gramophone Concert: Else Knepel, Hans Clemens, and Choir. Air and Pilgrims' Chorus from Tannhäuser (Wagner); Tancredi Pasero; Ferrando's Aria from Act I of Il Trovatore (Verdi); Claire Dux: Marie Wiegenlied (Reger); Minstrels (Debussy); Yehudi Menuhin: The Flight of the Bumble Bee (Rimsky-Korsakov-Hartmann); Eric Bertner: My Darling (Heymann and Myers); Richard and Carry: Sans vous (G. Carry); Boswell Sisters: Was that the Human Thing to do? **3.0,** Concert by the Station Orchestra, conducted by Emil Reesen. Soloist: Volmer Holböll (Songs). Overture, The Black Domino (Auber); Swedish Melodies, arranged for Strings (Emil Reesen); Selection from The Jewels of the Madonna (Wolf-Ferrari); Waltz, España (Waldteufel); Tarantella, from the Gipsy Suite (German); Six Danish Songs; Overture, La Mascotte (Audran); Suite No. 1 from Carmen (Bizet); Danse macabre (Saint-Saëns); Anitra's Dance from Peer Gynt (Grieg); Gallop (Lumbye). **5.0** (also relayed by **Skamlebaek** on **31.51 metres**). Divine Service, relayed from the Christiansborg Castle Church. **6.20,** Talk: The Extension of Schooldays, from the Mother's Point of View. **6.50,** Weather. **7.0,** News and Sports Results. **7.15,** Time Signal. **7.30,** Religious Address. **8.0,** Time Signal from the Town Hall. **8.2,** Around the Camp Fire—Scout Programme. Talks, Bugle Calls, Songs, Orchestral Music, Recitations, and Choral Music. **9.0,** A Waltz Dream—Operetta in Three Acts (O. Straus). **10.0,** Recital of Norwegian Poetry. **10.20,** News. **10.35,** Recital of Polish Songs by Eva Bandrowska-Turska. **11.5,** Dance Music by the Erik Tuxen Band, relayed from the Arèna. 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.—**7.0 p.m.,** The Letter Box. **7.15,** Miscellaneous Announcements and News. **7.25,** See **Warsaw. 11.0,** Light Music followed by Dance Music from the Pavillon Restaurant. **12 Midnight,** Fanfare from the Tower of St. Mary's Church.

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. **5.30,** Special Request Concert for Worthing and Littlehampton Listeners. The Blue Danube (Joh. Strauss); The Rose of Tralee (Glover); Spring Song (Mendelssohn); Old Irish airs (Traditional); Highland Fling (Traditional); Sailors' Hornpipe (Traditional); Overture, Morning, Noon and Night (Suppé); Father O'Flynn (Traditional); In

the Gloaming (McGeogh); Serenade (Heykens); A-Roving (Terry); Dance of the Hours (Ponchielli). **6.15,** Concert for Brighton and Hove Listeners. Ready for the River; Pianoforte Solo, I found you; Wedding Bells are ringing for Sally; Pianoforte Solos: (a) Let Love take care of you, (b) One night alone with you; Song of the Drum; When it's Springtime in the Rockies; Song of the Flame; Pianoforte Solo, Big Pond Medley; The Sun is at my Window. **7.0,** Programme in French. **10.0,** Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Dicolians; Just Hummin' along; What makes you so adorable? The King was in the Counting House; Don't tell a Soul; By the Fireside; Long Ago; Goodnight little Girl, Goodnight; Hoch Caroline; We will always be Sweethearts; Sing Brothers; What would you do?; How are you?; Night shall be filled with Music; When the rest of the Crowd goes home. **11.0,** Concert of Violin and Organ Duets, with Songs; The Standard of St. George (Alford); Because (d'Hardelot); Songs: (a) The Drum Major (Newton), (b) The Gay Highway (Drummond); Organ Solo, Love's Old Sweet Song (Molloy); I'll sing thee Songs of Araby (Clay); Song, Stonecracker John (Coates); A Perfect Day (Jacobs-Bond). **11.30,** Celebrity Concert of Gramophone Records; Love me To-night, by Greta Keller; A Day's Broadcasting, by Clapham and Dwyer; That Man of my Dreams, by Sophie Tucker; 'Cello Solo, The Garden of Sleep, by Beatrice Harrison; Siboney, by The Street Singer; I can't just figure it out at all, by Gracie Fields; It don't mean a thing, by the Mills Brothers. **12 Midnight,** Club Concert for Donegal Listeners: Irish Medley (arr. Somers); Songs: (a) My Old Irish Mother (O'Donnell), (b) Terence's Farewell to Kathleen; Violin Solo, The Morning Dew; Song, My Irish Home; Violin Solos: (a) Donegal Hornpipe, (b) Cliff Hornpipe; The Company Sergeant Major (Sanderson); Roses from the South (Joh. Strauss); Songs: (a) My Old Irish Cottage, (b) Ireland, Mother Ireland; Air de Ballet (Herbert); Songs: (a) Ho Jolly Jenkin (Sullivan), (b) A Jovial Monk am I (Audran); Medley, Come back to Erin. **1.0 a.m. (Friday),** Concertina Solos: Bonnie Lass o' bon accord (Skinner); Hornpipe Medley (arr. Dale); The Road to the Isles (Fraser); Orange and Blue (Traditional); Song, Madoline—Waltz Serenade; Lopeziana (Alter); Scottish Reels (arr. Dale); Marilyn (Alter). **1.30,** Popular Concert: Painting the Clouds with Sunshine; Tiptoe through the Tulips; Children of Dreams; I've never seen a smile like yours; I've finished with Lily for ever; My Rose of Stamboul; First you say Yes; Selection from The Good Companions. **2.0,** Dance Music by the Dicolians: The Knave of Diamond; Overnight; The Juggler; Cheerful little Earful; The Japanese Sandman; Well, Well, well; A Waltz of long ago; Jack in the Box; Where is this Lady?; Balloons; Old Father Thames; Always in my Heart; Butterflies in the Rain; Drifting and Dreaming. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres, 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**12 Noon,** Concert by a Darmstadt Orchestra, conducted by Willy Melchior; Soloist, Philipp Kraft (Flute): Overture, Martha (Flotow); Accelerationen-Waltzer (Joh. Strauss); Flute Serenade from Fridericus Rex (Roland); Carillon from the Potsdam Garrison Church (Steger); Suite (Kuhmann); Selection from The Land of Smiles (Lehár); Frankfurter Turnermarsch (Kämpfert). **1.20,** Concert from **Langenberg. 2.30,** Programme for Children. **3.20,** Agricultural Talk. **4.0,** Concert from the Kurhaus, Wiesbaden. In the interval at **4.45,** Report of the Grand Prix from **Hamburg. 6.0,** Talk on Hermann Lietz. **6.25,** Extracts from Pictures of the Time of the Bolshevist Reign in Riga (M. Hunnius). **6.50,** Sports Notes. **7.0,** Variety Programme. **8.0,** See **Munich. 9.0,** Ali Pascha—One-Act Opera (Lortzing). **10.15,** Time, News, Weather, and Sports Notes. **10.45,** See **Munich. 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

Call ha (in Morse), **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 mstres.**—**6.0 p.m.,** See **Leipzig. 7.0,** See **Stuttgart. 7.40,** Sports Notes. **7.55,** Weather. **8.0** (from **Hanover**), Concert of Old Music, relayed from Schloss Marienburg. **9.0,** Announcements. **9.10** (from **Bremen**), National Character in the Folk Song Recital by the Bremen Oratorio Quartet and the Embergh Quartet. Part 1: Slav Music. Folk Songs—Russian: (a) The Cossack and his Girl, (b) The Red Sarafan (arr. Varlamov); Violin Solo, Canzonetta (Tchaikovsky); Two Bohemian Folk Songs: (a) Lebewohl, (b) Das Gänschen; Violin Solo, Heire Kati (Hubay); Two Hungarian Folk Songs: (a) Am Himmel leuchten schon die Sterne, (b) Mein Ungarland. Part II: Music of the Romance Lands: Serenade, Sula Corta Azura (Ceretti); Venetian Gondola Song; Italian Folk Melody Fantasia, Flora (Satori); Basque Folk Song. Part III: German Folk Songs: Prelude for Clavichord and Viola da Gamba (Kühnel); Two Songs: (a) Heidenröslein (Werner, arr. Humperdinck), (b) Der Lindenbaum (Schubert, arr. Rudorff); Sarabande and Aria for Lute (Reusner); Deutschland über alles (Haydn, arr. Mandyczalski). **10.10,** Time and News. **10.30,** Commentary on the Police Sports Festival, relayed from the Police Stadium. **11.0,** Dance Music by the Station Chamber Orchestra, conducted by Gerhard Maasz.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**2.0 p.m.,** Talk for Young People: Youth Hostels. **2.30** (from **Danzig**), Talk: German Scientific Libraries and their Organisation. **3.0,** Sigismund Rustig—Radio Play for Young People, after Marryat's Midshipman Ready. **3.40,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Iphigenia in Aulis (Gluck); Selection from The Miracle (Humperdinck); Spanish Serenade (Mello); Ballet Music from Undine (Lortzing); Overture, Jessonda (Spohr); Suite No. 2 from L'Arlesienne (Bizet); Jota Aragonesa (Albeniz); Waltz from The Arabian Nights (Joh. Strauss). In the interval from **4.45 to 5.5,** Programme from **Hamburg. 5.30,** Talk: Richard Wagner and the Art of Song. **6.0,** Radio Report from the Sarkan Youth Hostel in the Kurische Nehrung. **6.45,** Concert by the Small Station Orchestra: Overture, Masaniello (Auber); Waltz, Ernst und Humor (Strauss); German Dances (Reger); Neapolitan Serenade (Sgambati); Old Minuet (Sgambati); Dance of the Satyrs from A Winter's Tale (Humperdinck); Selection from The Geisha (Jones); March from Der Bärenhäuter (S. Wagner); Waltz, Nordseestürme (Döring). **8.15,** News. **8.20,** Hanneles Himmelfahrt—Opera in Two Acts (Graener). **10.0,** News Bulletin. **10.10,** Dance Music from **Berlin (Witzleben). 12 Midnight,** Close Down.

HILVERSUM

296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**)—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.10 p.m.,** Gramophone Music. **12.40,** Popular Music by Kovacs Lajos and his Dance Band. **1.40,** Interval. **1.55,** Chamber Music by the Hague Trio: Variations in E Flat (Beethoven); Andante con moto in C Minor (Grieg). **2.25,** Gramophone Music. **2.40,** Organ, Soprano and Flute Recital. **3.40,** Programme for Hospitals. **4.10,** Violin Recital by Frits Kok. **4.40,** Programme for Children. **5.10,** Popular Music by the Rentmeester Ensemble. In the interval at **6.10,** Sports Talk. **7.10,** Talk on the Nibelungs. **7.40,** Time, Weather, and News. **7.50,** Beethoven Concert relayed from the Concertgebouw, **Amsterdam.** The Orchestra conducted by Willem Mengelberg. Soloist: Louis Zimmermann (Violin). Overture, Egmont; Concerto for Violin and Orchestra. **8.55,** Gramophone Music. **9.10,** Concert by the Maastreechter Staar Male Voice Choir, conducted by Peter Giele: Le Rossignol (Grétry); O bone Jesu (Palestrina); Ecce quomodo moritur (Händel); Chorus from Tannhäuser (Wagner). **9.30,** Gramophone Music. **9.40,** Concert by Kovacs Lajos and his Dance Band. **10.40,** Gramophone Music. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. **1.40 p.m.** till Close Down, Programme of the Christian Radio Society (N.C.R.V.). **1.40,** Part Relay of the Meeting of the Dutch Young Men's Association, relayed from the New Church, Middelburg. **2.40,** Concert by the Station Orchestra, conducted by Piet van den Hurk, with Recitations. **4.40,** Organ Recital. **5.40,** Concert by the Kunst Naar Kracht Double Male Voice Quartet. **6.40,** Request Gramophone Concert. **7.40,** Gramophone Records. **7.55,** Concert by the Utrecht Municipal Orchestra, conducted by Henri van Goudoever. Soloist: Max Kloos (Bass). The Unfinished Symphony (Schubert); The Kreutzer Cantata for Soloist and Orchestra (Bach). **8.40,** Concert by the Radio Choir. In an interval from **9.0 to 9.10,** News. **10.10,** Orchestral Concert (contd.). Two Movements from the Second Symphony (Mahler); Lieder eines fahrenden Gesellen (Mahler); La Valse (Ravel). **10.10,** Gramophone Concert of Sacred Music. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Results. **8.15,** Scientific Review. **8.30,** Radio Concert. **9.0,** News. **9.15,** Radio Concert. **12 Midnight** till Close Down, Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Tango Band: Goodbye Argentina (Rodriguez); A Media Luz (Donato); Rose Colour (Polito); No te engañes Corazon (Sciammeralla); La Cumparsita (Rodriguez); Mama, Yo quiero un Novio (Collazo); Farolito de mi Barrio (Traditional); El Estandarte (Pizarro). **12.30 a.m. (Friday),** Concert of Popular Songs and Pianoforte Solos: Was that the human thing to do? (Fain); I'm a Specialist (Sale); Just Friends (Klenner); Pianoforte Solo, The Cat and the Fiddle (Kern); My Darling (Heymann); Taught me how to play second Fiddle (Dahl); Her name is Mary (Sievier); Pianoforte Solo, Bow Bells (Sullivan). **12.57,** I.B.C. Goodnight Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.30 p.m.,** Concert. **8.30,** Medical Talk. **8.50,** Concert. **9.20,** Sports Notes. **9.30,** Talk in Esperanto: Visit Lithuania. **9.50,** Concert from the Music of Thomas and Halevy. **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.35 p.m.,** Recitations by Jaakko Korhonen. **7.0,** Harp, Viola and 'Cello Recital. **7.45,** Song Recital. **8.10,** Finnish Music by the Station Orchestra. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Eysoldt. Festival Overture (Leuschner); Dance Suite from The Bartered Bride (Smetana); Waltz, Strandwellen (Lüling); Selection from Preciosa (Weber); Love Song (Elman); Chant russe (Lalo); Tannhäuser Potpourri (Hamm); Humoresque (Dvorák); March, Freiheitshelden (Blankenburg). **2.40,** Talk on the Great Elector. **3.5,** Reading in Dialect. **3.30,** Talk on Sick Benefit Societies. **4.0,** Talk on Heredity. **4.30,** Concert by a Women's and Girl's Choir, conducted by Maria Theresia Muckermann, and the Small Station Orchestra, conducted by Wolf. Part I: Latin and German Songs Celebrating May. Part II: Orchestral Music. Overture, Iphigenie in Aulis (Gluck); Ballet Music from Die Liebesprobe (Mozart); Two German Dances, Nos. 3 and 4 (Beethoven). Part III: May Folk Songs and Music for Recorder, Viola da Gamba, Lute, and Spinet. **6.5,** Talk: Cathedrals in the Upper Rhine District—Speyer, Worms and Mainz. **6.30,** Talk: The German Housewife in the Colonies. **7.0,** Variety Programme. **7.45,** Sports Report. **8.0,** Concert by the Station Orchestra, conducted by Buschkötter. **9.0,** Symphony Concert conducted by Buschkötter. Soloist: Heinrich Mainardi ('Cello). 'Cello Concerto in A Minor (Schumann); Symphony No. 5 (Strässer); Concerto for Strings (Siegl). **10.5,** News and Sports Report. **10.25,** Serenade and Dance Music conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**11.30 a.m.,** Transmission for all German Stations: Auf Christi Himmelfahrt allein—Cantata (Bach) by the Gewandhaus Orchestra, the Choir of St. Thomas' and Soloists. **12 Noon,** Concert by the Leipzig Symphony Orchestra. Soloists: Paul Holzner (Horn), and Theodor Blumer (Pianoforte). Spring Overture (Goetz); Horn Concerto in E Flat, K.447 (Mozart); Idylle and Tanz unter der Dorflinde, from the Tonbilder (Reinecke); Serenade, Op. 33 (Beilschmidt); Selection from Das Nachtlager von Granada (Kreutzer); Waltz, Künstlerleben (Joh. Strauss); Second Suite from l'Arlésienne (Bizet); Heiteres Spiel, Op. 68 (Blumer); Fantasia on the Waltz, Tales from the Vienna Woods (Schütt-Strauss); Comedy Overture (Reznicek). In the interval at **1.0 p.m.,** Reading. **2.0,** Radio Report from an Allotment Garden. **2.40,** Pianoforte Recital by Dr. Alf Nestmann. **3.15,** The Golden Pitcher—Radio Play with Music (Heidecke). **4.45,** Programme from **Hamburg. 5.5,** Songs of Freedom Old and New. **6.0,** The Twenty-Second Musical Festival at Zerbst. The Leipzig Symphony Orchestra and the Friedrichs theater Orchestra of Dessau. Conductor: Artur Rother. Soloist: Albert Fischer (Baritone). Vaterländische Ouverture (Reger); Triumphlied for Eight-Part Choir, Baritone Solo and Orchestra (Brahms). **7.0,** Topical Talk. **8.5,** See **Berlin (Witzleben). 10.0,** News. **10.10,** Dance Music by the Endé Orchestra. **12 Midnight,** Close Down.

LINZ.—See **Vienna.**

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Miscellaneous Items. **7.20,** News. **7.25,** See **Warsaw. 12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—Programme relayed from **Paris (Ecole Superieure) 671 kc/s, 447.1 metres.**

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—**11.30 p.m.,** Programme from **Madrid (EAJ7). 1.0 a.m. (Friday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**3.0,** Chimes, Exchange, Radio Journal, and Programme for Children. **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, Political Review, Relay of European Stations, and Literary Talk, followed by Song Recital by Luisa Nere (Soprano) and Franco Mar (Baritone). **12.45 a.m. (Friday),** News Bulletin. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.25 p.m.,** Concert by the Station Orchestra, conducted by V. Musil. **8.0,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert. **9.0,** News Bulletin. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.30 p.m.,** Orchestral Concert, conducted by Ernst Hagel: Overture, Alessandro Stradella (Flotow); Fantasia from Gaudeamus (Humperdinck); Liebesromanze (Schmalstich); Potpourri, Songs my Mother sang (Borchert); Waltz, Amorettentänze (Gungi); Parade in Lilliput (Kunze); March, Die Jugend marschiert (Lindemann). **5.40,** Talk: Reminiscences of Wagner's Last Birthday Celebrations. **6.0,** Der Prozesshansl—Dialect Play in Four Acts (Ganghofer and Neuert). **7.30,** Hans Johst reads from his Book, Ich glaube. **7.50,** Weather and Sports Notes. **8.0,** Concert of Viennese Music by the Station Choir, Orchestra, and Soloists: Deutschmeister, Regiments - Marsch (Jurek); Vienna Jubilee Overture (Suppé); Stephanie Gavotte (Czibulka); Potpourri of Viennese Folk Music, with Songs (Komzak); Waltz, Wiener Bonbons (Joh. Strauss); March, Wien bleibt Wien (Schrammel); Selection from Cagliostro in Wien (Joh. Strauss); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); March, Erzherzog-Albrecht (Komzak). **9.10** (from **Nürnberg**), Die Fenster auf der Lenz ist da—a Spring Variety Programme. **10.20,** Time, Weather, News, and Sports Notes.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.30 p.m.,** Recital of Sacred Songs by Mme. Thorsen (Soprano), with 'Cello obbligato. **5.50,** Chimes. **6.0,** Divine Service, relayed from the Fagerborg Church. **7.15,** Weather and News. **7.30,** Talk on Trout Fishing. **8.0,** Time Signal. **8.1,** Choral Concert, relayed from the University. **9.10,** Recitations, Weather, and News. **10.0,** Topical Talk. **10.15,** Concert by the Station Orchestra, conducted by Hugo Kramm: Second Suite from L'Arlésienne (Bizet); Piece (Halvorsen); Polichinelle (Rachmaninov); The Nile (Leroux); Spanish Serenade (Albeniz); Humoresque (Spalder); Invitation to the Dance (Weber); Medley of Popular Norwegian Melodies. **11.15** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Agricultural Notes, Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** Concert of Operetta Music. Selection from (a) Il ventaglio (Cusciuà), (b) La Fornarina (Lombardo), (c) L'amante muova, (d) The Girl in the

Taxi (Gilbert). In an interval at 9.30, Casanova in Olanda—One-Act Comedy (De-Stefani). 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 Talk. **7.0,** Le Journal Parlé. **8.30,** Tourist Propaganda Programme, relayed from the Puy de Dôme, Radio Report, Interviews with Local Celebrities, and Musical Programme, followed by Gramophone Concert. Part I: Russian Music: Easter Overture (Rimsky-Korsakov); Cradle Song by the Chauve-souris Choir; Spanish Caprice (Rimsky-Korsakov); Dance (Rimsky-Korsakov); Oriental Dance (Glazunov); March of the Caucasian Chief (Ippolitov Ivanov). Part II, Light Music: Selection from Rose Marie (Friml); Two Songs from Les Mousquetaires au Couvent (Varney); Minuet (Boccherini); Humoresque (Dvorák); Melody (Tabani); The Way to the Heart (Lincke); The Clock in the Black Forest (Richter); Siamesiche Wacht-Parade (Lincke); A travers la nuit vers la lumière (Laukien); Surprise Potpourri (Dostal). **10.30** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Programme for Children. **7.30,** Variety Music on Gramophone Records. **8.0,** Agricultural Talk. **8.15,** Interval. **8.30,** Variety Programme by Max Régnier and his Company. **9.0,** Interval. **9.15,** Ravel Concert: Pianoforte Solo, Foxtrot, Five O'clock from L'Enfant et les Sortilèges; Histoires naturelles; String Quartet. **10.30,** News.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres.—75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Orchestral Concert: Selection from Frederica (Lehár); Extracts from The Love Parade (Schertzinger); Song and March from Un Rêve blond (Heymann); Gramophone Records: (a) Ne sois pas jaloux (Oberfeld), (b) Si tu veux (Moretti); Popular Melodies. In the interval at **1.0,** Exchange, News, and Weather. **1.5,** Concert. Part I: Emile Vacher and his Musette Orchestra. Soloists: Jean Pegroniu, M. Regoram, M. Brainnonval. Part II: Max Francy and his Orchestra. In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.0** (approx.), Running Commentary on the France v. Wales Football Match, relayed from the Stade de Colombes. In the interval at **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Popular Music on Gramophone Records. **6.45,** Legal Talk. **7.0,** Orchestral Concert: Melody from Namouna (Lalo); Dance (Moskowsky); Chair de Lune (Novak); Les Fables de La Fontaine (Monton); Ballet Music from Bonton d'or (Pierné); Divertissement on Russian Songs (Rabaud); Masquerade (Lacôme). **7.45,** Review of the German Press, Commercial Prices, and News. **8.0,** Programme of Poems and Music. **8.30,** News, Weather, and Sports Notes. **8.40,** Review by Christophe. **8.45,** Two Plays: (a) Montluc chez Montaigne (Cublier de Beynac), (b) Le Misanthrope et l'Anvergnat (Labiche). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA); 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK on 48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.55,** Care of the Garden, by Alfred C. Hottes. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from New York. **8.30,** Radio Sky Pilots. **8.45,** State Federation of Pennsylvania Women. **9.0,** Teaberry Baseball Scores. **9.5,** Pages of Progress. **9.30,** Weather Report. **9.32,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Hotel Park Central Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17.** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 4.0 a.m. (Friday),** **New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Pepsodent Amos 'n' Andy. **12.15 a.m.,** A. and P. Programme. **12.30,** Concert Footlights. **12.45,** Merle Thorpe Talks. **1.0,** Captain Diamond's Adventures. **1.30,** Rin Tin Tin Thrillers. **1.45,** Thurston, the Magician. **2.0,** Death Valley Days. **2.30,** Wayne King's Orchestra, with Lady Esther. **3.0,** Time Signal, and Green Brothers' Musical Varieties. **3.30,** Radio City Variety Programme.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.0 kW.—**6.50 p.m.,** Miscellaneous Announcements and News. **7.10,** Agricultural Letter Box. **7.25,** See **Warsaw.** **7.58,** Time Signal. **8.0,** Orchestral Concert conducted by Vladyslaw Raczkowski. Soloist: Mlle. Barbara Lasinka (Pianoforte). Concerto grosso (Händel); Concerto in D Minor for Pianoforte (Bach); Lux Dei (Gorczycki). **8.45,** Spring Song Recital by Mme. Wanda Roessler-Stokowska (Mezzo-Soprano). **9.10,** Arias from Opera by Roman Heysing (Baritone): An Old Legend (Zelenski); Halka (Moniuszko); Die Gräfin (Moniuszko); Prince Igor (Borodin); Faust (Gounod); Lakmé (Delibes). **10.0,** Time Signal, Sports and Police Notes. **10.15** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.0 p.m.,** Military Band Concert, conducted by Prokop Oberthor, relayed from the Slovansky Ostrov. Festival Entry March (Oberthor); Overture, The Secret (Smetana); Slav Rhapsody No. 1 (Dvorák); Overture, The Mastersingers (Wagner); Tarantella (Bendl); Three Czech Dances, Op. 15 (Novak); 1812 Overture (Tchaikovsky); Sokol Festival March (Suk). **6.0,** German Transmission: Folk Songs and Spring Songs by a German Choral Society. **7.0,** Concert by the Prague Piano-Accordion Quartet. **7.25,** See **Moravská-Ostrava.** **8.0,** Marriage—Comedy in Three Acts (Gogol). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Concert of Light Music. **11.0** (approx.), 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**), Topical Talk. **7.30** (from **Geneva**), Weather, News, and Announcements. **8.0** (from **Geneva**), Vibraphone Solos. **8.15** (from **Geneva**), The Optimists — Musical and Literary Cabaret. **9.0,** Concert by the Station Orchestra. **9.50,** News and Weather. **10.0,** Concert (contd.). **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (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.**—**1.0 p.m.,** Humorous Talk. **1.5,** Report on the Cycle Tour of Italy Cycling Race. **1.10 to 2.15,** Variety Concert from **Turin.** In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.0,** Report on the Cycle Tour of Italy Cycling race. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.30,** Soloist Concert, Mary Luisa Sardo (Violin), Maria Briganti (Soprano), Maria Williams (Mezzo-Soprano) and Clara Sardo (Pianoforte). Violin Solos: (a) Slav Fantasia (Dvorák), (b) Serenata spagnola (Carnevali-Corti); Soprano Solos: (a) Ave Maria, from Othello (Verdi), (b) Arietta from Le donne curiose (Wolf-Ferrari), (c) Aria from Anna Bolena (Donizetti); Syncopated Music for Pianoforte; Mezzo-Soprano Solos: (a) Aria from Ruy Blas (Marchetti), (b) Aria from Don Carlos (Verdi); Violin Solos: (a) Malaguena (Sarasate), (b) Moto perpetuo (de Guarnieri). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.10,** Tourist Report. **7.20,** Giornale Radio. **8.0,** Time and Announcements. **8.5,** Summary and Notes on the Day's Results of the Cycle Tour of Italy. **8.15,** Gramophone Records of Light Music. **8.30,** Giornale Radio and Sports Notes. **8.50** (approx.), See **Turin.** In the interval: Talk on Literature and Art, Recitations and Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.**—**11.45 p.m.,** Stock Reports and Baseball Scores. **12 Midnight,** Fleischmann Hour, from **New York.** **1.0 a.m. (Friday),** Capt. Henry's Show Boat, from **New York.** **2.0,** Lucky Strike Hour, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12 Noon** (from **Zürich**), Concert by the Swiss Radio Orchestra. **12.28 p.m.,** Time and Weather. **12.30,** News Bulletin. **12.40** (from **Zürich**), Concert (contd.). **1.30** (from **Basle**), Agricultural Programme. **2.0** (from **Basle**), Concert of Light Music by the Münchenstein Society. **2.30 to 5.0,** Interval. **5.0** (from **Basle**), Organ Recital on Gramophone Records. **5.30** (from **Basle**), Protestant Address. **6.0** (from **Basle**), Recital of Italian Arias and Songs on Gramophone Records. **6.30** (from **Basle**), Reading from I Promessi Sposi (Manzoni), with Introductory Talk. **7.0** (from **Basle**), Time and Sports Notes. **7.10** (approx.), Songs on Gramophone Records. **7.30** (from **Basle**), Talk in Berne Dialect. **8.0** (from **Basle**), The Bridge of Sighs—Opera in Four Acts (Crémieux and Halévy). In the interval at **9.10,** News Bulletin. **10.20** (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.30 p.m.,** Gramophone Music. **5.30,** Reading. **6.0,** Evensong, relayed from **Uppsala, 662 kc/s, 453.2 metres.** **7.15,** Weather and News. **7.30,** Orchestral Concert of Light Music. **8.5,** Professor Bernhardi—Comedy (Schnitzler). **9.45,** Weather and News. **10.0,** Concert of Swedish Music by Iva Aulin-Voghers (Songs), Astrid Berwald (Pianoforte), and Charles Barkel (Violin). Three Songs (Sjögren); Pianoforte Solos: (a) Two Pieces from Strofer i sol och skugga (Seymer), (b) Intermezzo (Stenhammar), (c) Impromptu (Fryklöf); Violin Solos: Idyll, Cradle Song and Humoresque from Fyra akvareller (Aulin); Songs: (a) Vid havet (Aulin), (b) Giorgiones serenad (Aulin), (c) Piece (Stenhammar). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**10.0 a.m.,** Gramophone Concert of Classical Music. **11.30,** Catholic Service in French. **12 Noon,** Gramophone Concert of Variety Music. **12.45,** News. **1.0,** Time. **1.1,** Orchestral Concert, conducted by Maurice de Villers: Festival Overture (Lentner); Selection from Madame Chrysanthème (Messager); Orchestral Suite, On the Volga (Dyck); Popular Romanian Dances (Béla-Bartok); Divertissement on Russian Songs (Rabaud); Scherzo (Lalo). **2.0,** Programme for Children. **3.0,** Pianoforte Recital by Wanda Landowska, relayed from **Paris (Radio Coloniale), 15,243 kc/s (19.68 metres).** **4.0 to 4.45,** Interval. **4.45,** French Elocution Lesson. **5.0,** Concert of Jazz Music, conducted by Roskam. **6.0,** Talk in German: Old Castles on the Loire. **6.15,** Talk for Housewives. **6.30,** Orchestral Concert, conducted by Maurice de Villers: March, Sambre et Meuse (Planquette-Turlet); Valse des brunes (Ganne); Overture, Raymond (Thomas); Selection from I Pagliacci (Leoncavallo); Violin Solo, Légende (Wieniawsky); Carnival (Guirand); Orchestral Suite, Gitaneries (Razigade); March, Le coq gaulois (Popy). **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Lottery Results, Announcements, and Light Music on Gramophone Records. **8.30,** Organ Recital by V. Dusch, relayed from the Catholic Church in Erstein: Fantasia and Fugue in G Minor (Bach); Melody (Reger); Andante gracioso (Hesse); Scherzo (Gigout); Canzone (Guilmant); Adagio from the Fifth Symphony (Widor); Rhapsody No. 2 on Breton Songs (Saint-Saëns). **9.30,** Orchestral Concert, conducted by Jacquet, relayed from the Café Moll in Mulhouse: Overture, Zampa (Hérold); Waltz, La rose noire (Aubry); Trio from Tannhäuser (Wagner); Séduction (Accordi); Introduction and Rondo capriccioso for Violin and Pianoforte (Saint-Saëns); In the Mystic Land of Egypt (Ketelbey); Selection from I Pagliacci (Leoncavallo). **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.0 p.m.,** Concert by the Württemberg Protestant Young Men's Association, relayed from **Reutlingen.** Address by the President of the Association. **2.0,** In May—Gramophone Concert. **2.45** (from **Karlsruhe**), Choral Concert. **3.15,** Talk: Swabian Architecture. **3.45,** Programme for Young People. **4.45,** Radio Report of the Grand Prix Horse Races from **Hamburg.** **5.15,** Concert of Old Viennese Dances by the Radio Orchestra, conducted by Gustav Görlich. Fiaker-Marsch (Reidhardt); Waltz, Märchen aus Alt-Wien (Ziehrer); Polka, Wiener Type (E. Strauss); Waltz, Sinngedichte, Op. 1 (Joh. Stranss); Polka, Rutscherpeter (Ziehrer); Da gehn wir halt nach Nussdorf 'naus (Lorens). **6.0,** Sports Notes. **6.20,** Reading of Swabian Poems and Recital of Swabian Songs. **6.50,** Im Krug zum grünen Kranze—Gramophone Records. **7.30,** Programme for Soldiers—Relay from a Barracks. **8.0,** Variety Programme. **9.0,** Operetta Concert by the Württemberg Orchestra, conducted by Gustav Görlich. Soloists: Gerda Hansi (Soprano) and Hans Hanus (Tenor). Overture, Grigri (Lincke); Two Songs and Duet from A Carnival in Rome (Joh. Stranss); Mimosa Waltz from The Geisha (Jones); Song and two Duets from The Cousin from Nowhere (Künneke). **10.0,** Time and News. **10.30,** Gramophone Records of Famous Instrumentalists. **10.45,** See **Langenberg.** **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to fire.—**6.0 p.m.,** News. **6.15,** Saxophone Solos. **6.30,** Opera Music. Selection from: (a) Lakmé (Delibes), (b) Thaïs (Massenet), (c) Romeo and Juliet (Gounod), (d) The Tales of Hoffmann (Offenbach). **6.45,** Petite Suite (Debussy). **7.0,** Balalaika Music and Russian Songs. **7.15,** Racing Results, Market Prices, and News. **7.25,** Local News Bulletin. **7.30,** Concert of Viennese Music. **8.0,** Light Music. **8.15,** 'Cello Solos: Prelude to Le Déluge (Saint-Saëns); Agnus Dei (Bizet); Le Cygne (Saint-Saëns). **8.30,** Recitations. **8.45,** Instrumental Solos. **9.0,** Extracts from La Basoche—Opera (Messager). **9.40,** Instrumental Music. **10.0,** Popular Melodies. Chanson d'avril (Bizet); Le Passeur du printemps (Goublier); Song (Beethoven). **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. Lake Como (Galos); L'Angélus de la mer (Goublier); Hindu Song (Rimsky-Korsakov); Prelude (Rachmaninov); La Ronde des heures (Sylviano); Selection from Si j'étais roi (Adam). **11.0,** Sound Film Music. **11.15,** Organ Recital. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown-Constable announcing. **11.30,** Hawaiian Music. My Waikiki Mermaid; Hawaiian Skies are gleaming; La Paloma; Pasadena Rose; O Sole Mio; Life; Maria Mari; Poor Kid. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Friday),** Songs from Operettas. **12.15,** Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 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.**—**5.0 p.m.,** Report on the Cycle Tour of Italy. **5.10 to 6.0,** Concert by the Eliseu Cigány Quartet. **6.35,** Giornale Radio, Sports Notes, and Agricultural and Dopolavoro Notes. **7.0,** Time, Tourist Report and Gramophone Records of Light Music. **7.20,** Giornale Radio. **7.45,** Gramophone Records of Variety Music. **8.0,** Announcements, Report on the Cycle Tour of Italy, Weather and Light Music on Gramophone Records. **8.50,** Talk on the following Transmission. **9.0,** I puritani—Opera in Three Acts (Verdi), relayed from the Politeama Fiorentino. In the intervals: Literary Notes and Giornale Radio.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.26 metres (Evening);** 10 kW.—**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; 15 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.**—**6.45 p.m.,** Weekly Microphone Feuilleton: Die Dichterquelle von Vaucluse (E. Kästner-Michaltschke). **7.5,** Woman in Operetta, Dance and Song; Concert by the Josef Holzer Orchestra and Soloists. **7.50,** Time and Announcements. **7.55,** Concert (contd.). **8.45,** Topical Talk. **9.0,** The Nelson Mass (Haydn). The Hofmusikkapelle, conducted by Carl Luze; Soloists: H. Sandler (Soprano), E. Tanterl (Contralto), Richard Tomek (Tenor) and Rudolf Zeindler (Bass). **10.0,** News. **10.15,** Dance Music from Hübners Parkhotel Schönbrum.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**12.15 p.m.,** Concert by the Philharmonic Orchestra, conducted by S. Kazuro. Soloists: H. Werpachowska, C. Izygryn, H. Bielicka, K. Norska, M. Bulat-Mironowicz, M. Ochalski and W. Prusak. Extracts from The Creation (Haydn); Et incarnatus est from the Mass in B Minor (Bach); Extracts from The Messiah (Händel); Children's Songs (S. Kazuro). In the interval, Talk. **2.0,** Agricultural Talk. **2.20,** Polish Music, relayed from **Cracow, 959 kc/s (312.8 metres).** In the interval at **2.40,** Dialogue. **4.0,** Programme for Children. **4.25,** Gramophone Records. **4.45,** Talk: Dogs and Children. **5.0,** Violin Recital by Irene Dubiska: Two Hungarian Dances (Brahms); Scottish Fantasia (Bruch); Thema grandino (Huarte); Rondalla aragonesa (Granados); Bulgarian Rhapsody (Vladigerov). **5.55,** Programme Announcements. **6.0,** Dance Music from a Café. News in the interval. **7.0,** Miscellaneous Items. **7.25,** Dramatic Programme. **8.0,** Concert by the Radio Orchestra, conducted by S. Navrot: Overture, Faust (Gounod); Invitation to the Dance (Weber-Berlioz); Introduction and Aria from Eugène Onegin (Tchaikovsky); Solos (to be announced); Intermezzo and Barcarolle from The Tales of Hoffmann (Offenbach); Waltz from Eugène Onegin (Tchaikovsky); Introduction to Act II of Carmen (Bizet); Cracovienne fantastique (Paderevsky); Overture, Raymond (Thomas); Berceuse de Jocelyn (Godard); Mazurka, Obertas (Wieniawski); Solos (to be announced); Extracts from Un Bal costumé (Rubinstein); Suite campestre (Amadei); Romance (Renéc); Minuet (Bolzoni); Mazurka (Mlynarski). In the interval, Sports News. **10.0,** Dance Music Relay. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music Relay.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

MAY THE TWENTY-SIXTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Place names and their history. Recital of light music.
LONDON REGIONAL	Variety programme. Concert of contemporary music.
MIDLAND REGIONAL	Vocal and instrumental concert.
NORTH REGIONAL	Historic cities of the North: Durham.
WEST REGIONAL	Welsh concert.
SCOTTISH REGIONAL	Instrumental concert.
BELFAST	"The Presentation," an Ulster comedy, by Mafe Haughton.

ABROAD

BERLIN (Witzleben)	8.0 p.m. "Schlageter," Drama by Hanns Johst (relayed by other German Stations).
BUDAPEST	7.30 p.m. Opera: "Il Trovatore" (Verdi), from the Royal Hungarian Opera House.
COPENHAGEN	10.25 p.m. Brahms' String Quintet, in F (Op. 88).
LEIPZIG	9.40 p.m. Beethoven's "Eroica" Symphony.
PALERMO	8.45 p.m. Opera: "La Wally," by Catalini.
PRAGUE	8.5 p.m. Concert, conducted by Jirak, from the Municipal Theatre, Teplice-Sanov.
RADIO PARIS	8.45 p.m. Popular Concert by the Garde Républicaine Band.
RIGA	7.15 p.m. Symphony Concert.
ROME	9.0 p.m. Operetta: "The Dance of the Dragonflies," by Lehar.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report and Popular Music on Gramophone Records. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gardening Talk. **7.15,** Literary and Dramatic Talk. **7.30,** Time Signal. **7.31,** Irish Music by the Station String Orchestra. **7.50,** Anglo-Irish Songs by P. J. Duffy (Baritone) and Mrs. Duffy (Mezzo-Soprano). **8.5,** Pianoforte Solos by Carl Hardebeck. **8.20,** Ballad Selection by the Station Orchestra. **8.35,** Favourite Songs by P. J. Duffy and Mrs. Duffy. **8.45,** Dramatic Programme by the Mummers. **9.15,** Programme by Jack MacGarvey (Entertainer). **9.35,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time, News, Weather and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Concert by the Station Trio. **8.0,** Request Gramophone Records. **8.30,** Exchange. **9.0,** Request Gramophone Records and News. **10.0,** Chimes from the Cathedral, Weather, Messages for Seamen and Exchange. **10.10,** Concert by the Station Orchestra: Overture, The Ruins of Athens (Beethoven); Prelude to Act III of The Mastersingers (Wagner). **10.20,** Dance Music. **11.0,** Reading. **11.15,** Concert by the Philharmonic Mandoline Orchestra, conducted by Felix de Santos Sebastian: Adagio and Allegretto from the Sonata No. 14 (Beethoven); Minuet in G Minor (Mozart); Ave Maria (Gounod); Selection from La reina mora (Serrano); An den Frühling (Grieg); Sardana, Camprodon (Manén). **12 Midnight,** News and Popular Music on Gramophone Records. **1.0 a.m. (Saturday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report. Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.40** (approx.). Concert of Opera Music; Soloists: Milena Barberio (Soprano) and Franco Signorile (Tenor): Overture. I promessi sposi (Ponchielli); Soprano Solo: Aria from Gianni Schicchi (Puccini); Tenor Solo: The Stars were shining, from Tosca (Puccini); Selection from La rondine (Puccini); Soprano Solo: Ora non soffro più, from Lodoletta (Mascagni); Tenor Solo: Amor ti vieta, from Fedora (Giordano); Two Arias from L'Arlesiana (Cilea); Prelude to L'Amico Fritz (Mascagni); Soprano Solo: Adolescente ancor from Dejanice (Catalani); Tenor Solo: Testa dorata from La Bohème (Leoncavallo); Prelude to Act I of William Ratcliff (Mascagni); Soprano Solo: Io son l'umile ancella from Adriana Lecouvreur (Cilea); Tenor Solo from Madame Butterfly (Puccini); Tarantella from Sicilian Vespers (Verdi); Theatre Notes in the interval. **10.30,** Popular Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.20 p.m.,** Talk for Sokols. **8.0,** Recital by Milica Móc and Ciril Licar: Variations and Fugue on a Theme of Beethoven (Reger); Scherzo, Op. 37, for Two Pianofortes (Saint-Saëns). **8.45,** Song Recital by Majda Georgijevic-Pabst: Gavotte from Manon (Massenet); Villanelle (Del' Acqua); Melody (Taclick); Ein Schwan (Grieg); Spanish Song (Balakirev); Aria from The Bartered Bride (Smetana); Aria from The Merry Wives of Windsor (Nicolai). **9.15,** Concert of French Music by the Station Orchestra: Bacchanale from Samson and Delilah (Saint-Saëns); Intermezzo angelicus (Franck); Prelude and Mazurka from Coppélia (Delibes); Scènes alsaciennes (Massenet). **10.0,** News Bulletin. **10.10** (approx.). Cigány Music from the Potrosacka Zadruga.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Choral Concert on Gramophone Records. **3.0,** Talk: German Girls at the Memorial of Goreh Fock. **3.30,** Weather and Exchange Quotations. **3.45,** Reading. **4.0,** Concert from **Leipzig. 5.0,** Educational Talk. **5.25,** Talk: Reminiscences of Brahms. **5.50,** Topical Talk. **6.0,** A Poem. **6.5,** Song Recital by Hilde Finke: Songs (Schubert): (a) Heiss' mich nicht reden, (b) Nur wer die Sehnsucht kennt, (c) So lass mich scheinen, (d) Ach neige Du Schmerzenreiche; Songs (Brahms): (a) An die Nachtigall, (b) Immer leiser wird mein Schlummer. **6.30,** Talk: The Physical Training of the Soldier. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.20,** Interval. **9.30,** String Quartet in A Minor, Op. 41 (Schumann), by the Berber Quartet. **10.0,** Weather, News, and Sports Notes. **10.25,** Talk by Kurt G. Sell: What People are talking about in America, relayed from America (on Gramophone Records). **10.45,** Weather Report for Shipping. **11.0,** Concert from **Frankfurt. 12 Midnight,** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**6.40,** The Witzleben Station informs its Listeners. **6.45,** Topical Talk. **6.55,** Announcement. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations: Schlageter—Drama (Hanns Johst). **9.30,** Helden—Hymn for Male Voice Choir and Organ (Köhnke), by the Wireless Choir, conducted by Alexander Ecklebe. **9.35,** Pianoforte Concerto in G, Op. 58 (Beethoven), by Edwin Fischer (Pianoforte), and the Station Orchestra, conducted by Engen Jochum. **10.10,** News Bulletin. **10.15** (approx.). Orchestral Concert. **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.30 p.m.,** News Bulletin. **7.40,** Gramophone Records of Popular Music. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News Bulletin. **8.30,** Concert of Waltzes by the Station Symphony Orchestra. Soloists: Mlle. Bastime and M. Delurey.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.10 p.m.,** Sports Report. **7.25,** The Thief—a Radio Sketch. **7.50,** Talk on Politics. **8.5,** See **Brno. 9.10,** Military Band Concert, conducted by J. Langer: Entry of the Guests from Tannhäuser (Wagner); Overture, The Tinker (Skromp); Slav Dance, No. 3 (Dvorák); Suite from Der Freischütz (Weber); Slovak Dance (Smatek); Polka (Chlup); Festival March (Langer). **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.,** Gramophone Concert. **2.45,** Programme arranged by the Post Office, with Gramophone Music. **3.10,** Agricultural Prices. **3.40,** Programme for Children. **4.10,** Pianoforte Duets by Käthe Sträussler and Wilhelm Sträussler: Introductory Talk; Four Polonaises (Schumann); Variations on a Theme by Schumann (Brahms). **4.40,** Talk on Schlageter. **5.10,** Concert by the Station Orchestra, conducted by Franz Marszalek: Overture, Egmont (Beethoven); Legend Op. 59, No. 10 (Dvorak); Andante religioso (Dreyschock); Prayer and Temple Dance from Olaf Trygvason (Grieg); Melody Op. 8, No. 3 (Rachmanov); Scènes dramatiques (Massenet). **6.20,** Programme to be announced. **6.50,** Weather for Farmers, News and Market Prices. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.10,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.40,** Concert from **Berlin (Witzleben). 10.10,** Time and News. **10.30,** Talk: By Water from Breslau to Stettin. **10.50,** Concert from **Frankfurt. 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Janota; Soloist: Marta Svorcikova (Songs): Overture, Finlandia (Sibelius); Five Scandinavian Songs; Two Pieces (Sinding): (a) Evening, (b) Rustle of Spring; Five Scandinavian Songs; Greenland Suite (Frederiksen). **4.55,** Theatre Notes. **5.5,** See **Prague. 6.5,** Talk: Creative Art. **5.5,** Talk for Workers. **6.25,** German Transmission: News, Talk for Women, Talk for Workers, and Reading of Poems. **7.0,** See **Prague. 7.10,** Literary Talk. **7.25,** See **Moravská-Ostrava. 8.5,** Concert of Spanish Music by the Station Orchestra, conducted by Jan Janota, with Commentary and Gramophone Interludes. **9.10,** Reading of Czech Poems, with Introductory Talk. **9.40,** Pianoforte Recital. **10.0,** See **Prague. 10.15** (approx.). Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Gramophone Concert of Light Music. **1.0 p.m.,** Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **2.0,** Broadcast for Schools. **5.0,** Concert by the Station Symphony Orchestra, conducted by Meulemans: Selection from The Merry Wives of Windsor (Nicolai); Phaëton (Saint-Saëns); Two Melodies for Strings (Grieg); Conte d'avril (Widor); Wienerburg (Ziehrer). **6.0,** Talk. **6.15,** Light Music on Gramophone Records. **6.30,** Concert by the Small Station Orchestra, conducted by P. Lemans. Soloist: Michot (Violin). Overture, Le nouveau Seigneur du Village (Boieldieu); Suite, La source (Delibes); Serenade (Widor); Selection from Madame Favart (Offenbach); Dance of the Merry Mascots (Ketelbey); Madrigal for Violin (Simonetti); Selection from Mademoiselle Sourire (Lachanme). **7.15,** Humorous Talk on the Amateur Wireless Enthusiast. **7.30,** Legal and Literary Talks. **8.0,** Programme for Soldiers and Ex-Servicemen. **8.45,** Tourist Talk. **9.0,** Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloist: Mme. Dautinne (Songs); Festival March (Busser); Overture, Il Seraglio (Mozart); Selection from Le petit elfe Fermé-l'oeil (Schmitt); Songs: (a) Aria from Werther (Massenet), (b) Song (Bemberg), (c) Roses of Picardy (Haydn Wood); Tarantella for Flute and Clarinet (Saint-Saëns); Ballet Music from Lakmé (Delibes); Spinning Song (Van Oost); Coronation March (Elgar). **10.0,** Journal Parlé. **10.10,** The Listeners' Quarter of an Hour. **10.25,** Gramophone Concert of Dance Music. **11.0,** La Brabançonne.

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 P. Leemans: Overture: La Giralda (Adam); Suite, La Féria (Lacôme); Andalusian Song (Fort); Selection from Benvenuto Cellini (Diaz); Serenade for Violin (Arensky); The Clock and the Dresden Figures (Ketelbey); Selection from Gipsy Love (Lehar); One-step, Ragazze d'oggi (Mascheroni). **1.0 p.m.,** Le Journal Parlé. **1.10,** Selection from La Gioconda (Ponchielli) on Gramophone Records. **2.0,** Broadcast for Schools. **5.0,** Gramophone Concert: March (Fucik); The Rose-Beetle goes a-wooing (Armandola); Andante religioso (Lang); Parade im Märchenwald (Noack); Glühwürmchens Stelldichein (Siede); Melody; Selections from The Gipsy Baron (Joh. Strauss); Overture, La Princesse jaune (Saint-Saëns); Selection from The Arabian Nights (Joh. Strauss); Selection from Piccolino (Guirand); Variations on Es kommt ein Vogel geflogen (Ochs); Romance, Op. 26 (Svendsen); Slav Rhapsody (Friedemann); Entry March of the Boyards (Halversen). **6.15,** Talk: The Draining of the Zuider Zee. **6.30,** Recital of Sonatas for Pianoforte, by Mme. Webb-Closson. **7.0,** Gramophone Records: Variations on a Swiss Theme (Mohr); Hungarian Rhapsody No. 2 (Liszt). **7.15,** Talk on Flemish Broadcasting. **7.30,** Wireless Review. **8.0,** Light Music on Gramophone Records. **8.30,** The Path of Glory—an Extravaganza (L. du Garde Peach), translated by G. de Muynck. **9.30,** Gramophone Records of Light Music. **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the Century Hotel, Antwerp.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Radio Orchestra; Soloist: D. Teodora (Violin): Overture, Carnaval Romain (Berlioz); Spanish Suite (Albéniz); Selection from Francesca da Rimini (Zandonai); Selection from Zigeunerprimas (Kálmán); Potpourri, Souvenirs of Bayreuth (Morena); Waltz No. 1 (Dvorák); Second Movement from the Symphony in C (Brahms); Marionettes (Liadov); Violin Solo, Legend (Wieniavski); March (Suk). In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** An Opera on Gramophone Records. In the intervals, Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **7.25 p.m.** (approx.) till Close Down.—**4.0 p.m.,** Concert by the Wireless Quintet. **5.0,** Talk for Scouts. **5.30,** Violin and Guitar Recital: Sonata for Violin and Guitar (Gragnani); Toccata (Bischoff); Minuet (Rousseau); Prelude in E Minor (Chopin); Orientale (Cui); Wiegenlied (Schumann). **6.0,** Talk. **6.20,** Concert by the Misi Vörös Cigány Orchestra. **7.0,** Exchange. **7.10,** Review of Foreign Affairs. **7.30,** Il Trovatore—Opera (Verdi), relayed from the Royal Hungarian Opera House. News in the interval. After the Opera: Dance Music on Gramophone Records.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the Harald Andersen String Ensemble, relayed from the Bellevue Strandhotel. **1.15,** Broadcast for Schools. **1.45 to 2.40,** Interval. **2.40,** Concert of Jazz Music by Anker Albech and his Band. In an interval at **3.25,** Reading. **4.40,** Programme for Children. **5.35,** Exchange and Fish Market Prices. **5.50,** Talk: Summer Camping. **6.20,** German Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.20,** Talk on Social Reform. **7.50,** Programme by Knud Heglund. **8.0,** Time Signal from the Town Hall. **8.1,** Concert of Music by N. O. Raasted, with the Composer at the Organ, relayed from the Cathedral. Niels Rudolph Gade (Songs) and Knud Pedersen (Violin). Introduction and Passacaglia for Organ; Psalm 90, Op. 34, No. 2, for Solo Voice, Choir and Organ; Sonata, Op. 45, for Violin and Organ. **8.45,** Shangai'et—Dramatic Episode from the Days of Sailing Ships, arranged for Radio. **9.25,** Saxophone and Pianoforte Recital by Eigil Mortensen and Viktor Fischer, with Gramophone Interludes; Waltz (Renard); Gramophone Record, Then I'll be happy (Brown and Friend); Pianoforte Solo, Yo-Yo (Walther); Saxophone Solo, Foxtrot, I'll do my Best to Make You Happy (Noble); Gramophone Record, This is the Day of Days (Dixon and Woods); Saxophone Solo, Valse lente (Eyolf); Pianoforte Solo, Dancing Puppets (Rust); Gramophone Record, Minnie the Moocher's Wedding Day (Koehler and Arden); Saxophone Solo: Blues (Hoffmark). **10.5,** News. **10.25,** String Quintet in F, Op. 88 (Brahms) for Two Violins, Two Violas, and 'Cello. **11.5,** Dance Music by the Kai

MAY 26th **FRIDAY** *continued*

Julian Band, relayed from the National Scala. In an interval at **12 Midnight**, Time and Chimes from the Town Hall. **12.30 a.m. (Saturday)**, Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk on Films. **7.15,** Miscellaneous Announcements and News. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsburg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. **5.30 p.m.,** Special Request Concert for Southampton and Winchester Listeners: Spring Song (Mendelssohn); Songs: (a) The Lute Player (Allitsen), (b) Danny Boy (Weatherley); Stephanie Gavotte (Czibulka); Songs: (a) The Old Superb (Stanford), (b) There's another empty Saddle (Colville); In the Still of the Night (Thorburn); Songs: (a) Lay my Head beneath a Rose, (b) Wayside Rose (Lehár); Ideale (Tosti); Over the Waves (Rosas). **6.15,** Organ Recital for Bournemouth and Weymouth Listeners: There's something about a Soldier (Gay); Paradise, from Tell her the Truth; Butterflies in the Rain (Sherman Myers); Vocal Trios: (a) Roll on Mississippi, roll on, (b) Time on my Hands; Bells across the Meadow (Ketelbey); The Wooden Soldier and the China Doll; Serenade (Drigo); Vocal Trios: (a) Painting the Clouds with Sunshine, (b) Tiptoe through the Tulips; Sing, Brothers; Selection from the Film Illegal. **7.0,** Programme in French. **7.0,** News and Gramophone Music. **7.45,** Agricultural Talk. **8.0,** Gramophone Music and News. **8.30,** Listeners' Programme. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ibeolians: The Younger Generation; You, just you; Mad about the Boy; Don't say Good-bye; Bravo, Jim; In a shanty in an old shanty town; When the band goes marching by; We just couldn't say Good-bye; There's another Trumpet playing in the Sky; Yes, Mr. Brown; And then we'll have some more; Take a Spot of Happiness; They all start whistling Mary; Song of the Bells. **11.0,** Concert by the Symphony Orchestra: Drink to me only with thine eyes (Calcott); Shepherd's Dance (German); Solveig's Song (Grieg); Hungarian Dance No. 6 (Brahms); Harp Solo: Ave Maria (Schubert); Night on the Bare Mountain (Mussorgsky); Song without Words in A Minor (Tchaikovsky). **11.30,** Gilbert and Sullivan Concert: Selection from Patience; A Regular Royal Queen, from The Gondoliers; Take a Pair of Sparkling Eyes, from The Gondoliers; Selection from The Pirates of Penzance; Brightly dawns our Wedding Day, from the Mikado; I'm called a little Buttercup, from The Mikado. **12 Midnight,** Club Concert for Omagh Listeners: Irish National March (Brase); Songs: (a) Acusida Machree, (b) Mother in Ireland, (c) My little Irish Home; Accordion Solos: (a) The Irish Washerwoman, (b) Sailor's Hornpipe; Songs: (a) She is far from the Land (Moore), (b) Till the Sands of the Desert grow cold (Ball); March, Jolly Good Fellows; Songs: (a) Danny Boy, (b) The Mountains of Mourne; In a Persian Market (Ketelbey); Songs (Woodforde Finden): (a) Kashmiri Love Song, (b) Till I wake; Irish Jigs and Reels. **1.0 a.m. (Saturday),** Concert by a Hawaiian Guitar Band; Nobody cares if I'm blue; Lazy Louisiana Moon (Donaldson); O Donna Clara (Peterbursky); Songs: (a) I'll never ask for more (Ahlert), (b) Hello, Sunshine (Murray); Irish Medley (arr. Dale); My Bluebird was caught in the Rain (Creamer); Parlez-moi d'amour (Lenoir). **1.30,** Popular Songs: If I'm dreaming; Considering; I give my Heart; Orchestra: Say it with Songs; Little Green Heaven; Just one of my Dreams; A Mother's Kiss.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW., and **Cassel, 1,220 kc/s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres. 4.30 p.m.,** See **Munich. 5.50,** Economic Notes. **6.0,** Medical Talk. **6.25,** Talk on Bee-keeping. **6.50,** Time, Programme Announcements, Weather and Economic Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.30,** Programme to be announced. **10.0,** A German Almanac. **10.15,** Time, News, Weather and Sports Notes. **10.45,** Concert by the Station Orchestra, conducted by Hans Rosband: Symphony in D (Nicolai); Gallop (Calvini); Intermezzo, Die kleine Kompanie (Ganglberger); Erinnerung an Luzern (Blon); Zsambeki-Csardas (Gungl); March Potpourri, Alle mit uns (Robrecht). **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

Call ha (in Morse); **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.,** Hamburg, Bremen, and Lubeck—Report on Events in the Senate and House of Burgesses of the Hanseatic Free Cities. **6.0,** Variety Programme. **6.40,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 9.30,** See **Berlin (Witzleben). 10.0,** Time, Weather, News, Sports Notes, and Police Report. **10.25,** Talk: What People are talking about in America, relayed from **America. 10.40 (from Kiel),** Concert of Light Music, conducted by Hans Döring: March, Funkheil (Hoffmann); Overture, Le Cheval de Bronze (Auber); Country Dance, Klänge aus der Heimat (Gung'l); Gallop, Storchschnäbel (Fahrbach); Selection from The Blue Mazurka (Lehár); Gavotte (Humperdinck); Potpourri, Jugendklänge aus Alt Heidelberg (Rohde); Hungarian Dances Nos. 4 and 6 (Brahms); Stahlhelm—March (Evertovsky).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Gramophone Concert. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office with Gramophone Music. **3.0,** Agricultural Prices and Exchange Rates. **3.30,** Talk: The German Woman in East Africa. **4.0,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Overture, Das Liebesverbot (Wagner); Four German Dances, Op. 602 (Mozart); Wedding of the Doves, from The Birds (Braunfels); Mephisto-Walzer (Liszt); Overture, Elisa (Cherubini); Symphonic Poem, The Watersprite (Dvorák); Savonaroda-Ouverture (Kursch); Prelude to Der Rubin (d'Albert); Triumphal March (Beethoven). In the interval at **5.0** (approx.), Book Review. **5.45,** Talk: The Races of East Prussia. **6.16,** Agricultural Prices. **6.20,** Talk: The Art of Pianoforte Playing, with Illustration: Sonata in C, Op. 2, No. 3 (Beethoven). **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.40,** Concert from **Berlin (Witzleben). 10.0,** Weather, News, and Sports Notes. **10.25,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America.**

HILVERSUM

296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**)—**11.40 a.m. to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **11.40,** Concert by the Hendriks Ensemble. In the intervals: Gramophone Music. **1.40 p.m.,** Talk. **2.10,** Concert by Kovacs Lajos and his Dance Orchestra. **3.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **3.40,** Organ Recital. **4.40,** Programme for Children. **5.10,** Orchestral Concert, conducted by Hugo de Groot. **5.40,** Gramophone Music. **5.55,** Concert (contd.). **6.40,** Talk on Hitler's Book, Mein Kampf. **7.0,** Concert (contd.). **7.40 to 10.40,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40,** Talk. **8.10,** Pianoforte Recital: Variations and Fugue on a Theme by Händel, Op. 24 (Brahms). **8.40,** Talk. **9.10,** Pianoforte Recital (contd.): Prelude and Fugue, Op. 99, No. 7 (Reger); Vivace, Op. 82, No. 4 (Reger); Adagio, Op. 82, No. 2 (Reger); Moderato, Op. 2, No. 5 (Reger); Etude, Op. 25, No. 1 (Chopin); Etude, Op. 25, No. 1 (Chopin); Polonaise (Chopin). **9.40,** Religious Information. **9.45,** News. **9.55,** Talk. **10.25,** Gramophone Music. **10.40** till Close Down, V.A.R.A. Programme: Gramophone Concert. **11.0** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Christian Radio Society (N.C.R.V.).—**12.10 p.m.,** Trio Concert. **1.40,** Programme to be announced. **2.10,** Reading. **2.40,** Talk for the Housewife. **3.10,** Violin and Pianoforte Recital: Sonata for Violin and Pianoforte (Vivaldi-Respighi); Sonata for Pianoforte (Franck); Pianoforte Solos (Ravel): (a) Pastorelle, (b) Habanera; Sonata for Violin and Pianoforte (Milhand). **4.10,** Talk for the Amateur Photographer. **4.40,** Concert by the Columbia Three: March, Treue Freunde (Holzmann); Les Patineurs (Waldteufel); Frühlingserwachen (E. Bach); Negro Humoresque (Hoffmann); Selection from The Tales of Hoffmann (Offenbach); Pritzelpuppen (Ehrlich); Nur wer die Sehnsucht kennt (Translateur); Potpourri (Ciere); March, The Washington Post (Sousa). **5.40,** Agricultural Talk. **6.10,** Gardening Talk. **6.40,** Police Notes. **6.55,** News. **7.10,** Literary Talk. **7.40,** Organ Recital from the Lutheran Church, Amsterdam. **8.40,** Talk: The Economic Position of Western Europe. **9.10,** Concert by a Male Voice Choir. In an interval at **9.35,** News. **10.20,** Gramophone Concert of Variety Music. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Results. **8.15,** Esperanto Lesson. **8.30,** Radio Concert. **9.0,** News. **9.15,** Radio Concert. **12 Midnight** till Close Down, Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Organ Recital: To-morrow is another Day (Stept); Close your eyes (Tennent); Singing with Tears in my Eyes (Dubin and Burke); Sweet and Lovely (Tobias); If I had a Talking Picture of You (Henderson); Who am I (Newman); A little Kiss each Morning (Wood); For the sake of the days gone by (Wallace). **12.30 a.m. (Saturday):** Vocal and Orchestral Concert: The Song of Songs (Moya); A New Love is Old (Harbach); My Song (Brawn and Henderson); Try to forget (Kern); Serenade (Heykens); Love letters in the Sand (Coats); The Thrill is gone (Henderson); Just you, just me (Greer). **12.57,** I.B.C. Goodnight Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.15 p.m.,** Announcements and Gramophone Music. **7.25,** Sports Notes. **7.30,** See **Warsaw. 11.0,** The Letter Box in French.

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.30 p.m.,** Divine Service Relay. **8.0,** Announcements. **8.15,** Evening Concert. **8.50,** Psychological Talk. **9.10,** Popular Programme. **9.30,** Talk. **9.50,** Concert: Overture, Alphonso und Estrella (Schubert); Ballet Music from Rosamund (Schubert); Sonata in A Minor (Schubert). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.—6.15 p.m.,** Talk. **6.40,** Programme of Italian Songs and Arias, relayed from **Helsinki. 7.5,** Recitation. **7.30,** Concert by the Station Orchestra, relayed from **Helsinki. 8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—1.0 p.m., Concert conducted by Wolf. Soloists: Hans Wrana-Lienhart (Baritone); March, Standarten wehn und Fahnen (Siede); Selection from Oberon (Weber); Baritone Solos: (a) Der Oluf (Loewe), (b) Frühlingstraum (Schubert), (c) Der Atlas (Schubert), (d) Erlkönig (Schubert); Miniaturen (Kaskel); Scatz-Walzer (Strauss); Zichrer Potpourri, So schön wie's einmal war (Dauber). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.15,** Interval. **3.30,** Economic Notes and Time. **3.50,** Radio Sequence for Children. **4.30,** Concert conducted by Eysoldt: Overture, Genoveva (Schumann); Suite from Prometheus (Beethoven); Cradle Song (Dvorak); On the Black Sea (Dvorák); Ballet Music from Rosammud (Schubert); Selection from The Taming of the Shrew (Goetz); Turkish March (Mozart). **5.50,** Book Review. **6.10,** Talk: The Lower Animals and their surroundings. **6.35,** German Anecdotes. **6.45,** Weather, Time, Economic Notes and Sports Report. **7.0,** Transmission for all German Stations. Homage to German Heroes—Programme relayed from **Cologne. 8.0,** News. **8.5,** Trasmission for all German Stations, relayed from **Berlin (Witzleben). 9.30,** Concert of Chamber Music. **10.5,** News and Sports Notes. **10.25,** Talk by Kurt G. Sell: What People are talking about in America, relayed from **America. 10.45,** Dance Music, relayed from **Berlin (Witzleben). 11.30** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12.5 p.m.,** Concert by a Nazi Orchestra, conducted by Alfred Schröter. In the Interval at **1.0 p.m.,** and after the Concert, News. **2.0,** Notes on Art. **3.35,** Economic Notes. **4.0,** Concert by the Symphony Orchestra, conducted by Hilmar Weber: Overture, Hamuele (Krehl); Suite for School Orchestra (Rinkens); Nocturne (Trapp); Selection from Herzog Woldfang (S. Wagner); Nonet in F (Spohr). In the Intervals, Talks. **5.50,** Economic Notes and News. **6.0,** Reading (E. E. Disinger). **6.40,** Talk by Kurt G. Sell: What People are talking about in America (on Gramophone Records). **7.0,** Transmission for all German Stations relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.40,** Esperanto Lesson. **8.50,** The Eroica Symphony (Beethoven), by the Symphony Orchestra. **10.25,** News. **10.30** (approx.), Close Down.

LINZ.—See **Vienna.**

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Reading. **7.15,** Miscellaneous Items. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Programme arranged by the Tourist Association of Central France: Relay from **Mont Dorre** and **La Bourboule**—Choral Music, Dances and Chimes. **9.30,** Concert by the Symphony Orchestra, conducted by Pierre Lorraine, the Station Ensemble and Soloists. After the Concert, News.

MADRID

ARANJUEZ (EAQ), 10,000 kc/s, 30 metres; 20 kW.—**11.30 p.m.,** Concert of Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Saturday),** Answers to Correspondence. **12.40,** Spanish-American Talk. **12.45,** Light Music **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, Request Gramophone Records, and Variety Items by Ramon Gomez de la Serna. **9.15,** News Bulletin and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal and Political Review. **10.45** (approx.), Symphony Music on Gramophone Records. **12.45 a.m. (Saturday),** News and Programme Announcements for Listeners Abroad. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**7.25 p.m.,** Concert of Folk Music. **8.5,** Talk on Newspaper Reporting. **9.0,** Concert by the Station Orchestra, conducted by J. Plichta: Overture in Italian Style (Schubert); Violin Concerto in E Minor, Op. 64 (Mendelssohn); Ballet du Printemps (A. Thomas). **10.0,** See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert for Young People relayed from the Radio Theatre. **9.0,** News Bulletin. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—4.30 p.m.,** Concert, conducted by Erich Kloss: Overture, Des Teufels Lustschloss (Schubert-Ballerian); Tempo di Minuetto (Beethoven); Selection from Salomé (R. Strauss); Evening Idyll (Fröich); Italian Songs and Dances (Micheli); Meditation from Thais (Massenet); Slav Dance (Dvorák); March, Deutscher Föhn (Hanfstaengl). **5.45,** Talk on Johann Anselm Feuerbach, the Famous Reformer of Criminal Law, on the Hundredth Anniversary of his Death. **6.5,** Concert by the Munich Mandoline Quartet; Soloists, Willy Hintermayer (Zither) and Euphemia Hintermayer (Guitar). **6.40,** Talk: What People are talking about in America, relayed from **America. 6.45,** Time, Weather, and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 9.30,** Concert by the Small Station Orchestra, conducted by Erich Kloss. **10.0,** Topical Talk. **10.20,** Time, Weather, News, Sports Notes, and Traffic Report.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Orchestral Concert relayed from the Grand Hotel. **6.0,** French Lesson. **6.30,** Saxophone Quintet Concert. Pilgrims' Chorus from Tannhäuser (Wagner); Overture, The Merry Wives of Windsor (Nicolai); Minuet (Paderevsky); Angelus Serenade (Braga); Stephen Forster Potpourri (Holmes). **7.0,** Announcements. **7.15,** Weather and News. **7.30,** English Lesson. **8.0,** Cabaret Programme relayed from **Stavanger 1,247 kc/s 240.6 metres. 9.15,** Talk. **9.30,** Weather and News. **10.**

Topical Talk. **10.15**, Choral Concert. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society, and Giornale Radio. **8.20,** Popular Music on Gramophone Records. In an interval at **8.30,** Time and Announcements. **8.45,** La Wally—Opera in Three Acts (Catalani). In the interval, Talk and Announcements. After the Opera, 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 Talk. **7.0,** Le Journal Parlé. **8.30,** Tourist Propaganda Programme, relayed from Mount Dore, Radio Report. Interviews with Local Celebrities, Musical Programme, and Chimes. **9.30,** Concert by the Symphony Orchestra, conducted by Edouard Flament. Les Forains (Berger). Waltz, Sensitive (Amadei); Minuet (Valensin-Daubé); 'Cello Solo, A ton reveil (d'Ambrosio); Habanera (Turina); Violin Solo, Waltz, An der schönen, grünen Narenta (Komzák). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Light Music on Gramophone Records. **7.55,** Weekly Review. **8.0,** Talk on Music. **8.15,** Interval. **8.30,** Les Linottes—Operetta (Mathé). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Jewish Programme, Music and Address. **12.30 p.m.,** Gramophone Concert. Overture, Figaro (Mozart); Romance (Fauré); The Nightingale (Alabiev); Polichinelle (Rachmaninov); L'apprenti sorcier (Dukas); Von ewiger Liebe (Brahms); Nights in the Gardens of Spain (Falla); Invitation to the Waltz (Weber); Symphony, From the New World (Dvorák). In the intervals at **1.0,** Exchange, News, and Weather; and at **1.30,** Exchange. **2.0,** Exchange and Announcements. **3.45,** Exchange and Market Prices. **6.30,** Book Review: London (Paul Morand). **6.50,** Insurance Societies' Report. **7.0,** Talk by M. André Maurois: The Entente Cordiale. **7.20,** Gramophone Concert: Bonkhara (Avignon); Tes yeux (Bonincontro); Selection from Les Saltimbanques (Ganne); Melody (Heymann); Gnomenfest (Schmidt-Hagen); Mai (Hahn); Selection from Lysistrata (Lincke); Nogent-sur-Marne (Paradis). **7.45,** Commercial Prices and News. **8.0,** Talk by Georges Colin: Famous Romantic Actors. III.—de Max. **8.30,** News and Weather. **8.40,** Gastronomic Review. **8.45,** Concert by the Garde Républicaine Band, conducted by Commander Pierre Dupont: Dances from Prince Igor (Borodin); The Flight of the Bumble-Bee (Rimsky-Korsakov); Rondalla Aragonesa (Granados-Lamote de Grignon); The Dionysiaques (Schmitt); Pavane pour une Infante défunte (Ravel); Escales (Ibert): (a) Tunis, (b) Valence; Symphonic Poem, Till Eulenspiegel (R. Strauss); First Suite from Cydalise et le Chèvrepied (Pierné). In the interval at **9.15,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.,** Health Talk by Dr. Royal S. Copeland. **7.35,** KDKA Home Forum. **7.45,** Utility Hall Programme. **8.0,** Betty and Bob, from **New York.** **8.15,** International Sunday School Lesson by Rev. S. S. Lappin. **8.30,** Tenor Solos by John Dunlap. **8.45,** Morin Sisters, from **New York.** **9.0,** Teaberry Baseball Scores. **9.5,** Hotel Cosmopolitan Orchestra, from **New York.** **9.15,** S.A.I. Musicale—Carnegie Tech Chapter. **9.30,** Weather Report. **9.31,** Market Reports. **9.45,** Programme to be announced. **10.0,** Teaberry Baseball Scores. **10.5,** Muskingum College Music Clubs. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Hotel Roosevelt Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45,** To-day's News, by Lowell Thomas, from **New York.** **12 Midnight,** Pepsodent Amos 'n' Andy, from **New York.** **12.15 a.m. (Saturday),** A. and P. Programme. **12.30 to 3.15, New York** Relay. **12.30,** Five Star Theatre—Charlie Chan. **1.0,** Nestle's Programme. **1.30,** Adventures in Health. **1.45,** Phil Cook and his Ingram Shavers. **2.0,** The First Nighter. **2.30,** Armour Programme. **3.0,** Time Signal and Music is my Hobby.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**6.30 p.m.,** Talk on Children's Week. **6.45,** Talk on Polish Topography. **7.0,** Miscellaneous Announcements and News. **7.28,** Time Signal. **7.30 to 10.40,** See **Warsaw.** **10.40,** Time Signal and News. **10.45,** See **Warsaw.** **10.50,** Announcements. **11.0,** Dance Music from the Esplanade Café. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW. **4.10 p.m.,** See **Brno.** **4.55,** Talk. **5.5,** Concert by the Ondricek Quartet. String Quartet No. 2 (Papandopulos); Pianoforte Quartet in C Minor Op. 7 (Novak). **6.5,** Market Prices. **6.15,** Review of New Books for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** See **Brno.** **7.25,** See **Moravská-Ostrava.** **8.5,** Concert by the Municipal Orchestra, conducted by Karel Jirak, relayed from the Municipal Theatre, Teplice-Sanov. Soloists: S. Novak (Violin), and V. Cerny ('Cello). Overture and Isolde's Death Song from Tristan und Isolde (Wagner); Double Concerto (in A Minor Op. 102, for Violin, 'Cello and Orchestra (Brahms); Symphony No. 2 in F, Op. 25 (Jirak). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** 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 **Lausanne**), Religious Address. **7.30** (from **Lausanne**), Weather, Announcements, and Answers to Correspondence. **8.0** (from **Geneva**), Illustrated Talk on Romanian Music. **8.40** (from **Geneva**). Four Etudes (Debussy). **9.0** (from **Geneva**). Band Concert. In the interval, Variety Items. **10.0** (from **Geneva**), Concert. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (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.**—**1.0 to 2.15 p.m.,** Orchestral Concert Cielo azzurro (de Mendevil); Melody (Caslar); Selection from Die Faschingsfee (Kálmán); Mattinata (Malatesta); Mimosa (Abel); Meditation (Ranzato); Serenata andalusa (Petralia); Baci al buio (de Micheli); Melody (Stolz); Stellette allegre (Fragna). In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.0,** Report on the Round Italy Cycle Race. **5.10,** Announcements. **5.15** Exchange and Giornale Radio. **5.30,** Song and 'Cello Recital. **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **6.57,** Report of the International Institute of Agriculture (in Spanish, German and French). **7.10,** Tourist Report. **7.20,** Giornale Radio. **7.30,** Sports Notes. **8.0,** Time, Announcements and Summary and Notes on the Day's Results of the Cycle Tour of Italy. **8.15,** Light Music on Gramophone Records. **8.45,** Talk on Ariosto. **9.0,** The Dance of the Dragonflies—Operetta in Three Acts (Lehar). In the intervals: Humorous Programme and Talk on Michel Angelo. After the Operetta: Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—**8.0 p.m.,** Biblical Drama. **8.15,** Moore Triangle Club, from **New York.** **8.30,** Echoes of Erin, from **New York.** **8.45 to 9.0** (approx.), Stock Reports. **11.45,** Stock Reports and Baseball Scores. **12.0 Midnight,** Cities Service Concert, from **New York.** **12.30 a.m. (Saturday),** WGY Farm Forum. **1.0** till Close Down, **New York** Relay. **1.0,** Best Foods Musical Country Store. **1.30,** Pond's Programme. **2.0,** Chevrolet Programme. **2.30,** Richfield Country Club and Programme Résumé. **3.0** (approx.), Close Down.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**12 Noon** (from **Zürich**), Concert of Operetta Music by the Swiss Radio Orchestra. **12.30 p.m.,** News Bulletin. **12.40** (from **Zürich**), Concert (contd.). **1.25** (from **Zürich**), Exchange, Time and Weather. **1.45 to 5.0,** Interval. **5.0** (from **Zürich**), Programme for Children. **5.30** (from **Zürich**), Orchestral Concert. **6.30** (from **Berne**), Programme to be announced. **7.0** (from **Berne**), Time, Weather, Market Prices and News. **7.20** (from **Berne**), Septet, Op. 20 (Beethoven). **8.0** (from **Berne**), Modern Music Lecture Recital on Gramophone Records. **8.40,** Concert of Italian Music by the Swiss Radio Orchestra. **9.0,** Weather and News. **9.10** (from **Berne**), Programme of Popular Music. **9.45,** See **Paris (Radio Paris).** **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; Goteborg, 932 kc/s, 322 metres; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres; and Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.,** Accordion Music relayed from **Eskilstuna, 1,220 kc/s, 245.9 metres.** **5.30,** The Practical Corner. **5.45,** Gramophone Music. **6.45,** Reading. **7.15,** Weather and News. **7.30,** Talk: The Swedish Coast. **8.0,** Orchestral Concert. Soloists: Ernst Törnqvist (Violin), and Ragnar Multén (Songs). Concerto in E Minor for Violin and Orchestra (Atterberg). Ballad for Baritone and Orchestra, Kung Liv och Drottning Död (Broman). Suite (Seymer). Two Songs with Orchestral Accompaniment (Grieg). Ballad with Orchestral Accompaniment (Hermann). Overture, The Corsair (Berlioz). **9.25,** Talk on Foreign Politics. **9.45,** Weather and News. **10.0,** Chamber Music by the Danish Quartet. Two quartets for Strings: (a) Quartet in C No. 3 Op. 76 (Haydn); (b), Quartet, From Out my Life (Smetana). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **1.15,** Relay from the Belfry of the Romanesque Church in Issoire—Description of the View and Chimes. **1.30,** Light Music on Gramophone Records. **2.0 to 3.30,** Interval. **3.30,** Concert relayed from Balzac's House, **Paris (Radio Coloniale), 11,905 kc/s, 25.2 metres.** **4.30,** Popular Music on Gramophone Records. **4.45,** Talk in French on Madame de Staël. **5.0,** Orchestral Concert, conducted by Roskam: Polonaise in A (Chopin); Waltz from Der Rosenkavalier (R. Strauss); Overture, Czar and Carpenter (Lortzing); Träumerei (Wagner); Selection from Samson and Delilah (Saint-Saëns); Melody (Rubinstein); Suite Internationale (Tchaikovsky); Selection from La petite mariée (Lecocq); Intermezzo, Polospiele (Fétras). **6.0,** Trio Concert, relayed from **Lille, 1,130 kc/s, 265.4 metres.** **7.0,** Topical Talk in German. **7.15,** Talk on Economics. **7.30,** News. **7.45,** Variety Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results, and Announcements. **8.30,** Concert by the Municipal Orchestra, relayed from **Metz;** Conductor, Louis Narbonne: Two-step (Gurtner); Overture, Martha (Flotow); Three Pieces for Harpsichord; Moments musicaux, Op. 94, Nos. 6 and 3 (Schubert-Narbonne); Selection from La princesse au Sabbat (Ganne-Fouquet); Der Schatzwalzer (Strauss); Solo No. 3 for Oboe (Collin); Fantasia (Corroyez); La voix des cloches (Luigini-Parès); Waltz from La fille de Madame Angot (Lecocq); Tarantella, Campane Napolitaine (Fernand). In the interval, Educational Talk and Press Review in French. **10.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.,** Gramophone Concert. **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.0 to 3.50,** Interval. **3.50,** Talk on Sunday Excursions. **4.10,** Song Recital by Karl Fentsch. Songs (R. Strauss): (a) Nichts, (b) Traum durch die Dämmerung, (c) Ich trage meine Minne, (d) Zueignung. Songs (Gretchaninov): (a) The Dreary Steppe, (b) The Prisoner, (c) Home. **4.30,** See **Munich.** **5.45,** Time, Weather and Agricultural Report. **6.0,** Medical Talk. **6.25,** Talk, German Cultural Relations with South-East Europe. **6.50,** Time and News. **7.0,** Transmission for all German Stations relayed from **Langenberg.** **8.0,** See **Berlin (Deutschlandsender).** **9.40,** Concert by the Stuttgart Chamber Trio. Trio in E (Mozart). Trio in C Minor Op. 1 No. 3 (Beethoven). **10.20,** News. **10.25,** Talk by Kurt G. Sell: What People are Talking about in America, relayed from America. **10.40** (from Karlsruhe), Theatre Review. **11.15,** News. **11.30,** Concert from **Frankfurt.** **12 Midnight,** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to Fire.—**6.0 p.m.,** News. **6.15,** Music by an Argentine Orchestra. **6.30,** Opera Music: Air from The Huguenots (Meyerbeer); Cavatina from William Tell (Rossini); Air from Hérodiade (Massenet); O Star of Eve, from Tannhäuser (Wagner). **6.45,** Divertissement sur des Chants russes (Rabaud). **7.0,** Medical Talk. **7.5,** Accordion Music. **7.15,** Racing Results. Market Prices and News. **7.25,** Local News Bulletin. **7.30,** Music by a Viennese Orchestra. **7.45,** Opera Music: Melodies from: (a) Les Dragons de Villars (Maillart), (b) The Daughter of the Regiment (Donizetti), (c) Rigoletto (Verdi). **8.0,** Operetta Music; Airs from: (a) The Land of Smiles (Lehár), (b) Frasquita (Lehár), (c) Le Roi Pausole (Honegger). **8.15,** Light Music. **8.30,** Instrumental Solos. **8.45,** Operetta Music. **9.0,** The Practical Corner. **9.5,** Trio in B Flat (Schubert), followed by Sound Film Music. **9.45,** Accordion Music. **10.0,** Music by a Viennese Orchestra. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: The Sparrows' Parade (Rathke); Broadway Melody (Brown); Triumphal March from Tannhäuser (Wagner); Airs from La Vie parisienne (Offenbach); Violin Solo, Variations (Kreisler); Souviens-toi (Lebail); Grenadine (Persiani). **11.0,** Opera Music. **11.15,** Extracts from Opéra-Comique. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Dance Music: If I could be one Hour with you; Swingin' the Blues; Shine; When Day is done; Wah-de-dah; It's the darndest thing; Sweet Rhythm; Sweetheart I'm dreaming of you. **11.57,** I.B.C. Goodnight Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m.,** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 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, 859 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.0 to 6.0 p.m.,** Chamber Music Concert. **6.35,** Giornale Radio. Agricultural Report and Dopolavoro Announcements. **7.0,** Time and Report of the Royal Geographical Society. **7.10,** Gramophone Records of Songs. Se tu mi baci (Buzà-Mascheroni); Ritorna (Carosio); Povero Jolly (Bracchi-Lanzetta); Ave Maria (Carosio). **7.20,** Giornale Radio. **7.45,** Light Music on Gramophone Records. **8.0,** Announcements, Report on the Cycle Tour of Italy, Giornale Radio, Weather and Gramophone Records. **8.30,** Talk in connection with the Ariosto Centenary. **8.45,** Notes on Art. **9.0,** Symphony Concert. In the interval, Talk. **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; 15 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.**—**4.0 p.m.,** Gramophone Concert of Opera Music. **4.40,** Talk for Women: The late Comtesse de Noailles. **5.0,** Song Recital by Maria Kienzl (Soprano) and Hans Koch (Bass). Aria from Der Freischütz (Weber); Prayer from Die Königskinder (Humperdinck); Aria from Carmen (Bizet); Soprano Aria from Aida (Verdi); Bass Solos (Schubert): (a) Der Neugierige, (b) Der Lindenbaum, (c) Im Dorfe, (d) Die Stadt, (e) Frühlingsglaube, (f) Der Wegweiser. **5.40,** Tourist Report. **5.55,** Talk: The Workers' 550-Kilometre Cycle and Motor Trials. **6.10,** Sports Report. **6.20,** Talk: The International Olympic Games Conference in Vienna. **6.35,** Talk: The Life of a University Professor. **7.0,** Gramophone Records of Famous Artists. **7.30,** Talk: Poor America. **7.50,** Time and News. **8.0,** Popular Concert. **10.0,** Second News. **10.15,** Dance Music by Gustav Rohn and his Band, relayed from the Café Palmhof. Soloists: Viktor Sternau (Songs), Willy Swoboda (Pianoforte), and Hans Fischer (Vibraphone).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW. **12.10 p.m.,** Variety Music on Gramophone Records. **1.20,** Weather Report. **1.25 to 3.10,** Interval. **3.10,** News Bulletin. **3.15,** Economic Review. **3.25,** Aviation Notes and Anti-Gas Drill. **3.30,** Naval and Colonial Report. **3.35,** Popular Music on Gramophone Records. **4.25,** Review of Periodicals. **4.40,** Talk: The Polish Countryside. **5.0,** Concert by a Wind Instrument Orchestra, conducted by S. Lidzki-Sledzinski. **5.55,** Programme Announcements. **6.0,** Light Music and Dance Music. In the interval, News. **7.0,** Miscellaneous Items. **7.20,** Talk: Silk Producing in Poland. **7.30,** Talk in connection with Children's Week. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert by the Philharmonic Orchestra. In the interval, Talk: Children's Literature. **10.40,** Sports Notes. **10.45,** Radio Journal. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music from the Maison Foukier.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** Dance Music. **6.40,** Talk for Poles in Lithuania. **6.55,** Miscellaneous Announcements. **7.0,** Daily Reading. **7.10,** Announcements. **7.20,** Agricultural Press Review. **7.30,** Talk on Joachim Lelewel—Historian. **7.45,** See **Warsaw.** **12 Midnight** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

MAY 26th **FRIDAY** *continued*

SATURDAY

MAY THE TWENTY-SEVENTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Variety programme. "Stars in their Courses," by James Agate.
LONDON REGIONAL	Running commentary from Shelsley Walsh on the Open Hill Climb for Racing and Sports Cars.
MIDLAND REGIONAL	The Massed Choirs of Birmingham, Coventry, and Leicester Cathedrals, from Coventry.
NORTH REGIONAL	Orchestral concert, Gilbert and Sullivan selections.
WEST REGIONAL	Orchestral concert from the Colston Hall, Bristol.
SCOTTISH REGIONAL	Vaudeville programme.
BELFAST	Orchestral concert from the Ulster Hall.

ABROAD

BRUSSELS (No. 2)	8.0 p.m. Musical Play: "White Horse Inn," by Stolz-Benatzky.
COPENHAGEN	8.1 p.m. Bach Concert.
EIFFEL TOWER	8.30 p.m. Radio Festival from the Palais de la Mutualité.
MUNICH	8.30 p.m. Operetta: "The Circus Princess," by Kalman.
PALERMO	8.45 p.m. Operetta: "Fascino azzurro," by Ettore Bellini.
STRASBOURG	4.0 p.m. Wagner and Pierné Concert. 8.30 p.m. Operetta: "The Land of Smiles," by Lehar.
STUTTGART	7.0 p.m. "The Black Forest," a Radio Sequence by Martin Lang and J. Künzig.
TURIN	9.0 p.m. Opera: "La Cenerentola" ("Cinderella"), by Rossino (relayed by **Florence, Genoa, Milan, Rome and Trieste**).

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 224.4 metres.—1.30 to 2.0 p.m.,** Time, Weather, Stock Report, and Light Music on Gramophone Records. **6.0,** Popular Music on Gramophone Records. **6.45,** News. **7.0,** Talk: The International Fly-fishing Conditions at Loch Leven. **7.15,** Gaelic Talk by Seamus O'Duirinne. **7.30,** Time Signal. **7.31,** Pianoforte and Violin Duets by Mrs. Boxwell and Miss Ellard. **7.45,** Vocal Duets by P. J. Byrne and W. J. Hobbs. **8.0,** Pianoforte and Violin Duets (contd.). **8.15,** Vocal Duets (contd.). **8.30,** The Station Orchestra. **9.0,** Contralto Solos by Joan Burke. **9.15,** Variety Programme. **9.45,** Sponsored Programme. **10.45,** Time, News, Weather, and Close Down.

BARCELONA

860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Programme for Children. **8.0,** Request Gramophone Records. **8.30,** Exchange. **9.0,** Gramophone Records and News. **9.15,** Literary and Musical Programme relayed from the Municipal Theatre, Perpinyà. **1.0 a.m. (Sunday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk, and Dopolavoro Announcements. **8.20,** Giornale Radio and Weather. **8.30,** Time and Announcements. **8.40,** Concert of Songs and Operetta Music. Soloists: Clara Demitri (Soprano) and Michele Montanari (Tenor). L'eco dei monti (Antonini); Soprano Solo: Dory, sei tu (Maschetoni); Tenor Solo: Canzone della radio (Alfano); Risveglio (Montaguini-Saletti); Soprano Solo: Luci nella notte (Borella); Tenor Solo: Leda (Massaro); Selection from La reginetta delle rose (Leoncavallo); Soprano Solo: Rimpianto (Bonavolantà); Tenor Solo: Pardon (De Serra); El picador (Pattacini); Tenor Solo: Castello incantato (Alfano); Soprano Solo: Lylia (Rognoni); Selection from Si (Mascagni); Tenor Solo: Silvana (Hammd); Soprano Solo: Tango, Milonguita (Valdes); Anima catalana (Cortopassi); Tenor Solo (Stransky); Soprano Solo: Il paese del mandolino (Molcti); Review of New Books in the interval. **10.30,** Popular Music on Gramophone Records. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**7.0 p.m.,** Concert by the Radio Orchestra. Serbian Festival March, 1912 (Frait); Potpourri of Cigány Music (Bordil); Slav Dances Nos. 2 and 3 (Dvorák); Selection from the Gipsy Princess (Kálmán). **7.50,** Announcements. **8.0,** An Opera relayed from the National Theatre. In the interval at **9.30,** News. After the Opera, Gramophone Dance Music.

BERLIN

DEUTSCHLANDSENDER; 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Modern German Marches and Songs, on Gramophone Records. **3.0,** Handwork for Children. **3.30,** Weather and Exchange. **3.45,** Reading. **4.0,** Concert from **Hamburg. 5.0,** Weekly Review. **5.30,** Saxophone Recital by Sigurd M. Rascher: Waltz No. 10 (Chopin-Rascher); Suite (Kaun); Czardas (Monti-Rascher). **6.0,** A Poem. **6.5,** Songs from Operettas by Käthe Jöken-König; Songs from (a) Der Bettelstudent (Millöcker), (b) The Bird Fancier (Zeller), (c) Ihre Hoheit die Tänzerin (Goetze), (d) Hellblaue Schwestern (Künnecke), (e) Der Tenor der Herzogin (Künnecke), (f) Tänzerin aus Liebe (Schmalstieh) and (g) Der Tanz ins Glück (Stolz). **6.30,** Talk: Hunting among Savage Races. **6.50,** Weather for Farmers and Announcements. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** See **Munich. 8.30,** Sailors' Yarns. **9.0,** See **Vienna. 10.0,** Weather, News, and Sports Notes. **10.45,** Weather Report for Shipping. **11.0,** Serenade, from **Munich. 12 Midnight,** Transmission for all German Stations, relayed from **Stuttgart. 12.30 a.m. (Sunday),** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Concert by the Station Orchestra, conducted by Dr. Max Burkhardt: Ballet Suite (Gluck-Mottl); Suite from Les petits riens (Mozart); Air and Ballet Music from The Merry Wives of Windsor (Nicolai); Scherzo (Pfitzner); Prelude to the Second Act of Ingwelde (v. Schillings); Selection from Die Folkunger (Kretschmer); Folk Dance (Hartmann); Albumblatt (Kaun); Waltz, Tales from the Vienna Woods (Joh. Strauss). **5.50,** Talk: New Methods in Physical Culture. **6.15,** Programme Announcements. **6.20,** Brahms Song Recital by Heinz Marten (Tenor): Komm bald; Der Ueberläufer; Bei dir sind meine Gedanken; Schwermut; Muss es eine Trennung geben; Abschied; Mondenschein; Ständchen. **6.40,** The Witzleben Station informs its Listeners . . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Stuttgart. 8.5,** Announcement. **8.10,** With the Bear Leader through Berlin—Programme arranged by Max Bing. **10.0,** Weather, News and Sports Notes. **10.15** (approx.), Orchestral Concert. **12 Midnight,** See **Stuttgart. 12.30 a.m. (Sunday),** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BEROMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**7.40 p.m.,** Sports Talk. **7.45,** Talk or Gramophone Records. **8.0,** News, Exchange, Market Prices and Lottery Results. **8.5,** English Lesson. **8.20,** News Bulletin. **8.30,** Concert of Light Music on Gramophone Records. **9.0,** Programme (to be announced), relayed from **Paris.**

BRATISLAVA

1,076 kc/s, 279 metres; 11 kW.—**4.10 p.m.,** Concert by the Station Orchestra, conducted by J. Odehazel. **5.10,** See **Prague. 5.20,** Gramophone Music. **5.35,** Moravian Folk Song Recital by Martin Sestak. **6.0,** Talk on American Houses. **6.10,** Popular Concert, conducted by K. Hirschmann. **6.40,** Talk: Summer Sports. **6.55,** Talk for Housewives. **7.0,** See **Prague. 8.15,** See **Moravská-Ostrava. 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, 1,184 kc/s, 253 metres.—2.5 p.m.,** Gramophone Concert. **2.45,** Programme arranged by the Post Office with Gramophone Music. **3.10,** Agricultural Prices. **4.0,** Book Review. **4.20,** Concert by the Station Orchestra, conducted by Franz Marszalek: Selection from The Tales of Hoffmann (Offenbach); Waltz from Fasching (Kienzl); Overture, Anna Bolena (Donizetti); Humorous Variations on the Song, Nun leb denn wohl du kleine Gasse (Blumann); From Gluck to Wagner (Schreiner); Waltz, Lustiges Wien (Meisel); Selection from Drei arme kleine Mädels (Kollo). In the interval at **4.50** (approx.), Film Review. **5.45,** Talk: Germany's Struggle for Equality. **6.5,** Programme to be announced. **6.30,** Concert by the Station Orchestra, conducted by Franz Marszalek. Soloist: Bruno Janz (Violin). Chamber Sonata for Violin and Strings (P. Hermann); Kleine Kammermusik in Old Style for Strings and Pianoforte (H. Herrmann). **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Stuttgart. 8.0,** See **Vienna.** In the interval at **8.50,** Announcements. **9.45,** Time and News. **10.15,** Orchestral Concert, relayed from **Berlin (Witzleben). 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.0 p.m.,** See **Prague. 8.15,** See **Moravská-Ostrava. 10.0,** See **Prague. 10.15,** Concert by the Station Orchestra, conducted by J. Gotthard. Soloist, J. Zamecnik (Violin); Ballet Music from Laurin (Maskovsky): Selection from Orpheus in the Underworld (Offenbach); Waltz (Joh. Strauss); Intermezzo (Roob); Ballet Overture (Lincke); Moravian Dance (Balling); Violin Solo: Fantasia on a Folk Song (Moor); Jubilee Polka (Schor); Intermezzo (Schor); Medley of Czech Folk Dances (Moor); Polonaise for Violin and Orchestra (Provaznik); Festival March, Op. 54 (Dvorák). **11.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert by the Radio Orchestra, conducted by Charles Walpot. Soloist: Locnfler (Tenor). **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert: Czardas (Grossman); Waltz, Frühlingsstimmen (Joh. Strauss); Tatjana (Lindsay); Plaisir d'amour (Martini); Offenbachiana (Finck); Havanaise (Saint-Saëns); Cockney Suite (Ketelbey). **4.45,** Talk: Belgium and the Great Powers. **5.0,** Concert by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp. **6.0,** Talk on Fish. **6.15,** Gramophone Concert: Septet (Saint-Saëns); Concert Waltz (Glazunov); Duet, Le châlet (Adam); Spanish Serenade (Glazunov); Air from Le grand Mogol (Audran); Berceuse (Gretchaninov); Italian Serenade (Wolf); Nocturne (Chopin); Scherzo Waltz (Chabrier). **7.15,** Talk on Folklore Maytime Customs. **7.30,** Journal Parlé. **8.0,** Concert by the Symphony Orchestra, conducted by Meulemans. Soloists: Marguerite Thys (Songs) and Adolphe Frezin ('Cello): Overture, Charlotte Corday (Benoit); Symphonic Poem, Le chasseur maudit (Franck); Arias from (a) Il Re Pastore (Mozart), (b) Figaro (Mozart); Waltz from Der Rosenkavalier (R. Strauss); Spanish Caprice (Rimsky-Korsakov); Symphonic Variations (Boellmann); Chanson triste (Duparc); Songs (Jongen): (a) Tableau gothique, (b) Bal des fleurs; Overture, Tannhäuser (Wagner). In the interval, Reading of Poems. **10.0,** Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danse. **11.30,** Light Music on Gramophone Records.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Gramophone Concert: March (Walnier); Two Airs from Marietta (Oscar Straus); Foxtrot (Jacobs); La cimpanitaine (Gabriel-Marie); Little Grey Home in the West (Löhr); My Little Persian Rose (Woolf); Horn Solo, Rêverie (Glazunov); Minuet (Valensin); Mattinata (Leoncavallo); Selection from Manon (Massenet); Romanian Dance (arr. Racz); Dance of the Raindrops (Evans); Carnival in Vienna (Joh. Strauss-Rosenthal); March, King Cotton (Sousa). **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Radio Orchestra, conducted by M. Charles Walpot: Soloist: M. Locnfler (Tenor); Marche des marionettes (Hullebroeck); Overture, Orpheus in the Underworld (Offenbach); Waltz Potpourri (Robrecht); Songs; Ballet Music from Faust (Gounod). **4.45,** Book Review. **5.0,** Dance Music from the St. Sauveur Palais de Danse. **6.0,** Gramophone Records of Variety Music. **6.15,** Talk on Gustavus Adolphus. **6.30,** Gramophone Records of Russian Music, with Commentary; In the Steppes of Central Asia (Borodin); Two Pieces (Liadov): (a) Baba-Yaga, (b) Kikimora; A Night on the Bare Mountain (Mussorgsky). **7.15,** Talk: Belgium and the Crisis. **7.30,** Film Review. **8.0,** White Horse Inn—Musical Play in Three Acts (Stolz-Benatzky). In the interval at **9.5,** Recitations, and at **10.20,** Le Journal Parlé. **11.30,** Gramophone Records of Popular Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. **7.40,** Light Music on Gramophone Records. **8.0,** Concert by the César Franck Choir. **8.45,** Talk. **9.0,** Light Music and Romanian Music, relayed from a Restaurant. **10.0,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres** from **6.50 p.m.** (approx.) till Close Down.—**5.30 p.m.,** Choral Concert. **6.15,** The Letter Box. **6.50,** Talk. **7.35,** Exchange. **7.45,** Gramophone Records of Light Music. **8.25,** Racing Results. **8.30,** Talk. **8.55,** Concert by the Arpad Toll Cigány Band. **10.0,** News. **10.15,** Concert conducted by F. Fridl: Overture, The Hebrides (Mendelssohn); Suite (Komotor); Kaiserwalzer (Joh. Strauss); Ballet Scene, Zigeunerfest (Lehár); Oriental Suite (Popy); March, Per aspera ad astra (Urbach). **11.30,** Concert of Light Music and Dance Music from the Dovankorso Cafe: Waltz, Dorfkinder (Kálmán); Tango Song (Brodzsky); Serenata della laguna (Becce); Waltz Song (Buday); Waltz (Rapee); You are my Heart's Delight from The Land of Smiles (Lehar); Tango Song (Sorge).

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time Signal and Chimes from the Town Hall. **12.2 p.m.,** Concert by the A. Bendix String Ensemble, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **2.30,** Gramophone Concert: Elisabeth Schumann: Songs (Schubert): (a) Heidenröslein, (b) Lied im Grünen; Michele Fleta: Canto's Aria from Act I of I Pagliacci (Leoncavallo); Giuseppe Nessi, Aristride Baracchi and Emilio Venturini: Trio from Turandot (Puccini); M. L. Goldis (Viola d'amore): Ave Maria (Bach-Gounod); Sven-Olof Sandberg: Melody (Sulvain); Kate Smith: Twenty Million People (Coslow and Johnstone); Mills Brothers: I heard (Redman and Mills). **3.0,** Programme for Children. **3.30,** Concert by the Station Orchestra, conducted by Launy Gröndahl. Soloist: Holger Vallojörn (Violin). March (Reesen); Overture, Piazza del Popolo (Schröder); Ballet Music from Les Templiers (Litolff); Death and the Maiden for Strings (Schubert); Dance from I Höst (Hallen); Violin Solos: (a) La Folia (Corelli-Leonard), (b) Spanish Serenade (Chaminade-Kreisler), (c) Allegretto (Boccherini-Kreisler); Concert Overture, Michel Angelo (Gade); Largo from the New World Symphony No. 5 (Dvorák); Waltz, Neu Wien (Joh. Strauss); Music of the Spheres, for Strings (Rubinstein); Hedvig Polka (Ransoe); Honeymoon March (Rosey). **5.35,** Exchange and Fish Market Prices. **5.50,** Talk (from the Aalborg Studio). **6.20,** French Lesson. **6.50,** Weather. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on Bach. **8.0,** Time Signal from the Town Hall. **8.1,** Bach Concert by the Station Orchestra, conducted by Launy Gröndahl. Soloists: Johanne Karstens (Songs), Henry Munck (Oboe), and Folmer Jensen (Pianoforte). Suite in D, for Orchestra; Two Arias with Oboe obligato: (a) Hört, ihr Augen auf zu weinen, (b) Seufzer, Tränen, Kummer, Not; Prelude and Fugue from Das wohltemperierte Klavier; Overture to the Cantata, Die Erde lacht, die Himmel jubiliert. **8.40,** Reading. **9.0,** Light Music by the Louis Preil Instrumental Ensemble. **9.15,** A Tour round Copenhagen. **10.15,** Concert by Louis Preil's Instrumental Ensemble: Nächtliche Runde (Urbach); Liebesserenade (Löhr); The Fountain (Nussbaum); Viennese Waltz (Benatzky); Potpourri, Die Fahrt ins Blaue (Dostal); Ständchen No. 2 (Heykens); Rhapsody, Zigeunerfest (Heykens). **10.50,** News. **11.5,** Dance Music by the Louis Preil's Band. **11.50,** Reading. **12 Midnight,** Time Signal and Chimes from the Town Hall. **12.2 a.m. (Sunday),** Dance Music (contd.). **12.30 a.m.,** Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Review of Foreign Affairs. **7.15,** Miscellaneous Announcements and News. **7.30,** See **Warsaw. 11.0,** Light Music, followed by Dance Music from the Pavillon Restaurant. In an interval

at 11.30, News for Members of the Polish Polar Expedition. 12 Midnight, Fanfare from the Tower of St. Mary's Church.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. T. St. Ronald, C. Danvers-Walker, and B. McNabb announcing. 5.30, Concert of Popular Songs for Tunbridge Wells and Isle of Thanet Listeners: I'll stay with you (Woods); Try a little Tenderness (Woods); Pianoforte Solo, Butterflies in the Rain (Reaves); Let's put out the Light (Berlin); How deep is the Ocean (Hupfeld); I'm playing with Fire (Berlin); Pianoforte Solo, Everyone says I love you (Kalmar); Just an Echo in the Valley (Woods); A Ghost of a Chance (Washington); Popular Melodies for Pianoforte: I wish I was single again (arr. Raymond); Leave the pretty Girls alone (Robison). 6.15, Concert for Dover and Folkestone Listeners: Mariette, La Camparsita; Little Lady; Song, A Love Song of Old Valencia; Song, Lady of Spain; Plegaria; Old Vienna Moon; Madrid; Song, Cuban Love Song; Song, Street of Dreams; Corazon; Todavia. 7.0, Programme in French. 11.0 till Close Down, Programme in English by the I.B.C. 11.0, Musical Comedy Programme: Potpourri (Ewing); The Night was made for Love, from The Cat and the Fiddle (Kern); Love will find a Way, from The Maid of the Mountains (Fraser-Simson); Selection from Frederica (Lehar); I give my Heart, from The Dubarry (Millöcker); Duet, A Paradise for Two, from The Maid of the Mountains (Fraser-Simson); Selection from Chu Chin Chow (Norton). 11.30, Duets: That Silver-haired Daddy of Mine; Paradise; When I was a Boy from the Mountains; Orchestra: Valencia; Leave the pretty Girls alone; In a Kitchenette; Way down in Georgia; Orchestra, Chinatown, my Chinatown. 12 Midnight, Club Concert for Newry Listeners: Shamrockland (Williams); Songs: (a) My Irish Paradise, (b) The Rose of Tralee; Bitter Sweet Waltz (Coward); The Sweetest Flower that Blows (Hawley); Chorus, Gems of Erin; Song, Smiling Irish Eyes; By the Swanee River (Myddleton); Songs: (a) Shall my Soul pass through Ireland, (b) Farewell my Native Irish Home; Sheepy Valley (Hanley); Songs: (a) My Dear Soul (Sanderson), (b) Innis Farrell; Irish Potpourri (Williams). 1.0 a.m. (Sunday), Xylophone Solos and Orchestral Music: Orchestra, My Sunshine is you (Stolz); Snappy Sticks; The Huntsman (Nelson); Orchestra, Happy Days and Lonely Nights (Fisher); First Waltz (Durand); Marionette (Gaston); Silvery Moon (Frazzini); Orchestra, Goodnight Sweetheart (Noble). 1.30, Songs: Beneath thy Window; That's my Song; I know of two Bright Eyes; Orchestra; Old Time Memories; Take away the Moon; Wind in the Willows; You used to belong to me. 2.0, Dance Music by the Ibcolians: Leave a little for me; I can't write the Words; How do you do, Mr. Brown; Balloons; The Lady I love; Isn't it romantic; When they're on the Love Parade; Big Ben's saying Goodnight; Butterflies in the Rain; Me minus You; Brother, can you spare a Dime? Same old Moon; I'll never have to dream again; Ain't cha comin' out to-night. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.** Concert by the Station Orchestra. Part I. Conductor: Dr. Reinhold Merten. Selection from Twelfth Night (Humperdinck); Pianoforte Concerto in B Flat Minor, Op. 23 (Tchaikovsky); Hamlet (Liszt). Part II—Old Dance Music. Conductor: W. Caspar. 5.50, Economic Notes and Review of the Week. 6.25, Discussion on the Protestant Church and the State. 6.30, Review of the Week. 6.50, Time, Programme Announcements, Weather and Economic Notes. 7.0, Transmission for all German Stations, relayed from **Stuttgart.** 8.0, See **Vienna.** 9.45, Variety Programme. 10.15, Time, News, Weather and Sports Notes. 10.45, See **Munich.** 12 Midnight, Transmission for all German Stations, relayed from **Stuttgart.** 12.30 a.m. (Sunday), Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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 Adolf Secker. 5.0 (from **Hanover**), Talk: The Australian Bushman. 5.30, Dialogue: Documents of the World War in the Hamburg Municipal Library. 6.0, Variety Programme. 6.50, Weather Report. 7.0, Transmission for all German Stations relayed from **Stuttgart.** 8.0 (from **Kiel**), Zither Concert conducted by Oscar Erikson: Potpourri, Ein Musikantenraum (Günther); Waltz, The Blue Danube (Strauss); Two Alsatian Peasant Dances (Merkling); March, Unter deutchen Eichen (Ludwig). 8.30, Concert from **Vienna.** 10.0, Time, Weather, News, Sports Notes and Police Report. 10.20, Topical Talk. 10.30, Orchestral Concert from **Berlin (Witzleben).**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert. In the interval at 1.20, News. 2.30, Programme arranged by the Post Office, with Gramophone Music. 3.0, Agricultural Market Prices, and Exchange Rates. 3.30 (from **Danzig**), Handwork for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le Dieu et la Bayadère (Auber); Italian Waltz (Joh. Strauss); Lenchte Afrikas (Seybold); Serenata florentina (Seybold); Selection from Alessandro Stradella (Flotow); Turkish Suite (Gauvin); Bridal Waltz (Waldteufel); Vor einer alten Spieluhr (Mueller-Melhorn); Oase (Wismar); Selection from The Three Wishes (Zichrer); French Comedy Overture (Kéler-Béla). In the interval at 4.50 (approx.), Road Report. 5.50, Talk: Political Truths. 6.5, Programme Announcements. 6.15, Agricultural Prices. 6.25, Monthly Review. 6.50, Weather Report. 7.0, Transmission for all German Stations, relayed from **Stuttgart.** 8.0, News. 8.10 (from **Danzig**), Concert of Marches. 10.10, News, Weather, and Sports Notes. 10.30 (approx.), Orchestral Concert, relayed from **Berlin (Witzleben).** 12 Midnight, Transmission for All German Stations, relayed from **Stuttgart.** 12.30 a.m. (Sunday), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW up to **4.40 p.m.**).—Programme of the Workers' Radio Society (V.A.R.A.). 11.40 a.m., Orchestral Concert, conducted by Hugo de Groot. 12.25 p.m., Organ Recital. 12.55, Concert (continued). 1.40 to 1.55, Interval. 1.55, Gramophone Records. 2.30, Talk. 2.50, Concert by a Children's Choir. 3.30, Illustrated Talk on Music. 4.10, Talk. 4.30, Concert by De Notenkrakers. 5.20, Literary Talk. 5.40, Concert, conducted by P. Tiggers. 6.10, Talk. 6.40 Organ Recital. 7.10, Concert by a Mandoline Ensemble. 7.39, S.O.S. Announcements. 7.10, Concert by De Fierefluiters. Soloist: Hilde Harmat (Soprano). 8.10, Address. 8.25, Concert (continued). 8.40, Recitations. 8.55, Concert by the Radio Orchestra, conducted by Hugo de Groot. Overture, Orpheus in the Underworld (Offenbach); You are my Heart's Delight, from The Land of Smiles (Lehár); Gern' hab' ich die Frauen geküsst (Lehár); Zion (Philipson); Tanzen möcht' ich (Kálmán); Delibes Potpourri (Urbach). 9.40, News. 9.55, Concert (continued). The Red Flag (Broecka-Renes); In sine nomine (Altink). Ballet Potpourri (Barrière); Selection from The Vagabond King (Friml); Liebling (Strauss); Melody (Brusselmans); Jungle Drums (Ketelbey); Liebesfreud (Kreisler); March (Ciere). 10.40, Gramophone Music. 10.55, Orchestral Concert. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s. 1.875 metres; 8.5 kW. Programme of the Catholic Radio Society (K.R.O.).—**11.55 a.m.,** Concert by the K.R.O. Sextet. 1.25 p.m., Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Gramophone Music. 4.25, Concert by the K.R.O. Boys. In the Interval at 4.55, Sports Talk, at 5.25, Talk, and at 6.0, Press Review. 6.40, Police Notes. 6.55, Talk. 7.15, Gramophone Music. 7.25, Talk. 7.40, Variety Programme. 8.10, News. 8.15, Songs, by M. Gubbens. 8.30, Variety Programme (continued). 9.10, Songs by Mlle. Reiff and M. Dekker. 9.25, Variety Programme (continued). 9.55, Songs by M. Gubbens. 10.15, Variety Programme (continued). 10.40, Songs by Mlle. Reiff and M. Dekker. 10.55, Gramophone Music. 11.40, (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News and Financial Report. 8.10, North African Review. 8.20, Film Review. 8.30, Literary Review. 9.0, News and Racing Results. 9.15, Radio Concert. 12 Midnight till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. 12 Midnight, Variety Concert, Welsh Medley (Somers). Riding on a Camel (Wright); Look what you've done (Kalmar and Ruby); Bunkey-doodle-ldo (Sarony); Sleepy Rio Grande (Vincent); Accordion Solo, Blaze away (Holzmann); The Crime Sheet; Daisy Bell (Dacre); What a perfect combination (Kalmar); When the Bloom is on the Sage (Vincent); After the Ball (Harris); Two Little Girls in Blue (Graham); Popular Melodies on a Piano; Reaching for Some one (Donaldson); Ain't Misbehavin' (Donaldson); Close Your Eyes (Carter); Irish Medley (Somers). 12.57 a.m. (Sunday), I.B.C. Goodnight Melody. 1.0, Close Down.

KALUNDBORG.—See **Copenhagen.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.30 p.m.,** Concert. 8.10, Talk on Weaving Exhibitions. 8.30, Dance Music. 9.0, Talk. 9.40, Sports Notes. 9.50, Concert. 10.30 (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Variety Programme. 8.0, Dance Music, relayed from the Pörssi Restaurant. 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Wolf: Overture, Hunyady Laszlo (Erkel); Friedemann Bach Suite (Leuschner); Es muss ein Wunderbares sein (Liszt); Ständchen (Schubert); Selection from Le Postillon de Longjumeau (Adam); Dream Pictures (Lumbye); Selection from Casanova (Lincke); Westphalian March Suite No. 1 (Bülow-Schichting). In the interval at 2.0, News. 2.30 to 3.0, Interval. 3.0, Programme for Children. 3.30, Economic Notes and Time. 3.50, Talk: Touring in the Rhineland and Westphalia—the Sauer District. 4.10, Talk on Handicrafts. 4.30, Concert. 5.50, Talk: The Significance of Professional Work for Women. 6.10, Reading. 6.20, English Reading. 6.45, Weather, Time, Economic Notes, and Sports Report. 7.0, Transmission for all German Stations, relayed from **Stuttgart.** 8.0, News. 8.5, Wind Instrument Concert: March, In Treue fest (Teike); March, Reitergeist (Prager); Hitler March (Geller); March on Büchsenschütz' Song. Märkische Heide (Lincke); March, Hoch Heidecksburg (Herzer); March, Mit Eichenlaub und Schwertern (Blon); Germania-Marsch (Keil); Badonviller Marsch (Fürst). 8.35, Schützekünning—Rhenish Folk Play in Five Acts (Georg Fuchs). 10.15, News and Sports Report. 10.40, Serenade. 12 Midnight, Transmission for All German Stations, relayed from **Stuttgart.** 12.30 a.m. (Sunday), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Folk Song Recital on Gramophone Records. In the interval, Wireless Notes. After the Concert, News. 2.30, Programme for Children. 3.15, Book Review. 3.45, Economic Notes. 4.0, Concert from **Berlin (Witzleben).** In the interval at 5.0, Talk on Music. 6.0, Talk: The Meaning of German Surnames. 6.20, A Modern Dictionary. 6.30, The Excavations in Geiseltal; Radio Report from the Palaeontological Museum at Halle University. 7.0, Transmission for all German Stations relayed from **Stuttgart.** 8.0, Topical Talk. 8.15, Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen. 10.15, News. 10.30, Concert Relay. 12 Midnight, Transmission for all German Stations relayed from **Stuttgart.** 12.30 a.m. (Sunday), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 p.m.,** Quintet Concert. 6.0, Talk on Ethnology. 6.30, English Lesson. 7.0, Educational Talk. 7.30, Week-end Hints. 8.0, An Opera (to be announced), relayed from **Zagreb, 977 kc/s, 307 metres.** 9.30, Weather and News.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Programme for Young People. 7.15, Miscellaneous Items. 7.30, See **Warsaw.** 12 Midnight (approx.), Close Down.

LYONS

(LA DOUA), 644 kc/s, 465.8 metres; 1.5 kW.—**7.15 p.m.,** Light Music. Airs from Les Millions d'Arlequin (Drigo); Czardas (Monti); Tu me dis non (Rosen); Christiana (Gottler). 7.30, Radio Gazette for Lyons and the South-East. 8.30, Variety Programme relayed from **Paris (Ecole Supérieure) 671 kc/s (447.1 m.).** After the Relay, News.

MADRID

ARANJUEZ (EAQ), 16,800 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 Spanish Music. 8.15, Talk. 8.30, Light Music. 9.0 to 11.30, Interval. 11.30 Programme from **Madrid (EAJ7).** 1.0 a.m. (Sunday), Close Down

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange Quotations, Radio Journal, Talk on Homeopathy, and Request Gramophone Records. 9.15, News. 9.30 to 10.0, Interval. 10.0, Linguaphone English Lesson. 10.30, Chimes and Time Signal. 10.35 (approx.), La Gioconda—Opera (Ponchielli) on Gramophone Records. 12.45 a.m. (Sunday), News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Recital of Old Italian Songs, by Marta Zapletalová. Introductory Talk by E. Ambros. Recitative and Aria (Emmanuele d'Astorga); Canzonetta (Salvator Rosa); Aria (Antonio Caldara); Arietta (Jomelli di Aversa); Aria (Giovanni Buononcini). 7.0, See **Prague.** 8.15, Variety Programme. The Ghosts—a Radio Sketch (J. and A. Wenig). Songs and Instrumental Music by the Station Orchestra and Soloists. 10.0, See **Prague.** 10.15, See **Brno.** 11.30 (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**6.30 p.m.,** Concert. 9.0, News Bulletin. 9.30, Programme Announcements. 9.55, Time Signal. 10.5, Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**5.0 p.m.,** Concert, conducted by Erich Kloss: Overture, Die schöne Galathée (Suppé); Romance from Symphony No. 4 (Schumann); Suite for Small Orchestra (Pottgieser); Musical Scenes from Czar and Carpenter (Lortzing); Siesta Waltz (Waldteufel); Ecstasy (Gamne); Dance of the Merry Mascots (Ketelbey); March, Mit Eichenlaub und Schwertern (Blon). 6.15, Talk for Young Girls: Expeditions into the Bavarian Forests. 6.45, Talk on Wireless. 7.0, Transmission for all German Stations, relayed from **Stuttgart.** 8.0, Concert by the Alois Leinberger Schrammel Trio: March, Heurigenbrüder (Fucik); Waltz, Der Weg zum Herzen (Freundorfer); Kirschblüte (Albert); Grün ist die Heide (Blume-Löns); Tyrolese Song, Wo die Alpenrosen blühn; Viennese Song, Seeht's Leut'ln, so war's in Wien anno 30; Poltmarsch (Schrammel). 8.30, The Circus Princess—Operetta in Three Acts (Kálmán). 10.20, Time, Weather, News and Sports Notes. 10.45, Serenade, conducted by Erich Kloss. 12 Midnight, Transmission for all German Stations, relayed from **Stuttgart.** 12.30 a.m. (Sunday), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Gramophone Music. 5.15, Programme for Children. 6.15, Violin and Flute Recital of Norwegian Music. 7.0, Announcements, Weather and News. 8.0, Time Signal. 8.1, Concert by the Station Orchestra: Tyrolese March (Dreyer); Overture, Paragraph 3 (Suppé); The Nutcracker Suite (Tchaikovsky); Finnish Lullaby (Palmgren); Erotikon (Sjögren); Gavotte from Mignon (Thomas); Peasant Idyll (Haarklou); Lullaby, Nina (Micheli); Potpourri of Popular Melodies (Lie); Silver Clouds (Ketelbey); Humorous Variations on A Carnival in Venice (Ritzau); Selection from Frühling im Wienerwald (Ascher); Down South (Myddleton); Pizzicato Serenade (Beece); Kadettenstreiche (Jessel). 9.40, Weather and News. 10.0, Topical Talk. 10.15, Choral Concert, conducted by Sigurd Torkildsen. 10.45, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Notes, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Sports Notes. 8.25, Popular Music on Gramophone Records. In an interval at 8.30, Time and Announcements. 8.45, Fascino azzurro—Operetta in Three Acts (Ettore Bellini). In the intervals, Book Review and Announcements. After the Operetta, News.

MAY 27th **SATURDAY** *continued*

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Talk. **7.0,** Le Journal Parlé. **8.30,** Radio Festival, relayed from the Palais de la Mutualité.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**8.45 p.m.,** Journal Parlé. **7.5,** Light Music on Gramophone Records. **7.30,** Answers to Correspondence. **7.35,** Light Music (contd.). **8.0,** Review of the Week. **8.5,** Theatre Review. **8.15,** Interval. **8.30,** Chamber Music. **9.0,** Interval. **9.10,** Dance Music. **11.0,** News. **11.5,** Dance Music on Gramophone Records. **12 Midnight,** Close Down.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert by the Radio Paris Orchestra: Suite Lorraine (Boisdeffre); Melody (Joh. Strauss); Rhapsody in Blue (Gershwin); Hungarian Dances Nos. 5 and 7 (Brahms); Plantation Songs (Clutsam); Japanese Suite (Holst); Kamarinskaja (Glinka); Midnight on Maundy Thursday in Seville (Turina-Chapelier); Suite Savoyarde (Chanaud). In the intervals at **1.0 p.m.,** Exchange, News and Weather, and at **1.30,** Exchange. **2.0,** Exchange. **3.0,** Programme for Children. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Concert by the Radio Paris Orchestra. **7.0,** Scientific Talk. **7.20,** Concert by the Radio Paris Orchestra. **7.45,** Commercial Prices, News and Review of the Latin Press. **8.0,** Variety Programme. **8.30,** News and Weather. **8.40,** Reviews by René Dorin. **8.45,** Gramophone Records. **9.0,** See **Vienna. 10.0,** Gramophone Records. In the interval at **9.45,** Press Review and News.

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc/s, 306 metres; 25 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.** Radio Debuts. **8.0,** Radio Troubadours, from **New York. 8.30,** Wealth of Harmony, from **New York. 9.0,** Teaberry Baseball Scores. **9.5,** Mitchell Schuster Tangodahl Orchestra, from **New York. 9.30,** Concert Favourites, from **New York. 9.55,** Teaberry Baseball Scores. **10.0,** The United States Government in Pittsburgh—3,500 Reserve Officers in Western Pennsylvania, by Major F. E. Bonney. **10.15,** Hotel Sherman Orchestra, from **New York. 10.30,** Behind the Law—Tales of the Pennsylvania State Police. **10.45,** Little Orphan Annie, from **New York. 11.0,** Hotel Lexington Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Teaberry Sport Review. **11.22,** Press News-Reeler. **11.29,** Temperature Report. **11.30,** A Recreo by Bill and Alex of the Downtown V.M.C.A. **11.45,** Jack Pettis and his Orchestra. **11.59,** Time Signal. **12 Midnight,** American Tax Payers' League, from **New York. 12.15 a.m. (Sunday),** The Townsend Murder Mystery, from **New York. 12.30,** Atkinson String Ensemble. **12.45,** Homey and Old-Fashioned Quartet. **1.0,** Joint Commission in Emergency in Education, from **New York. 1.15,** The Leaders, from **New York. 1.30,** Programme to be announced. **3.0,** Time Signal and Gilbert and Sullivan Gems, from **New York.**

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**6.0 p.m.,** Divine Service, relayed from **Czenstochowa. 7.0,** Theatre Notes and Programme Announcements. **7.5,** Miscellaneous Announcements and News. **7.28,** Time Signal. **7.30,** See **Warsaw. 10.0,** Time Signal and Announcements. **10.5,** See **Warsaw. 10.40,** Announcements (contd.). **10.50,** Dance Music from the Café Polonia. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava. 5.10,** Talk on Economics. **5.20,** Czech Lesson for Germans and German Lesson for Czechs. **5.50,** Gramophone Music. **6.5,** Agricultural Report. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Poetry Reading. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Talk on the following Transmission. **7.25,** Concert of Czechoslovak Songs by the Vinohrady Hlahol Choral Society. **8.0,** Talk. **8.15,** See **Moravská-Ostrava.** In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** See **Brno. 11.30** (approx.), 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**), Talk: Across India. **7.30** (from **Geneva**), Weather, News and Announcements. **8.0** (from **Geneva**), Orchestral Concert of Popular Russian Music. **8.30,** Wagner Concert by a Symphony Orchestra, Women's Choir and Soloists, relayed from **Vevey:** Extracts from: (a) Tannhäuser, (b) The Mastersingers. **10.15,** News and Weather. **10.30** (from **Lausanne**), Dance Music, relayed from the Bel-Air Métropole. **11.30** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**5.40 p.m.,** Organ Recital by Harald Kreicburgs. Toccata, No. 5 (Frescobaldi); Andante (Elgar); Sonata, No. 3 (Guilmant); Choral. **6.10,** Agricultural Talk. **6.40,** French Lesson. **7.10,** Weather Report. **7.15,** Harp and Flute Recital. **8.0,** News. **8.20,** Wind-Instrument Concert. In the interval at **9.0,** Weather and News. **9.35,** Old Dance Music. **10.0,** Modern Dance Music. **11.0** (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.**—**1.0 to 2.15 p.m.,** Orchestral Concert. **4.30,** Children's Radio Review. **4.45,** Report of the Royal Geographical Society and Giornale Radio. **5.5,** Exchange and Announcements. **5.15,** Reading. **5.30 to 6.15,** Orchestral Concert: A Bungalow, a Piccolo and You (Lewis); Taöte (Carducci); Serenatella (Panizzi); Selection from La rondine (Puccini); Toccata (Martucci); Cipressi (Castelnuovo-Tedesco); La Campanella (Liszt); Madrid (Alex). **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.0,** Tourist Report. **7.10,** Lesson in Morse. **7.20,** Giornale Radio. **8.0,** Time, Announcements, and Report on the Cycle Tour of Italy. **9.0,** See **Turin.** In the intervals, Talk, Scientific Review, and Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (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.**—**11.45 p.m.,** Stock Reports and Baseball Scores. **12 Midnight to 3.0 a.m. (Sunday), New York** Relay. **12** Midnight, Kaltenmyer's Kindergarten. **12.30 a.m.,** The Economic World To-day. **1.0,** Band of Famous Brands. **1.15,** Zora Layman and her Debonairs. **1.30,** K—7, Secret Service Spy Story. **2.0,** B. A. Rolfe and his Terraplane Orchestra. **3.0,** Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather. **12 Noon** (from **Berne**). Gramophone Music. **12.30,** News Bulletin. **12.40** (from **Berne**), Concert (contd.). **1.25** (from **Berne**), Exchange, Time and Weather. **1.30** (from **Berne**), Answers to Correspondence. **1.45** (from **Berne**), Review of Books. **2.15** (from **Berne**), Gramophone Records. **2.30** (from **Berne**), Talk. **3.0** (from **Berne**), Zither and Guitar Music. **3.30 to 5.0,** Interval. **5.0** (from **Berne**), Harp Recital. **5.30** (from **Berne**), Folk Songs on Gramophone Records. **6.0** (from **Berne**), Talk. **6.30** (from **Berne**), Programme for Young People. **7.0,** Chimes. **7.10** (from **Basle**), Time, Weather, and Market Prices. **7.15** (from **Basle**), Nature and Technique in Music—Gramophone Concert. **8.0** (from **Basle**), Talk on Technical Research. **8.30,** Aria and Song Recital. **9.0,** Weather and News. **9.10** (from **Basle**), Radio Play. **10.15** (from **Basle**), Concert by the Weintraub Syncopators, from the Summer Casino. **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; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**4.15 p.m.,** University Degree Day Ceremony, relayed from the Town Hall. **5.5,** Programme for Children, relayed from **Karlstadt, 1,382 kc/s, 217 metres. 5.30,** Song Recital by Elna Pandaro. **5.45,** Reading. **6.15,** Gramophone Music. **7.30,** Talk. **8.0,** Old-Time Dance Music. **10.0,** Modern Dance Music. **12 Midnight** (approx.), Close Down.

STRASBOURG

859 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Gramophone Concert of Opera Music. **12.45 p.m.,** News. **1.0,** Time and Exchange. **1.5,** Light Music on Gramophone Records. **2.0,** Legal Talk in German. **2.15,** Dance Music on Gramophone Records. **3.15 to 3.45,** Interval. **3.45,** Talk on Wagner. **4.0,** Wagner and Pierné Concert, conducted by Maurice de Villers: Part I, Wagner Music: Prelude to Lohengrin; Selection from The Valkyries. Part II, Pierné Music: Orchestral Suite from Le Bonton d'or; Ballet de cour; Orchestral Suite from Izeyl; Dance Suite; Marche solennelle. **6.0,** Talk in French: The Moselle Automobile Club. **6.15,** French Elocution Lesson. **6.30,** Lisbeth Eschrich Recital, with the Composer at the Pianoforte. H. Grégoire (Violin), and Mlle. Wild (Songs). Pianoforte Solo, Prelude and Fugue on a Hebrew Theme; Songs: (a) Arietta, (b) Novellette; Six Children's Songs; Gazouillis d'Enfants; Sonata for Violin and Pianoforte. **7.15,** Agricultural Talk. **7.30,** Time and News. **7.45,** Light Music on Gramophone Records. **8.15,** Press Review in German, Lottery Results, and Announcements. **8.30,** The Land of Smiles—Operetta (Lehár). In an interval at **9.30,** Press Review in French. **10.30,** Dance Music from the Savoy. **12 Midnight** (approx.). Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW.; and **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.,** Concert by the Station Orchestra, conducted by Gustav Görlich: March (Smetana); Overture, Le Maçon (Auber); Ballet Divertissement (Blättermann); Waltz, Künstlerleben (Joh. Strauss); Overture, Nakiris Hochzeit (Lincke); March Potpourri, Alle mit uns (Robrecht). **2.30,** Radio Report on the German Aviation Exhibition from the Industry Hall. **3.0,** Time and News. **3.15,** Anecdotes. **3.30,** Programme for Children. **4.30,** See **Frankfurt. 5.15,** Concert of Swabian Folk Melodies, relayed from **Heidenheim. 5.50,** Time and Sports Notes. **6.0,** Talk: Germany's Naval Power. **6.25,** Talk: A Visit to the German Marine Force. **6.50,** Time and News. **7.0,** Transmission for all German Stations: The Black Forest—A Radio Sequence (Martin Lang and Johannes Künzig). **8.0,** Military Band Concert of Old and New Würtemberg Marches. **8.30,** See **Munich. 10.15,** Time and News. **10.45,** See **Munich. 12 Midnight,** Relay from the Grave of Leo Schlageter from Wiesental in the Black Forest. **12.30 a.m. (Sunday),** Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to Fire. **6.0 p.m.,** News. **6.15,** Military Music. **6.30,** Instrumental Solos. **6.45,** Suite, Mascarade (Lacôme). **7.0,** Extracts from Opéra-Comique. **7.15,** Racing Results, Market Prices, and News. **7.25,** Local News Bulletin. **7.30,** Accordion Music. **7.45,** Popular Music. **8.0,** Instrumental Ensembles. **8.15,** Opera Music: Airs from: (a) The Magic Flute (Mozart), (b) William Tell (Rossini), (c) Il Trovatore (Verdi). **8.30,** Music by a Viennese Orchestra. **9.0,** Extracts from I Pagliacci Opera (Leoncavallo). **9.30,** Orchestral Concert. **10.0,** Accordion Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Operetta Potpourri (Misraki); Polonaise from Boris Godunov (Mussorgsky); Elégie (Massenet); Le cor (Flégier); Une jolie blonde: March of the Foreign Legion (Quéru). **11.0,** Request Concert: Ballet Music from Faust (Gounod); Serenade (Toselli); The Grail Narrative from Lohengrin (Wagner); Cavatina (Raff); Melody from Thaïs (Massenet). **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown Constable announcing. **11.30,** Organ Solos: Popular Irish Medley; Sunshine Susie; You are my Heart's Delight; Close your Eyes; I bring a Love Song; Londonderry Air; When it's Night Time in Nevada; Good-night Sweetheart. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** Weather and Announcements. **12.5 a.m. (Sunday),** Orchestral Music. **12.30** (approx.), Close Down.

TRIESTE

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

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—**5.10 to 6.0 p.m.,** Concert by a Gipsy Quartet. **6.35,** Giornale Radio, Lottery Results, Agricultural Report and Dopolavoro Announcements. **7.0,** Time and Announcements. **7.5** (approx.), Gramophone Records of Songs: Tre cuori (Mariotti-Ramo); Sperduti nel blu (Bordella); Ugo (Mariotti-Ramo); Parlami d'amore Mariù (Bixio). **7.20,** Giornale Radio. **7.45,** Gramophone Records. **8.0,** Announcements, Report on the Cycle Tour of Italy, Giornale Radio, Weather and Gramophone Records. **8.30,** Talk: Events and Problems. **8.50,** Talk on the following Transmission. **9.0,** Cinderella—Opera in Three Acts (Rossini), relayed from La Pergola Theatre. Conductor: Tullio Serafin. In the interval, Review of New Books, Miscellaneous Notes and Giornale Radio.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 862 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**4.45 p.m.,** Concert of Light Music by Josef Wollner and his Orchestra. **5.55,** Talk: The Huzules, a Primitive People in Eastern Europe. **6.25,** Talk: The Latest Developments in the Chino-Japanese War. **6.45,** Talk: The Cantophone, a New Electrical Instrument—with Illustrations by the Inventor, Dr. Walter Brandt. **7.0,** Talk on Franz Schalk on his Seventieth Birthday. **7.10,** Pianoforte Recital by Grete Hinterhofer: Sonata in F Sharp Minor, Op. 11 (Schumann); Albumblatt (Marx); Soirée de Vienne (Grünfeld). **7.45,** The Watchword. **7.50,** Time and News. **8.0,** Monster Concert by the United Military Bands of the Vienna Garrison, relayed from the Heldenplatz. Overture, Titus (Mozart); Dance of the Apprentices and Procession of the Guilds from The Mastersingers (Wagner); Prelude to the Second Act and Sacred Song from Der Evangelimann (Kienzl); Wiegenlied (Brahms); a Hungarian Dance, No. 6 (Brahms); Military March (Schubert); Waltz, Wiener Blut (Joh. Strauss); Der Traum eines österreichischen Reservisten (Ziehrer). **9.45,** Topical Programme. **10.0,** News. **10.15,** See **Budapest.**

WARSAW

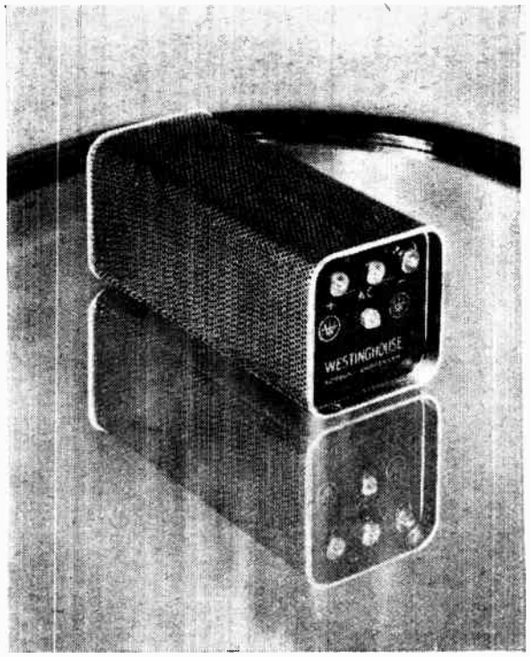
212.5 kc/s, 1,411 metres; 120 kW.—**12.0 p.m.,** Variety Music on Gramophone Records. **12.15,** Broadcast for Schools, relayed from **Lwów. 788 kc/s, 381 metres. 2.0,** Programme for Soldiers. **2.40 to 3.10,** Interval. **3.10,** News Bulletin. **3.15,** Economic Review. **3.25,** News and Answers to Correspondence on Military Questions. **3.35,** Programme for Children. **4.0,** Symphony in B Minor (Borodin), conducted by Albert Coates, on Gramophone Records. **4.40,** Reading. **5.0,** Programme for Invalids, relayed from **Lwów. 5.35,** News Bulletin. **5.55,** Programme Announcements. **6.0,** Divine Service, relayed from Czestochowa. **7.0,** Miscellaneous Items. **7.20,** Talk for Gardeners. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Concert by the Radio Orchestra, conducted by St. Navrot. Soloists: Nina Grudzinzka (Songs) and W. Zywolewsky (Guitar). March, Vive Hungaria (Kálman); Suite, Goliardica (Amadei); Songs: (a) Le Nil (Leroux), (b) Chant hindou (Bemberg), (c) The Musician (Hilsach); Algerian Scene (Ketelbey); Love Duet (Galendbry); Guitar Solos: (a) Black Eyes (Strock), (b) Melody (Zywolewski), (c) Waltz (Karasinski-Kataszek); Czardas from Countess Maritza (Kálmán); Valse triste (Nedbal); Four Songs; Potpourri, Von Wien durch die Welt (Hruby); Three Songs; Waltz (Waldteufel); Oberkio (Namyslowski); Polonaise (Dworakowski). In the interval, Sports Notes, and Radio Journal. **10.5,** Chopin Pianoforte Recital by J. Turczynski: Four Mazurkas, Op. 41; Impromptu in A Flat; Scherzo in B Minor; Nocturne in F Sharp Minor. Two Waltzes in C Minor and A Minor, Op. 34. **10.40,** Reading. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music. In the interval at **11.30,** News for Members of the Polish Polar Expedition.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** Divine Service, relayed from **Czenstochowa. 7.0,** Daily Reading. **7.10,** Dialogue: Country Holidays for Children. **7.30,** See **Warsaw. 8.0,** Concert of Request Gramophone Records. **9.0** till Close Down, from **Warsaw. 12 Midnight** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

Printed for the Publishers, ILIFFE & SONS LTD., Dorset House, Stamford Street, London, S.E.1, by The Cornwall Press Ltd., Paris Garden, Stamford Street, London, S.E.1.
Colonial and Foreign Agents:
UNITED STATES—The International News Co., 131, Varick Street, New York. FRANCE—W. H. Smith & Son, 248, Rue Rivoli, Paris; Hachette et Cie., Rue Réaumur, Paris. BELGIUM—W. H. Smith and Son, 71-75, Boulevard Adolphe Max, Brussels. INDIA—A. H. Wheeler & Co., Bombay, Allahabad and Calcutta. SOUTH AFRICA—Central News Agency, Ltd. AUSTRALIA—Gordon & Gotch, Ltd., Melbourne (Victoria), Sydney (N.S.W.), Brisbane (Queensland), Adelaide (S.A.), Perth (W.A.), and Launceston (Tasmania). CANADA—The American News Co., Ltd., Toronto, Winnipeg, Vancouver, Montreal, Ottawa, St. John, Halifax, Hamilton; Gordon & Gotch, Ltd., Toronto; Imperial News Co., Toronto, Montreal, Winnipeg, Vancouver, Victoria. NEW ZEALAND—Gordon & Gotch, Ltd., Wellington, Auckland, Christchurch and Dunedin.



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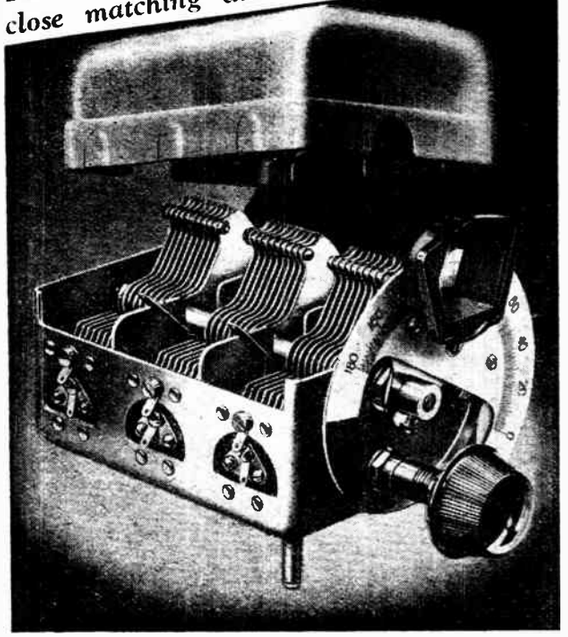

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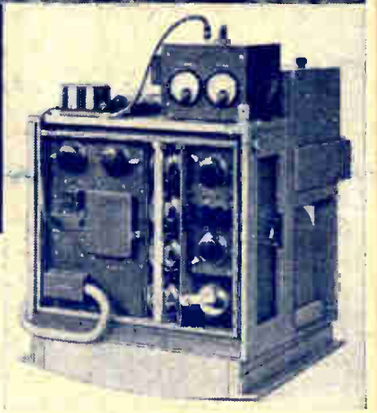

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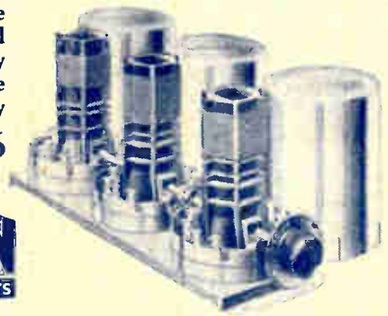

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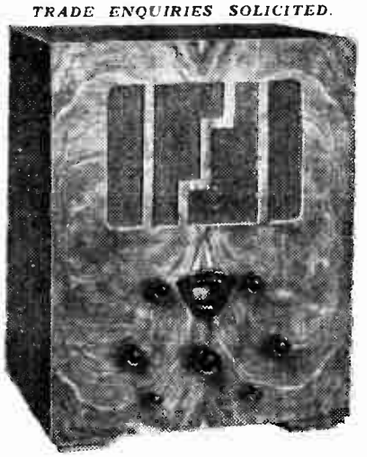

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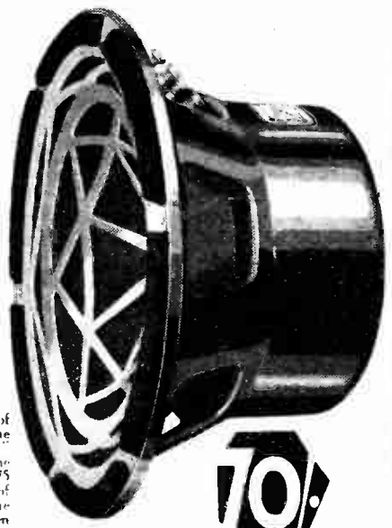

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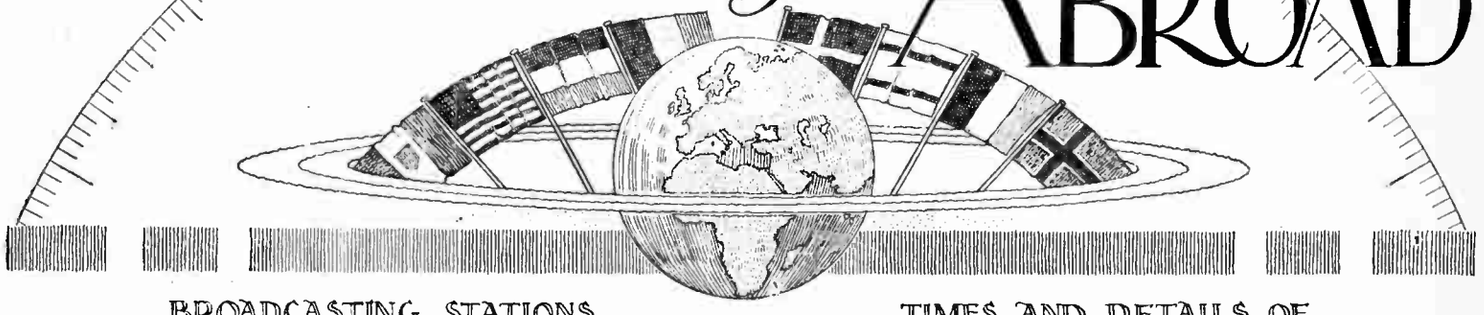

BROADCASTING STATIONS ARRANGED IN ORDER OF WAVELENGTH

TIMES AND DETAILS OF FULL WEEK'S FOREIGN TRANSMISSIONS

Metres.	kc/s.	kW.	Station.	Tuning Positions.
1935	155	7	Kaunas (Kovno) (Lithuania)	
1875	160	8.5	Huizen (Holland)	
1796	167	40	Lahti (Finland)	
1725	174	75	Radio Paris, C.F.R.	
1635	183.5	60	Zeesen (Königswusterhausen) (Germany). (*S.-W. Stn. DJA on 31.38 m., DJB on 19.73 m., DJC on 49.83 m., DJD on 25.51 m., DJE on 16.89 m.*)	
1554.4	193	30	Daventry National	
1538	195	7	Ankara (Angora) (Turkey)	
1481	202.5	100	Moscow, RV1 (Old Komintern) (Russia)	
1446	207.5	13	Eiffel Tower, FL, Paris	
1412	212.5	120	Warsaw 1 (Poland)	
1380	217.5	100	Novosibirsk, RV6 (Russia)	
1354.4	221.5	30	Motala (Sweden). (*Relays Stockholm*)	
1304	230	500	Moscow, WZSPS (Trade Union) (Russia)	
1275	235	0.5	Tunis-Kasbah (Tunisia)	
1230	244	0.6	Boden (Sweden). (*Relays Stockholm*)	
1200	250	5	Stamboul (Turkey)	
1200	250	21	Reykjavik (Iceland)	
1190	252	200	Luxembourg (*Testing*)	
1170	256	25	Tashkent, RV11 (Russia)	
1154	260	7.5	Kalundborg (Denmark). (*Relays Copenhagen*)	
1117	268.5	40	Moscow, Popoff RV58 (Russia)	
1083	277	60	Oslo (Norway)	
1071	280	35	Tiflis, RV7 (Russia)	
1035	290	36	Kiev, RV9 (Russia)	
1000	300	100	Moscow (Russia) (*S.-W. Stn. on 50 m.*)	
938	320	20	Kharkov, RV4 (Russia)	
857	350	100	Leningrad (Russia)	
840	357	18.5	Budapest (Hungary)	
825	363.6	50	Sverdlovsk, RV5 (Russia)	
760	395	1.3	Geneva (Switzerland). (*Relays Sottens*)	
720	416.6	15	Monte Ceneri (Switzerland). (*Testing*)	
720	416.6	20	Moscow, RV2 (Experimental) (Russia)	
690	434.6	1.5	Oulu (Uleaborg) (Finland)	
680	441.2	0.6	Lausanne (Switzerland). (*Relays Sottens*)	
574.7	522	7	Ljubljana (Yugoslavia)	
569	527	0.25	Freiburg-im-Breisgau (Germany). (*Relay Stn.*)	
568.1	528	2	Grenoble (France)	
566	530	0.25	Hanover (Germany). (*Relays Hamburg*)	
563	533	16	Wilno (Poland). (*Relay Station*)	
560	536	0.25	Augsburg (Germany). (*Relays Munich*)	
560	536	1.5	Kaiserslauten (Germany). (*Relays Munich*)	
550	545	18.5	Budapest No. 1 Lakihegy (Hungary)	
542	554	10	Sundsvall (Sweden). (*Relays Stockholm*)	
537.6	558	3	Palermo (Italy)	
533	563	60	Munich (Germany)	
525	571	15	Riga (Latvia)	
517	580	15	Vienna (Rosenhügen) (Austria)	
509	589	15	Brussels No. 1, Velthem (Belgium). (*In French*)	
507.2	591.5	100	Bisamberg (Austria). (*Testing*)	
500.8	599	20	Florence, IFI (Italy). (*Relays Turin*)	
495.8	605	1.2	Trondheim (Norway)	
488.6	614	120	Prague, No. 1 (Czechoslovakia)	
480	625	50	North Regional (Manchester)	
472.4	635	60	Langenberg (Germany)	
465.8	644	1.5	Lyons la Doua, PTT (France)	
459.4	653	60	Beromünster (Schweizerischer Landessender) (Switzerland).	
453.2	662		San Sebastian, EAJ8 (0.6 kW.); Pori (1.0 kW.) (Finland); Danzig (0.5 kW.) (*relays Heilsberg*); Klagenfurt (0.5 kW.) (Austria) (*relays Vienna*); Porsgrund (0.7 kW.) (*relays Oslo*), Tromsö (0.1 kW.) Bodö (0.5 kW.) (Norway); Uppsala (0.15 kW.) (Sweden) (*relays Stockholm*).	

Metres.	kc/s.	kW.	Station.	Tuning Positions.
453.2	662	0.25	Agen (France)	
453.2	662	7	Milan (*Experimental Relays Rome*)	
450.3	666	20	Madona (Latvia). (*Relays Riga*)	
447.1	671		Paris, Ecole Supérieure, PTT (7.0 kW.); Rjukan (0.15 kW.), Notodden (0.08 kW.) Aalesund (0.35 kW.) (Norway) (*relays Oslo*).	
441.2	680	50	Rome, 1RO. (*S.-W. Station, 2 RO on 25.4 m.*)	
435.4	689	55	Stockholm, SASA (Sweden)	
430.4	697	2.5	Belgrade (Yugoslavia)	
424.3	707	2	Madrid, EAJ7 (Union Radio). (*After 7.0 p.m.*)	
424.3	707	100	Moscow, Imini Stalina (Russia)	
419.5	715	1.5	Berlin, No. 1, Witzleben (Germany)	
416.4	720.5	5	Rabat (Morocco)	
413	725	60	Athlone (Irish Free State)	
408.7	734	16	Katowitz (Poland)	
403.8	743	25	Sottens (Radio Suisse Romande) (*Switzerland*)	
398.9	752	25	Midland Regional. (Daventry)	
394.2	761	12	Bucharest (Roumania)	
389.6	770	120	Leipzig (Germany)	
385.1	779	8	Toulouse (Radiophonie du Midi) (France)	
385.1	779	10	Stalino, RV26 (Russia)	
381	788	16	Lwow (Lemburg) (Poland)	
376.4	797	50	Scottish Regional (Falkirk)	
372.2	806	1.5	Hamburg (Germany)	
370.1	810.5	0.8	Radio, LL, Paris	
368.1	815		Seville, EAJ5 (Union Radio) (1.0 kW.); Galicia EAJ1 (0.2 kW.) (Spain); Bolzano (1.0 kW.) (Italy); Helsinki (10 kW.) (Finland) (*relays Lahti*); Kharkov, RV20 (10 kW.) (Russia).	
367.2	817	0.7	Fredriksstad (Norway). (*Relays Oslo*)	
364.1	824	1	Bergen (Norway)	
363.6	825	13	Algiers (Algeria)	
360.6	832	60	Mühlacker (Stuttgart) (Germany)	
355.9	843	50	London Regional (Brookmans Park)	
352.1	852	7	Graz (Austria). (*Relays Vienna*)	
348.8	860	7.6	Barcelona, EAJ1 (Spain)	
348.8	860	10	Leningrad, RV70 (Russia)	
345.2	869	11.5	Strasbourg, PTT (France)	
341.7	878	35	Brno (Brunn) (Czechoslovakia)	
338.2	887	15	Brussels II, Velthem (Belgium). (*In Flemish*)	
335	896	5	Cadiz (Spain)	
334.4	897	1.9	Poznan (Poland)	
331.5	905	50	Milan (Italy). (*Relays Turin*)	
328.2	914	60	Poste Parisien (France)	
325	923	60	Breslau (Germany)	
321.9	932	10	Göteborg (Sweden). (*Relays Stockholm*)	
318.8	941	0.25	Dresden (Germany). (*Relays Leipzig*)	
318.8	941	1.5	Naples, 1NA (Italy). (*Relays Rome*)	
315.8	950	1.6	Marseilles, PTT (France)	
312.8	959	0.7	Radio Vitus (Paris). (*S.-W. Stn. on 43.75 m.*)	
312.8	959	1.7	Cracow (Poland)	
312.8	959	10	Genoa, 1GE (Italy). (*Relays Turin*)	
309.9	968	1	Cardiff	
309.9	968	50	West Regional (Washford Cross)	
307	977	0.75	Zagreb (Yugoslavia)	
304	986	13	Bordeaux Lafayette, PTT (France)	
301.5	995	50	North National (Manchester)	
298.8	1004	11	Tallinn (Esthonia)	
296.1	1013	20	Hilversum (Holland). (*7 kW. before 4.40 p.m.*)	
293.5	1022	0.7	Limoges, PTT (France)	
293.5	1022	2.6	Kosice (Czechoslovakia)	
291	1031	13.2	Viipuri (Viborg) (Finland). (*Relays Helsinki*)	
288.3	1040	50	Scottish National (Falkirk)	
288.3	1040	1	Bournemouth (*Relay Station*)	

BROADCASTING STATIONS ABROAD (In Order of Wavelength).

Metres.	kc/s.	kW.	Station.	Tuning Positions.
284.8	1053	0.7	Lyons (Radio-Lyon) (France)	
283.6	1058	0.5	German Relays (Berlin, Magdeburg, Stettin)	
283.6	1058	0.5	Innsbruck (Austria). (*Relays Vienna*)	
282.2	1063	2	Lisbon CT 1AA (Portugal). (*Short-wave Station on 31.25 m.*)	
281.2	1067	0.75	Copenhagen (Denmark)	
278.8	1076	13.5	Bratislava (Czechoslovakia)	
276.5	1085	60	Heilsberg (Germany)	
273.7	1096	7	Turin (Italy)	
271.5	1105	1.3	Rennes, PTT (France)	
269.8	1112	20	Bari (Italy)	
269.8	1112	0.25	Bremen (Germany). (*Relays Hamburg*)	
267.6	1121	1.5	Valencia (Spain)	
265.8	1128.5	1.3	Lille, PTT (France)	
263.8	1137	11.2	Moravska Ostrava (Czechoslovakia)	
261.5	1147	50	London National (Brookmans Park)	
259.3	1157	17	Frankfurt-a.M. (Germany)	
259.3	1157	2.3	Trier (Germany). (*Relays Frankfurt*)	
257.1	1167	10	Hörby (Sweden). (*Relays Stockholm*)	
255.1	1176	0.7	Toulouse, PTT (France)	
253.1	1185	5	Gleiwitz (Germany). (*Relays Breslau*)	
252	1193	1	Barcelona, EAJ15 (Assoc. Nat.) (Spain)	
249.6	1202	0.8	Juan-les-Pins, Nice (France)	
247.7	1211	10	Trieste (Italy). (*Relays Turin*)	
245.9	1220	0.12	Swansea	
245.9	1220		Berne (0.5kW.) (Switzerland)(*relays Beromünster*): Eskilstuna (0.2 kW.), Sölfle (0.4 kW.) (Sweden) (*relays Stockholm*); Cassel (0.25 kW.) (Germany) (*relays Frankfurt*); Linz (0.5 kW.) (Austria) (*relays Vienna*); Pietarsaari (0.5 kW.), Turku (Abo) (0.5 kW.) (Finland) (*relays Helsinki*).	
244.1	1229	0.5	Basle (Switzerland). (*Relays Beromünster*)	
242.3	1238	1	Belfast (N. Ireland)	
240.6	1247	0.5	Stavanger (Norway)	
238.9	1256	2	Nürnberg (Germany). (*Relays Munich*)	
238	1260	1	Nimes (France)	
237.2	1265	3	Bordeaux, Sud-Ouest (France)	
235.5	1274	0.5	Kristiansand (Norway)	
235	1283	1.65	Lodz (Poland). (*Relay Station*)	
232.2	1292	0.25	Kiel (Germany). (*Relays Hamburg*)	
230.6	1301	—	Swedish Relay Stations. (Malmö, Norrköping, Karlstad and Trollhätten).	
227.4	1319	0.5	Flensburg (Germany). (*Relays Hamburg*)	
225.9	1328	10	Fécamp, Radio-Normandie (France)	
224.4	1337	1	Cork (Irish Free State)	
222.9	1346	0.15	Hüdiksvall (Sweden)	
219.9	1365	1.5	Béziers (France)	
218.5	1373	0.2	Plymouth	
218.5	1373	0.5	Salzburg (Austria). (*Relays Vienna*)	
217	1382	0.5	Königsburg (East Prussia) (Germany)	
217	1382	0.25	Karlstad (Sweden)	
215.6	1391	0.2	Halmstad (Sweden)	
214.3	1400	1	Aberdeen	
211.3	1420	1	Newcastle	
209.8	1430	1.25	Magyarovar, Miskolcz and Pecs (Hungary)	
207	1450	0.15	Boras (Sweden)	
206	1460	0.2	Ornsköldsvik (Sweden)	
204.1	1470	0.2	Gävle (Sweden)	
202.7	1480	0.25	Kristineham (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.
80.0	3,750	2RO	Rome	
70.2	4,273	RW15	Khabarovsk (Russia). (*Daily* 10.00–13.00)	
62.56	4,795	VE9BY	London, Ont. (Canada). (*Sun.* 07.00)	
62.5	4,800	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 01.00)	
58.3	5,146	PMY	Bandoeng (Java). (*Daily* 13.20 *and* 08.00)	
58.0	5,172	OK1MPT	Prague (Czechoslovakia). (*Tues. and Fri.* 20.30.)	
54.52	5,502	W2XBH	Brooklyn, N.Y. (U.S.A.). (*Relays WCGU*)	
52.7	5,690	FUQA	Tananarive, P.T.T. (Madagascar)	
52.5	5,711	HCJB	Quito (Ecuador). (*Daily* 13.30)	
51.22	5,857	XDA	Chapultepec (Mexico)	
50.6	5,930	HKO	Medellin (Colombia)	
50.26	5,970	HVJ	Vatican State, Rome. (*Daily* 20.00)	
50.0	6,000	ZL3ZC	Christchurch (New Zealand). (*Wed.* 04.00, *Sat.* 08.30.)	
50.0	6,000	—	Bucharest (Roumania)	
50.0	6,000	RW59	Moscow (*Relays Trades Union Stn.*)	
50.0	6,000	EAR25	Barcelona, Radio Club (Spain). (*Sat.* 21.00)	
49.96	6,005	HRB	Tegücigalpa (Honduras). (*Daily ex. Sun.* 01.00–06.00.)	
49.83	6,020	DJC	Zeesen (Germany)	
49.8	6,023	XEW	Mexico City (Mexico). (*Daily* 02.00)	
49.67	6,042	W2XAL	Coytesville, N.J. (U.S.A.). (*Relays WRNY.*)	
49.6	6,048	W3XAU	Philadelphia, Pa. (U.S.A.). (*Relays WCAU.*)	
49.59	6,050	VE9HX	Halifax (Nova Scotia). (*Relays CHNS*)	
49.58	6,050	GSA	Empire Broadcasting, Zones 4–5	
49.5	6,060	VQ7LO	Nairobi (Kenya Colony). (*Daily* 17.30)	
49.5	6,060	W8XAL	Mason, Ohio (U.S.A.). (*Relays WLW*)	
49.43	6,069	VE9CS	Vancouver, B.C. (Canada)	
49.4	6,072	OXY	Skamleback (Denmark). (*Relays Copenhagen.*)	
49.4	6,072	COR2	Vienna. (*Tues.* 14.00, *Thurs.* 16.00, *Sat.* 21.00.)	
49.34	6,080	W2XCX	Kearny, N.J. (U.S.A.). (*Relays WOR*)	
49.34	6,080	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
49.22	6,095	VE9GW	Bowmanville, Ont. (Canada). (*Daily* 21.00)	
49.2	6,098	ZTJ	Johannesburg (S. Africa). (*Weekdays* 10.00, 15.00 [*Sat.* 15.30] *and* 18.00, *Sun.* 14.00 *and* 17.30.)	
49.18	6,100	W3XAL	Bound Brook, N.Y. (*Relays WJZ*)	
49.1	6,110	VUC	Calcutta, India. (*Daily* 11.00)	
49.02	6,120	W2XE	Long Island, N.Y. (U.S.A.). (*Relays WABC.*)	
48.86	6,140	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
48.8	6,147	VE9CL	Winnipeg (Canada). (*Daily ex. Sun.* 01.30)	
48.65	6,167	XIF	Mexico City (Mexico)	
48.35	6,205	HKC	Bogota (Colombia). (*Daily* 16.00)	
48.2	6,220	2RO	Rome (Italy)	
48.05	6,243	HKD	Barranquilla (Colombia). (*Weekdays* 24.15)	
48.0	6,250	CN8MC	Casablanca (Morocco). (*Relays Rabat*)	
47.0	6,382	HC1DR	Quito, Ecuador. (*Daily* 02.00)	
46.69	6,425	W3XL	Bound Brook, N.J. (U.S.A.). (*Relays WJZ irregular.*)	
46.67	6,426	VE9BY	London, Ont. (Canada). (*Sat.* 02.00 *Sun.* 03.00.)	
45.38	6,611	RW72	Moscow (*Relays Trade Union Stn.*)	
45.0	6,667	FM8KR	Constantine (Algeria). (*Mon. and Fri.* 23.00.)	
45.0	6,667	TGW	Guatemala City (Central America). (*Daily* 04.00.)	
43.75	6,860	—	Radio Vitus, Paris. (*Daily* 20.30)	
43.0	6,970	EAR110	Madrid. (*Tues. and Sat.* 23.30)	
41.7	7,195	VS1AB	Singapore (Malay States). (*Sun. and Wed.* 16.30.)	
41.6	7,211	EAR58	Teneriffe (Radio Club) (Canary Islands)	
41.5	7,230	HB9D	Zurich (Radio Club) (Switzerland). (*1st and 3rd Sun.*)	
41.0	7,320	HSP2	Bangkok (Siam). (*Mon.* 15.00)	
40.3	7,443	HBQ	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45).	
39.7	7,556	HKF	Bogota (Colombia). (*Westinghouse Labs.*)	
39.4	7,612	X26A	Nuevo Laredo (Mexico). (*Thurs.* 17.00)	
38.7	7,797	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
34.68	8,650	W2XV	Long Island, N.Y. (U.S.A.). (*Fri.* 24.00)	
34.68	8,650	VE9BY	London, Ont. (Canada). (*Mon.* 22.00)	
33.50	8,928	TGX	Guatemala City (S. America)	
32.26	9,300	—	Rabat (Morocco). (*Sun.* 22.00)	
31.6	9,490	SRI	Posen (Poland). (*Tues. and Thurs.* 18.30)	
31.58	9,500	PRBA	Rio de Janeiro (Brazil). (*Daily* 22.30)	
31.55	9,510	VK3ME	Melbourne (Australia). (*Wed. and Sat.* 11.00.)	
31.54	9,510	GSB	Empire Broadcasting, Zones 2, 4, 5	
31.48	9,530	W2XAF	Schenectady, N.Y. (U.S.A.) (*Relays WGY*)	
31.38	9,560	DJA	Zeesen (Germany). (*Daily* 14.00)	
31.35	9,570	W1XAZ	East Springfield, Mass. (U.S.A.). (*Relays WBZ.*)	
31.3	9,582	W3XAU	Philadelphia, Pa. (U.S.A.). (*Daily ex. Thurs. and Fri.* 22.00.)	
31.3	9,580	HBL	Radio Nations, Prangins (Switzerland). (*Sun.* 23.00–23.45.)	
31.29	9,585	GSC	Empire Broadcasting, Zone 3	
31.28	9,590	VK2ME	Sydney (Australia). (*Sun.* 11.00)	
31.25	9,598	CT1AA	Lisbon (Portugal). (*Tues. and Fri.* 23.00–01.00.)	
31.10	9,640	HS2PJ	Bangkok (Siam). (*Mon.* 03.00–06.00)	
31.0	9,675	T14NRH	Heredia (Costa Rica). (*Daily* 23.00 *and* 03.00.)	
30.43	9,869	EAQ	Aranjuez (Spain). (*Daily* 00.30. *Sat.* 19.00)	
30.0	10,000	—	Belgrade (Yugoslavia). (*Mon.* 20.00)	
28.98	10,350	LSX	Buenos Aires (Argentina). (*Daily* 21.30)	
26.83	11,180	CT3AQ	Funchal (Madeira). (*Tues. and Thurs.* 11.30–13.30.)	
25.63	11,700	FYA	Pontoise (France). (*Colonial Stn. E-W, daily* 20.30.)	
25.6	11,720	VE9JR	Winnipeg (Canada). (*Daily ex. Sat. and Sun.* 18.45.)	
25.53	11,750	GSD	Empire Broadcasting, Zones 1 & 4	
25.5	11,760	XDA	Chapultepec (Mexico). (*Daily* 21.00)	
25.5	11,760	DJD	Zeesen (Germany)	
25.4	11,810	VE9GW	Bowmanville (Canada). (*Daily* 19.00)	
25.4	11,810	2RO	Prato Smeraldo, Rome. (17.00 *and* 20.30)	
25.34	11,840	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
25.28	11,865	GSE	Empire Broadcasting, Zone 2	
25.27	11,870	W8XK	East Pittsburg, Pa. (U.S.A.). (*Relays KDKA.*)	
25.14	11,933	FYA	Pontoise (France). (*Colonial Stn. N-S*)	
23.38	12,830	—	Rabat (Morocco). (*Sun.* 12.30)	
20.5	14,630	XDA	Chapultepec (Mexico). (*Daily* 20.30)	
19.9	15,075	T14NRH	Heredia (Costa Rica). (*Sat., Sun., Mon.* 17.00 *and* 22.00.)	
19.84	15,120	HVJ	Vatican State, Rome. (*Daily* 11.00)	
19.81	15,140	GSF	Empire Broadcasting, Zone 5	
19.73	15,200	DJB	Zeesen (Germany). (*Daily* 14.00–18.00)	
19.72	15,210	W8XK	East Pittsburg, Pa. (U.S.A.) (*Relays KDKA.*)	
19.68	15,244	FYA	Pontoise (France). (*Colonial Stn. E-W*)	
19.56	15,340	W2XAD	South Schenectady, N.Y. (U.S.A.) (*Daily* 19.00.)	
16.9	17,750	HSP	Bangkok (Siam). (*Sun. and Tues.* 22.00)	
16.89	17,760	DJE	Zeesen (Germany)	
16.88	17,770	GSG	Empire Broadcasting, Zone 2	
16.87	17,780	W3XAL	Bound Brook, N.J. (*Weekdays* 14.00)	
16.57	18,105	W9XAA	Chicago, Ill. (U.S.A.). (*Relays WCFL*)	
14.47	20,730	LSY	Buenos Aires (Argentina). (*Sun.* 22.00)	
13.97	21,470	GSH	Empire Broadcasting, Zone 3 (*Daylight working.*)	
13.92	21,540	W8XK	East Pittsburg (*Relays KDKA.*)	

FOREIGN SUNDAY PROGRAMMES

MAY THE TWENTY-EIGHTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Roman Catholic Service from St. Chad's, Birmingham. Oratorio: "Samson" (Handel).
LONDON REGIONAL	Service from the City Temple. Orchestral Concert from Torquay.
MIDLAND REGIONAL	Service from Carr's Lane Church, Birmingham.
NORTH REGIONAL	Service from Darlington Parish Church.
WEST REGIONAL	Service from Wesley Church, Risca.

ABROAD

BRUSSELS (No. 1)	12.0 noon. Concert from the Grand Hotel, Antwerp. 8.0 p.m. Extracts from operetta: "Ciboulette," by Hahn.
HAMBURG	5.45 p.m. Handel Festival, from Hanover.
HEILSBERG	12.0 noon. Concert by the Konigsberg Opera House Orchestra.
LEIPZIG	8.0 p.m. Verdi-Puccini Concert by the Leipzig Symphony Orchestra.
MOSCOW	4.30 p.m. Opera: "The Czar's Bride"; 6.30 p.m., "Kostchei the Immortal," both by Rimsky Korsakov.
PALERMO	8.45 p.m. Brahms Centenary Concert.
PITTSBURGH	8.0 p.m. National Opera Concert from New York.
PRAGUE	8.0 p.m. Operetta: "La belle Hélène," by Offenbach.
TURIN	8.40 p.m. Opera: "Siberia," by Giordano, conducted by the composer (relayed by **Florence, Genoa, Milan and Trieste**).
WARSAW	12.15 p.m. The Warsaw Philharmonic Orchestra.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.**—**8.30 p.m.,** Time Signal. **8.31,** Instrumental Trio Music. **8.50,** Programme of Songs and Readings by John MacDonagh and Company. **9.50,** Soprano Solos by Mme. Heffernan. **10.5,** Uilleann Pipe Solos by Liam O. Cathasaig. **10.15,** Recital of Old Songs by J. Browner (Bass). **10.35,** Instrumental Trio Music. **11.0,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW. **12 Noon,** Chimes and Weather. **2.0 p.m.,** Gramophone Music. In the interval at **2.30,** Theatre Notes. **3.0,** Film Review and Sextet Concert. **4.0,** Programme for Hospitals and other Benevolent Institutions. **5.0 to 6.30,** Interval. **6.30,** Agricultural Talk in Catalan and Gramophone Music. **7.0,** Concert by the Station Orchestra. **7.30,** Song Recital by Ramon Pradell (Baritone). **8.0,** Concert by the Station Orchestra and Rancesca Marlet (Soprano). **9.0,** Dance Music, relayed from Hollywood Bar. **10.0,** An Opera on Gramophone Records. **11.45,** Cliess Lesson. **12 Midnight** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW. **10.0,** Pontifical Mass, celebrated by His Eminence Cardinal Ascalesi, with Music by the Bari Choir, conducted by Biagio Grimaldi, relayed from the Duomo. **1.0,** Giornale Radio. **1.10 to 2.15,** Gramophone Music. In the interval at **1.55,** Weather, and at **2.0,** Time and Announcements. **5.30 to 6.30,** Gramophone Music. **8.0,** Sports Notes and Giornale Radio. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert. Soloists: Luigi de Grandi (Violin) and D. d'Angelo (Baritone). Comedy Overture (Lincke); Violin Solo: Allegro from the Concerto in A Minor (Viotti); Baritone Solo: Torna amore (Buzzi-Peccia); Selection from Cavalleria rusticana (Mascagni); Baritone Aria from Ernani (Verdi); Second Small Suite (de Micheli); Baritone Solo, Air from Germania (Franchetti); Selection from Siberia (Giordano). **9.45,** Il Peggio passo è quello dell'uscio—Comedy in One Act (Martini). **10.15,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BERLIN

DEUTSCHLANDSENDER; 183.5 kc/s, 1,635 metres; 60 kW.—**11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg. 12 Noon,** Part Relay of a Concert from **Heilsberg. 12.15 p.m.,** Relay of the National Demonstration in front of the Schinkel-Church in Flatow, in connection with the Frontierland Church Festival. Trombone Choir. Die Himmel rühmen des Ewigen Ehre (Beethoven); Girls' Choir: Wach auf, wach auf, du deutsches Land (Walter); Address by Robert Graupe; Deutschland, Deutschland über alles (Haydn). **12.40,** Concert from **Heilsberg** (contd.). In an interval at **12.55,** Time Signal. **2.0,** Fairy Tales for Children. **2.15,** See **Frankfurt. 2.45,** H. H. Houben reads from his own Works. **3.0,** Concert by the Leschke-Riemann Orchestra. **4.0,** Talk: The Peasant and his Farm. **4.30,** See **Frankfurt. 5.0,** Transmission for all German Stations, relayed from **Langenberg. 5.45,** Gramophone Records of Workers' and Soldiers' Songs. **6.30,** Ballads and Songs by Borries Baron von Münchhausen. **7.0,** Song Recital by Adelheid Armhold. Three Songs (Schubert): (a) Im Abendrot, (b) Suleika No. 1, (c) Suleika No. 2; Two Songs (R. Strauss): (a) Wiegenlied, (b) Traum durch die Dämmerung; Three Songs (Brahms): (a) Die Mainacht, (b) Feldeinsamkeit, (c) Ständchen. **7.30,** Variety Programme. **8.30,** Berlin Art Week—Concert of Old Music, relayed from the Golden Gallery of the Charlottenburg Schloss. Trio Sonata for Viola d'amore, Viola de gamba, and Harpsichord (Lotti); Sonata for Viola d'amore and Harpsichord (Ariosti); Harpsichord Solos. **9.15,** Light Music and Dance Music by the Hans Bund Orchestra. **10.45,** Weather Report for Shipping. **11.0,** Concert and Danzig Election Results, relayed from **Heilsberg. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN; 715 kc/s, 419.5 metres; 1.5 kW.—**11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg. 11.45,** Transmission for all German Stations, relayed from **Leipzig. 12.15 p.m.,** Concert from **Heilsberg. 12.30,** Radio Report of a Running Event in the Tiergarten-Sportplatz (on Gramophone Records). **12.50,** Concert from **Heilsberg** (contd.). **2.0 to 3.0,** Programme for Garden City Dwellers—Talks. **3.30,** Concert by the Britz Mandoline Club Orchestra. During the intervals: Part Relay of the Public Folk Song Festival in the Lehrervereinshaus, the Alexanderplatz, the College of Music, the Kleistschule, and Moabit, in the Tempelhof. **5.0,** Transmission for all German Stations, relayed from **Langenberg. 5.50,** Town and Country—Humorous Monologue. **6.25,** Travelling Some Useful Hints (arr. Kurt Ihlenfeld). **7.10,** Talk: Seven Hundred Years of Salzwedel's History. **7.50,** Sports Notes. **8.0,** Announcements. **8.5,** Operetta Concert by the Wireless Choir, directed by Maximilian Albrecht, the Berlin Philharmonic Orchestra, and Soloists. **10.0,** News, followed by Light Music and Dance Music, with Vocal Refrains. **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.—**5.45 p.m.,** Orchestral Concert of Dance Music. **6.15,** Gramophone Music. **6.55,** Talk for Housewives. **7.0,** See **Brno. 8.0,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.**—**11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg. 11.45,** Transmission for all German Stations, relayed from **Leipzig. 12.15 p.m.** (approx.), Concert from **Leipzig. 2.0,** News. **2.10,** Talk on Accident Insurance. **2.25,** Reading. **3.0,** Programme for Children. **3.30,** Talk: Small Sacrifices for Big Things. **3.50,** Historical Inaccuracies (arr. Herstlet and Hans Helmolt). **4.25,** Trio in D, Op. 1, for Violin, 'Cello, and Pianoforte (Triebel). **5.0,** Transmission for all German Stations, relayed from **Langenberg. 5.45,** Concert by the Station Orchestra, conducted by Franz Marszalek. In an interval from **6.5 to 6.25,** Radio Report of the Sixth Centenary Celebrations of the Town of Löwen. **7.0,** Recital of Songs by Anton Maria Topitz (Tenor). **7.35,** Weather and Sports Notes. **8.5,** Operetta Concert from **Berlin (Witzleben). 10.0,** General News. **10.45,** Concert from **Heilsberg.** In the interval, Danzig Election Results. **12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **12.5 p.m.,** See **Moravska-Ostrava. 1.30 to 1.45,** Talk for Parents and Children. **4.0,** Music of Eighty Years Ago—Concert by the Station Orchestra, conducted by Bakala, with Songs and Recitations. **5.30,** Accordion Recital. **6.0,** German Translation Songs of Old and Modern Masters, for Soprano, Contralto and Baritone. **7.0,** Military Band Concert. French March (Pesta); Overture, The Thieving Magpie (Rossini); Selection from Jacobin (Dvorák); Selection from Die Puppenfee (Bayer); Waltz (Zita); March (Vackar). **8.0 till Close Down,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW. **9.45 a.m.,** Practical Hints. **10.0,** Concert by the Small Station Orchestra, conducted by P. Leemans. **11.0,** Variety Music on Gramophone Records. **12 Noon,** Concert conducted by A. Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Le Journal Parlé. **1.10** Concert by Mickey's Club Jazz Attraction. In the interval at **1.30,** The Star and her Admirer—Sketch (Behronne). In the interval at **2.30,** Concert by the Orlande de Lassus Society of Mons. Conductor: Maurice Weynandt. Extracts from Boris Godunov (Mussorgsky); Polovtsian Dances from Prince Igor (Borodin). In the interval at **3.35,** Legend, Op. 17 (Wieniawsky), on Gramophone Records. **5.0,** Dance Music relayed from the St. Sauveur Palais de Danses. **5.30,** Football Results. **6.0,** Massenet Song Recital by Mme. Arents-De Vrin: Ouvre tes yeux bleus; Two Arias from Manon; Aubade. **6.15,** Extracts from The Damnation of Faust Opera (Berlioz). **7.15,** Religious Address. **7.30,** Wireless Notes and Talk on Music. **8.0,** Extracts from Ciboulette—Operetta (Hahn), by the Station Choir, conducted by F. André, and Soloists. In the interval, The Belgian Author, Paul Champagne Talk and Readings. **10.0,** Le Journal Parlé. **10.10,** Jazz Music by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp. **12 Midnight** (approx.), Close Down.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **10.0 a.m.,** Gramophone Music. **11.0,** Concert by the Little Station Orchestra, conducted by P. Leemans; Soloist: M. Donliez (Pianoforte); Overture, Anacreon (Cherubini); Procession dansante (Leemans); Selection from The Daughter of the Regiment (Donizetti); Hungarian Rhapsody No. 12 for Pianoforte (Liszt); Gramophone Records: Dance of the Elves (Henriques); Potpourri, Fortissimo (Kálmán). **12 Noon.** Concert by Mickey's Club Jazz Attraction, conducted by M. Langlois. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert conducted by André Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Trio No. 1, Op. 99 (Schubert), on Gramophone Records. **5.30,** Sports Notes. **6.0,** Gramophone Music. **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans. **7.15,** Religious Address. **7.30,** Music Review by Paul Gilson. **8.0,** Gramophone Music, with Humorous Interludes by M. Gontran. **8.45,** Recitations. **9.0,** Dance Music from the St. Sauveur Palais de Danses. **10.0,** Le Journal Parlé. **10.10,** Dance Music (contd.). **11.30,** Gramophone Dance Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW. **4.0 p.m.,** Programme for Peasants. **5.0,** Light Music and Romanian Music by the Marco Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Song Recital by Mme. Antoinette Trandafiresco-Eremie. **8.20,** Concert by the Station Orchestra: Overture, The Cunning Peasant (Dvorák); Suite, Scène alsacienne (Massenet); Selection from Roses of Florida (Leo Fall); Ballet Music from Czar and Carpenter (Lortzing); Spanish Dance (Falla); Il cavalino sbrighato (Brunetti). In the interval at **9.0,** Talk. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.45 p.m. to 12 Midnight.**—**9.15 a.m.,** News Bulletin. **10.0,** Catholic Service. **11.15,** Evangelical Service, followed by Inauguration of the Relay Station. **2.0,** Gramophone Music. **3.0,** Agricultural Report. **3.45,** Military Band Concert, conducted by R. Fricsay. **5.0,** Talk for Young People. **5.30,** Concert by the Karl Bura Cigány Band. **6.45,** Talk on Swimming. **7.15,** Song Recital by Gabrielle Relle: Aria from Figaro (Mozart); Aria from Tannhäuser (Wagner); Song (Liszt); Elegy (Massenet); Mattinata (Leoncavallo); Aria from Fidelio (Beethoven). **7.45,** Sports Notes. **8.0,** The White Cloud—Play (Molnar). **9.15,** News Bulletin. **9.30,** Requiem (Liszt) by the Budapest Choral Society, conducted by Eugene Adam. **10.30,** Concert by the Sandor Farkas Cigány Band, relayed from the Café Bodo. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 9.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**11.30 a.m.,** Weather and News. **12 Noon,** Town Hall Chimes. **12.5 p.m.,** See **Vienna. 1.40,** Talk in English: The Economic Side of Daily Life. **2.0** (also relayed by **Skamlebaek** on **31.51 metres**), Divine Service from Christiansborg Castle. **3.20,** Talk in German: Linz and the Wachau. **3.40,** Talk in French. **4.0,** Orchestral Concert relayed from a Park. **5.50,** Programme for Children. **6.20,** Talk: Old Odense. **6.50,** Weather and News. **7.15,** Time. **7.30,** Talk on Libraries. **8.0,** Town Hall Chimes. **8.1,** The Hansen Family—Humorous Episode (Jens Locher). **8.15,** Mozart-Tchaikovsky Concert by the Radio Orchestra conducted by Launy Gröndahl. Soloist: Holger Brunsgaard (Songs). Overture, The Magic Flute (Mozart); Two Airs from The Magic Flute (Mozart); Overture, Idomeneo (Mozart); Prelude and Waltz from Eugene Onegin (Tchaikovsky); Aria from the First Act of Eugene Onegin (Tchaikovsky); Slav March (Tchaikovsky). **9.15,** Historical Personalities in Literature and Music. **10.5,** News. **10.15,** Marimba Solos. **10.30,** Concert of Light Music by the Radio Orchestra, conducted by Launy Gröndahl. **11.0,** Dance Music from the Wivex 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.—**4.0 to 8.0 p.m.,** Programme in English by the I.B.C. Announcers: T. St. A. Ronald and B. McNabb. **4.0,** Programme for Children. **5.0,** Songs and Vocal Quintets. Songs: (a) My Old Shako (Trotere), (b) The Vagabond (Vaughan Williams); Quintet: The Song of the Nightingale (Ailbout); Songs: (a) Serenade (Toselli), (b) Love's Nocturne (Drigo); Quintet: Butterflies in the Rain (Myers); Songs: (a) La Paloma (Yradier), (b) O Sole Mio (di Capua). **5.30,** Music by a Tango Band; Marion (Hollander); Will you dance through Life with me? (Swabach); I kiss your little Hand, Madame (Erwin); There was a poor Musician (Schwartz); La Cumparsita; Il canto dell' attesa (Bixio); Old Vienna Moon (Lehár); Farewell (Buday). **6.0,** Club Concert for Chelmsford Listeners. My Hero, from The Chocolate Soldier (Oscar Straus); Captain Mac (Sanderson); The Wheeltapper's Song (Wolseley Charles); The Sunshine of your smile; Flower of Spain (Alexander); The Pipes of Pan (Monckton); Barefoot Trail; The Wedding of the Birds; Down in the Forest (Landon Ronald); Patiently smiling (Lehár); Ziganette (Alexander); Jus' keepin' on (Phillips-Carter); The Leader of the Town Brass Band (Longstaffe); Down South (Myddleton). **7.0 p.m.,** Orchestral Music.

March from Sylvia (Delibes); Humoresque (Dvorák); Poor Butterfly (Hubbell de Filippi); The Fortune Teller (Herbert); Violin Solo: Bohemian Song (Boldi); La Source (Delibes); In the gloaming (Chaminade); Bacchanale from The Seasons (Glazunov). **7.30,** Songs and Orchestral Music: Charming Episode (Ormandy); Songs: (a) Dear Old-fashioned thing (Harrington), (b) Come along with me (Robison), (c) Coming-round the Mountain (Robison); Evolution of Dixie (Lake); Songs: (a) Mama (Denes), (b) Mansie (Denes); Singing a Song to the Stars (Meyer). **8.0,** Concert of Opera and Operetta Music. **9.0** till Close Down, Programme in English by the I.B.C. **9.0,** Light Music. Oh, you Sweet Thing; Deep Forest; This is no Dream; Pale Volga Moon; One little Word led to another; White Lightning; My Heart's to let; Roll along, Kentucky Moon. **9.30,** Orchestral and Vocal Concert: Anitra's Dance, from the Peer Gynt Suite (Grieg); Soprano Solo: Song from The Tales of Hoffmann (Offenbach); Tenor Solo: For you alone (Geehl); The Moon and I, from The Mikado (Sullivan); Song: Round the Bend of the Road (Klenner); Soprano Solo: I want your Heart (Haydn Wood); Hungarian Dance, No. 6 (Brahms). **10.0,** Military Band Concert: Majah General Thing-a-me-bob (Hargreaves); Sussex by the Sea (Ward Higgs); The Mill in the Black Forest (Eilenberg); Old Panama (Alford); Glow Worm Idyll (Lincke); A Hunting Scene; Bells across the Meadow (Ketelbey); Military March (Schubert). **10.30,** Light Music: Twenty Million People; Deep Water; Young and Healthy; My Heart's to let; When you've fallen in love; Chansonette; Body and Soul; Selection from The Beggar's Opera (Gay). **11.0,** Popular Concert: Me and the Man in the Moon (Monaco); Round the Marble Arch; Roll along, Kentucky Moon; My Old Dutch (Ingle); The Blue Danube (Joh. Strauss); Underneath the Arches; Love's Old Sweet Song (Molloy); Rhapsody Russe (Nussbaum). **11.30,** Organ Recital: American Patrol (Meacham); Nola (Arndt); Indian Love Call, from Rose Marie (Friml); Rhapsody in Blue (Gershwin); A Perfect Day (Jacobs-Bond); Un peu d'amour (Silésu); Turkish Patrol (Michaelis). **12 Midnight,** Club Concert for Chelmsford Listeners: My Hero, from The Chocolate Soldier (Oscar Straus); Captain Mac (Sanderson); The Wheeltapper's Song (Wolseley Charles); The Sunshine of your Smile; Flower of Spain (Alexander); The Pipes of Pan (Monckton); Barefoot Trail; The Wedding of the Birds; Down in the Forest (Landon Ronald); Patiently Smiling (Lehár); Ziganette (Alexander); Jus' keepin' on (Phillips-Carter); The Leader of the Town Brass Band (Longstaffe); Down South (Myddleton). **1.0 a.m. (Monday),** Traditional Quartets: (a) The Irish Washerwoman, (b) Finiarrel, (c) Miss Macleod's Reel; Trio: Turkey in the Straw; Harp Solo: Welsh Fantasia; Trio: Old Time Jigs and Reels; Mouth Organ Solo: Scottish Airs; Quartet: Fisher's Hornpipe. **1.30,** Songs: Speak to me of love (Sievier); I kiss your little Hand, Madame; Springtime reminds me of you (Carter); Orchestra; On with the Show; Pretty Kitty Kelly; A Thousand Maidens Fair; To-day, to-morrow, forever (Milton). **2.0,** Dance Music by the Hcolians, How can you say No?; Jungle Blues (Morton); Baby, when you ain't there (Ellington); Room 141; Cabin in the Cotton (Parish); Swance Stomp (McKnight); The Seat Song (Parish); Play it Hot (McKnight); Just another Dream of you (Burke); Get Happy (Arlen); One Hour with you (Whiting); A Big Bouquet for you (Simons); Fooling me (McKnight); Concchita (Matée). **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg.** **11.45,** Transmission for all German Stations, relayed from **Leipzig.** **12.15 p.m.,** Concert. **12.50,** Report on the A.D.A.C. Eiffel Races from the Nürburg Ring; The Finish of the Motor Cycle Race. **1.20,** See **Langenberg.** **2.15,** Radio Report on the Eiffel Races (contd.): The Start of the Motor Race. **2.45,** Talks arranged by the Wiesbaden Board of Agriculture. **2.55,** Two Agricultural Talks. **3.30,** See **Stuttgart.** **4.30,** Radio Report on the Eiffel Races (contd.): The Finish of the Motor Races. **5.0,** Transmission for all German Stations, relayed from **Langenberg.** **6.0,** Concert by the Station Orchestra. **7.0,** An Interlude. **7.30,** Sports Notes. **7.40,** Radio Report from the Pilots' Station at Caub. **8.5,** See **Berlin (Witzleben).** **10.10,** Time and News. **10.45,** Concert and Danzig Election Results, relayed from **Heilsberg.** **12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

MAY 28th SUNDAY *continued*

HAMBURG

Call ha (in Morse), **806 kc/s, 372 metres;** 1.5 kW. Relayed by **Bremen, 1,112 kc/s, 269.8 metres; Flensburg, 1,319 kc/s, 227.4 metres; Hanover, 530 kc/s, 566 metres;** and **Kiel, 1,292 kc/s, 232.2 metres.—11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg.** **12 Noon,** Talk. **12.15 p.m.,** Orchestral Concert, conducted by José Eibenschütz. In the interval at **12.55,** Time and Weather. **2.0** (from **Hanover**). Programme for the Sixth Centenary of the Bakers' Guild at Alfeld. **3.45,** Reading: Experiences with Animals (Hans Hesse). **4.0,** Concert of Light Music and Dance Music. **4.50,** Sports Dialogue: Water-Jumps. **5.0,** Transmission for all German Stations, relayed from **Langenberg.** **5.45** (from **Hanover**), Göttingen Handel Festival. Conductor: Dr. Heukeshoven. Soloist: Martha Maria Rahmsdorf (Songs). Introductory Talk by Hanns Meseke. Overture, Il Pastor fido; Aria, Es blaut die Nacht, from Julius Caesar; Sonata in G Minor for Two Violins, with Figured Bass; Aria, Wo ein Südwind sanft und leise, from Ezio; Concerto grosso in F for String Orchestra. **6.45,** Sports Notes. **6.55,** Weather. **7.0,** In Praise of May; Variety Programme. **8.0 to 10.35,** See **Heilsberg.** **10.35,** Time and News. **10.45,** Concert and Election Results from **Heilsberg.**

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg.** **12 Noon,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz. Overture, Die Feen (Wagner); The Swan of Tuonela (Sibelius); Dance Intermezzo (Sibelius); Styrian Dances (Kienzl); Serenade, Sommernächte (Huber); Selection from Cavalleria rusticana (Mascagni); Overture, A Midsummer Night's Dream (Mendelssohn); Selection from Der Evangelimann (Kienzl); Suite of Bohemian Dances (Rueck); Finale from the Third Act of Rienzi (Wagner); Tarantella (Liszt). **2.0,** Talk on Chess. **2.30,** Programme for Young People. **3.0,** Talk: Primitive History Research. **3.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken. **5.0,** Transmission for all German Stations, relayed from **Langenberg.** **5.50** (from **Danzig**), Talk This Year's Marienburg Festspiele. **6.15,** Talk The Life of Max Reger. **6.45** (from **Danzig**), Chamber Music for Wind Instruments. Serenade in C Minor for two Oboes, two Clarinets, two Bassoons and two Horns (Mozart); Rondino for two Oboes, two Clarinets, two Bassoons and two Horns (Beethoven). **7.20,** Talk: Seven Centuries of Marienwerder. **7.50,** Sports Notes. **8.0** (from **Danzig**), Concert by the Danzig Municipal Theatre Orchestra, conducted by Erich Orthmann. Soloists: Hubert Klur (Bass) and Fritz Görlach (Violin). In the interval, Danzig Election Results. **10.10** (from **Danzig**), Election Report, followed by News. After the News, Band Concert. Danzig Election Results throughout the Concert.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**12.10 to 4.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). **12.10,** Concert by the Rentmeester Ensemble. In the interval, Gramophone Music. **1.40,** Weekly Book Talk. **2.10,** Chamber Music by the Concertgebouw Trio. **2.40,** On Approval—Comedy in Three Acts (F. Lonsdale). **4.10,** Gramophone Music and Sports Results. **4.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **4.40,** Programme for Children. **5.40,** Concert by the Amsterdam Salon Orchestra, conducted by M. D. Kiekens. Overture, The Bohemian Girl (Balfe); Plaintive (Paike); Selection from Lilac Time (Schubert-Berté); Waltz from Eva (Lehár); Serenade (Tarenghi). **6.20,** Song Recital by M. A. de Booy. **6.30,** The Advcutures of MM. Wakker and Tropendnit. **6.50,** Concert (continued). Overture, Orpheus in the Underworld (Offenbach); Pompée valsante (Poldini); Torch Dance of the Brides of Kashmir (Rubinstein); Selection from Don Giovanni (Mozart-Schreiner); Steeds voorwaarts (Teeseling). **7.30,** Song Recital (contd.). **7.40** till Close Down, A.V.R.O. Programme. **7.40,** Time and News. **7.55,** Popular Music by Kovacs Lajos and his Dance Band. **8.40,** Talk by Mr. W. Vogt. **8.50,** Gramophone Music. **8.55,** Concert by the Station Orchestra, conducted by Nico Treep. Soloist: Ferdinand Helmann (Violin). Violin Concerto in A (Mozart); From Glück to Wagner (Schreiner); Polonaise brillante for Violin and Orchestra (Wieniavsky). **9.40,** Recital of International Songs by L. W. Nijland. **10.0,** Concert of Light Music by the Station Orchestra. March, In the Gipsy Camp (Oscheit); Valse des brunes (Ganne); In a Monastery Garden (Ketelbey); Torch Dance (Meyerbeer); Selection from Frederica (Lehár). **10.40,** Gramophone Music. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—**11.55 am. to 4.40 p.m.,** Programme of the Catholic Radio Society (K.R.O.). **11.55,** Orchestral Concert. In the interval at **12.40 p.m.,** Talk on Modern Art. **1.50,** Talk for Tourists. **2.10,** Concert by the Budapest Trio: Trio in G No. 7 (Haydn); Recitation by M. P. Balledux; Dumky Trio, Op. 90 (Dvorak); Recitation by M. P. Balledux; Trio in D Minor, Op. 32 (Arensky). **4.10,** Programme for Invalids. **4.40 to 7.25,** Programme of the Christian Radio Society (N.C.R.V.). **4.40,** Concert of Sacred Music for Soprano, Contralto and Organ. **5.30,** Divine Service relayed from **Nijverdal,** followed by Sacred Music on Gramophone Records. **7.25** till Close Down, K.R.O. Programme. **7.25,** Talk. **7.50,** Football Results. **7.55,** Orchestral Concert relayed from **Maastricht:** Marche ecossaise (Debussy); Carnaval romain (Berlioz); A la fontaine (Chabrier); Flirtation (Steck); Suite, Roma (Bizet). **8.40,** News. **8.45,** Talk: Child Protection. **8.55,** Concert (contd.): Overture, De Getemde Feeks (Wagenaar); Ballet, Pierrot et Colombine (Guillaume); Ave Maria (Schubert); Selection from Madame Butterfly (Puccini); Rondo capricioso (Saint-Saëns); Finlandia (Sibelius). **9.55,** News. **10.0,** Gramophone Music. **10.20,** Epilogue by the Small Choir.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Announcements and Variety Programme. **8.45,** News Bulletin. **9.15,** Radio Concert. **10.0,** Answers to Correspondents. **10.30 to 11.30,** Programme in English by the I.B.C., H. K. Hitchcock announcing. **10.30,** Celebrity Concert on Gramophone Records: Peter Dawson: (a) Harvest Home (Tate), (b) Merry-go-round (Tate); Billy Caryll and Hilda Mundy in scenes of Domestic Bliss—Breakfast Time; Florrie Forde: (a) Only a Bird in a gilded Cage (Von Tilzey), (b) Are we to part like this (Collins); Layton and Johnstone: (a) Laughing at the Rain (Gay), (b) You'll be mine in Apple Blossom Time (de Rose); Gracie Fields: Fiddler Joe (London and More). **11.0,** Music by a Gipsy Orchestra: Rakoczy March (Berlioz); Czardas (Monti); Romanian Fantasia (Stefanesco); Hungarian Melodies (Korbay); Waltz, The Blue Danube (Joh. Strauss); Gipsy Idyll (arr. Ferratis); Cymbalum Solo, Hungarian Medley (Leopold); Selection from The Countess Maritza (Kálmán). **11.27,** I.B.C. Goodnight Melody. **11.30** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**11.15 a.m.,** Transmission for all German Stations: Schlageter Festival relayed from **Golzheim Heath;** Address by Herr Goering. **11.45** (approx.), Transmission for all German Stations, relayed from **Leipzig.** Talk: Mussolini and the Wheat Question. **12.25 p.m.,** Reading from the Works of Ernst Wiechert. **12.50,** See **Frankfurt.** **1.20,** Concert conducted by Wolf. **2.15,** See **Frankfurt.** **3.0,** The World on Gramophone Records—People of Transylvania and the Banat. **3.25,** Talk: Pictures of Germany in the Past—the Hanseatic League. **3.45,** Astronomical Talk: The Stars in June. **4.5,** Talk on Music. **4.30,** See **Frankfurt.** **5.0,** Schlageter Festival—Radio Report of the Transmission for all German Stations: Krupp Workers. **5.45,** Programme to be announced. **6.0,** Maria im Maien—Concert by the Dortmund Franciscan Church Choir, conducted by Franz Hunold, relayed from **Werl.** **7.5,** Grave and Gay—Variety Programme. **7.45,** Sports Notes. **8.0,** Talk. **8.10,** Programme from **Vienna.** **9.0,** May Cantata (Gustav Kneip) for Soloists, Choir, Orchestra and Mandoline Orchestra. **10.0,** News and Sports Notes. **10.30,** Concert from **Heilsberg.** In the interval: Report of the Danzig Election Results. **12 Midnight** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—11.15 a.m.,** Transmission for all German Stations, relayed from **Langenberg.** **11.45,** Transmission for all German Stations: Wo Gott, der Herr, nicht bei uns hält-cantata (Bach), by the Gewandhaus Orchestra, the St. Thomas' Choir, and Soloists. **12.15 p.m.,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer. Soloists: Max Krämer (Violin) and Friedbert Sammler (Harpsichord). Comedy Overture, Op. 38 (Busoni); Concerto in F for Strings and Harpsichord (Scarlatti); Rustic Suite for Violin and Orchestra (Kirchner); Ballet Music from Der Improvisation (d'Albert); Introduction and Scherzo from the Symphonic Poem; Die Jagd Nach dem Glück, Op. 45 (Nicode); Variations and Rondo on an Old German Folk Song (Haas); Pesther-Walzer (Lanner); Ballet Suite, Das Spielzeug der Li (Czernik). In the interval at **1.0,** Talk: Ernst Hempel, an Erzgebirge Author. **2.0,** Weather and Time. **2.5,** Programme Announcements. **2.25,** Agricultural Notes. **2.35,** Trio No. 2 in C for Pianoforte, Violin and 'Cello, Op. 87 (Brahms) by the Weitzmann Trio. **3.10,** Ernst Jünger reads from his Book, In Stahlgewittern. **3.45,** Recital of Old Motets by the Leipzig University Madrigal Choir. **4.30,** Dialogue between Julius Maria Becker and Carl Hauptmann's Widow: Carl Hauptmann, the Writer and the Man. **5.0,** See **Langenberg.** **5.45,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. **7.0,** Three Reports: (a) The Nürburg Races, (b) The Costume Festival at Rudolstadt, (c) The Visit of the Glasgow Rangers to Dresden. **8.0,** Verdi-Puccini Concert by the Leipzig Symphony Orchestra, conducted by Ludwig Neubeck. Soloists: Lisel Sturmfels (Soprano) and Valentin Haller (Tenor). Part I, Verdi: Introduction and Soprano Aria from Rigoletto; Manrico's Aria from Il Trovatore; Introduction and Violetta's Aria from La Traviata; Selection from Aida: (a) Introduction and Radame's Aria, (b) Hymn and March, (c) Soprano and Tenor Duet Finale from the Fifth Act). Part II, Puccini: Selection from Madame Butterfly: (a) Soprano Aria from the Second Act, (b) Finale Duet from the First Act, (c) Prelude to the Third Act, (d) Final Aria from the Third Act; Tosca's Prayer from Tosca; Finale from the First Act of La Bohéme. In an interval at **9.0,** Topical Talk. **10.5,** News. **10.20** (approx.), Concert of Light Music relayed from **Hellsberg.**

LINZ.—See **Vienna.**

MADRID

ARANJUEZ, EAQ, 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Popular Music. In the interval at **11.45,** Humorous Talk. **12.30 a.m. (Monday),** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**9.0 to 10.0 a.m.,** Topical Review. **12.30 p.m.,** Concert by the Madrid Municipal Band, conducted by M. Villa, relayed from the Retiro. **3.0,** Chimes, Time Signal, Theatre Notes and Concert of Popular Music. **5.0 to 8.0,** Interval. **8.0,** Chimes, Radio Journal and Dance Music. **9.30 to 10.30,** Interval. **10.30,** Chimes and Time Signal. **10.35** (approx.), Actors and Actresses of the Romea Theatre before the Microphone, Pianoforte Recital by Fernando Emler and Programme of Songs. **1.0 a.m. (Monday),** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1.137 kc/s, 263.8 metres; 11 kW.—**12.5 p.m.,** Military Band Concert. **1.30 to 1.45,** See **Brno.** **4.0,** See **Brno.** **5.30,** See **Prague.** **7.0,** See **Brno.** **8.0,** 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.—11.15 a.m.,** See **Langenberg.** **11.50,** Concert by the Station Orchestra, conducted by Hans. A. Winter. Soloists: Imrgaard Pröhl (Soprano) and Agi Brand-Setterl (Pianoforte). **1.5 p.m.,** Time, Weather and Programme Announcements. **1.15,** Agricultural Talk. **1.30,** Gramophone Concert. **2.50,** Talk: The National Revolution. **3.15,** Zither and Guitar Recital of Music by Adalbert Albrecht. **3.40,** Programme for Children. **4.0,** Gorch Fock Memorial Programme. **4.20,** Orchestral Concert: An den Frühling (Grieg); Selection from La Traviata (Verdi); Die Liebesbotschaft (Siede); Potpourri, Lehariana (Geiger); March, Unsere Marine (Thiele). **5.0,** Transmission for all German Stations relayed from **Langenberg.** **5.50,** Concert. **6.25,** Talk on Native Bavarian Plants. **6.45,** Weather and Sports Report. **7.0,** Wind Instrument Concert relayed from the Platz Garten. **Wurzburg.** **8.0,** See **Heilsberg.** **10.20,** Time and News. **10.45** (approx.), Police Band Concert relayed from **Heilsberg.** Danzig Election Results in the intervals. **12 Midnight,** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—10.50 a.m.,** Chimes. **11.0,** Divine Service from the Castle Chapel. **4.0 p.m.,** Music Festival of the Telemark District, relayed from **Porsgrund.** **5.0,** Divine Service, relayed from **Kongsberg,** with Dedication of the new Gloger Organ and Concert by the Kongsberg Choir; Soloists: Arild Sandvold (Organ), Elisabeth Munthe Kas (Soprano), Alfhild Sundene Bjurbeck (Contralto), Theodor Andrese (Tenor) and Morten Vatn (Baritone). **6.45,** Parliamentary Review. **7.15,** Weather and News. **7.30,** Talk relayed from **Bergen, 824 kc/s, 364 metres:** West Norway as an Eldorado for Anglers. **8.0,** Time Signal. **8.1,** Concert by the Station Orchestra, conducted by Hugo Kramm:

Overture, In Autumn (Grieg); Concerto grosso for Two Violins in D Minor (Händel); Larghetto from the Symphony No. 2 (Beethoven); In the Steppes of Central Asia (Borodin); Extracts from the Suite Algérienne (Saint-Saëns); Musette (Offenbach), Narcissus (Nevin); Valse Barcarolle (Waldteufel); Cossack Song (Ornstein); Selection from Mam'zelle Nitouche (Hervé). **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Recitations. **10.45,** Gramophone Dance Music **12 Midnight** (approx.), Close Down.

OSTERSUND. See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**10.25 a.m.,** Bible Reading. **10.40,** Sacred Music. **11.0,** Talk. **12.45 p.m.,** Giornale Radio. **1.0 to 2.0,** Concert of Light Music. In the interval at **1.30,** Time Signal, Announcements, and Weather. **5.30 to 6.30,** Gramophone Music. **8.0,** Dopolavoro Announcements and Giornale Radio. **8.20,** Sports Notes and Gramophone Music. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Brahms Centenary Concert, conducted by Armando la Rosa Parodi, with a Talk by G. Del Valle. In the interval, Talk: The Poetry of Sibilla Aleramo. **10.0,** Light Music on Gramophone Records. **10.55** (approx.), Close Down.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW. Time Signals (on **2,650 metres**) at **10.25 a.m.** and **11.26 p.m.** (Preliminary and Bidot Signals).—**1.0 p.m.,** News. **1.15,** Weather. **1.30,** Concert by Jean Dos and his Orchestra. Soloist: M. Saint-Cricq (Cello). **6.45,** Le Journal Parlé. **7.55,** Programme for Children. **8.25,** News. **8.30,** Gramophone Concert. Part I—Operetta Music. Part II—Popular Melodies. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 382.2 metres, 60 kW. **9.15 a.m.,** Gramophone Music. **9.35,** Press Review. **9.45,** Bible Reading. **10.0,** News. **10.5,** Sponsored Concerts. **11.40,** Gramophone Music. **12 Noon,** Interval. **12.15 p.m.,** Sound Film Music. **12.45,** Announcement. **12.50,** Half-an-Hour of Fantasy by Paul Weill and Mme. Mirane Esbly. **1.20,** Interval. **1.30,** Sponsored Programme. **2.0 to 6.45,** No Transmission. **6.45,** Journal Parlé. **7.0,** Sports Notes. **7.15,** Gramophone Music. **7.30,** Catholic Review. **8.0,** Gramophone Music. **8.15,** Interval. **8.30,** Song Recital. **9.0,** Interval. **9.15,** Variety Concert. **9.45,** Gramophone Music. **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**7.45 a.m.,** Light Music on Gramophone Records. **8.0,** Press Review and Weather Forecast. **8.30,** Physical Culture. **10.0,** Bookkeeping Lessons. **10.40 to 11.0,** Spanish Lesson. **12 Noon,** Religious Address. **12.20 p.m.,** Sacred Music. **12.30,** Bilbonquet and the Pyramids. **12.45,** Press Review, News, and Weather. **1.0,** Gramophone Concert of Popular Music. **2.0 to 3.30,** Programme in English by the I.B.C. Miss Faith Shipway and C. Danvers Walker announcing. **2.0,** Light Music. Signature Tune; A Perfect Combination; A Tree was a Tree; Tony's Wife; A Little Café in Vienna; Look what I've got; Moon Song; Shuffle on to Buffalo; Signature Tune. **2.30,** Gramophone Concert. **3.0,** Popular Music: March, Martial Moments (arr. Winter); Selection from A Waltz Dream (O. Straus); Two-step: Nelly Bly (Cheyne); Selection from Dorothy (Cellier); Waltz, Bric-a-Brac (Monckton); Selection, Sweethearts of Yesterday (arr. Hall). **5.0 to 6.0,** Programme in English by the I.B.C. Tea-time Variety Hour. S. H. C. Williams announcing. **6.30 to 7.0,** Programme in English by the I.B.C., Miss Faith Shipway and C. Danvers Walker announcing. Light Music: Signature Tune; Forty-Second Street; What have we got to lose?; Play Fiddle, play; I like Mountain Music; Signature Tune. **7.0,** Variety Concert. **8.0,** Radio Paris Circus. **8.30,** News, Sports Notes and Weather Forecast. **8.45,** Radio Paris Music Hall. In the interval at **9.15,** Press Review and News.

PITTSBURGH

(KDKA), 980 kc/s, 306 metres: 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.0 p.m.,** Monarch Mystery Tenor, from **New York. 7.15,** The Boys of Wynnecastle. **7.30,** The Northwestern Chronicle, from **New York. 8.0,** National Opera Concert, from **New York. 9.0,** Programme to be announced. **9.15,** Symphonette, from **New York. 9.30,** Vesper Services, from Shadyside Presbyterian Church. **10.30,** Pages of Romance, from **New York. 11.0,** Soprano Solos by Lois Miller. **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Sport Review. **11.22,** Press News Review. **11.29,** Temperature Report. **11.30,** Programme to be announced. **11.45,** Dick Daring, from **New York. 12 Midnight,** Time Signal and Jack Pettis and his Orchestra. **12.30 to 2.45 a.m. (Monday), New York** Relay. **12.30,** Great Moments in History. **1.0,** Viennese Programme. **2.0,** Will Rogers with Orchestra. **2.30,** Walter Winchell. **2.45,** Fireflies. **3.0,** Time Signal and Popular Melodies by Will Ryshanek.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**12 Noon,** Chimes from the Church of St. Ludmilla. **12.5 p.m.,** See **Moravska-Ostrava. 1.30,** Agricultural Talk. **1.45 to 1.55,** Talk on Tuberculosis. **4.0,** See **Brno. 5.30,** Gramophone Music. **6.0,** German Transmission: Programme Announcements; A Heartless Maiden—Radio Play (Oscar Baum); and News in German. **7.0,** See **Brno. 8.0,** La Belle Hélène—Operetta in Three Acts (Offenbach). In the intervals at **9.0** and **10.0,** Time Signals. **10.15,** News. **10.35,** Gramophone Music. **11.0** (approx.), Close Down.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—**9.55 a.m.** (from **Geneva**), Chimes. **10.0** (from **Geneva**), Protestant Service. **11.0** (from **Geneva**), Gramophone Music. **12.30 p.m.,** News and Weather. **12.40,** Gramophone Music. **2.0 to 2.30,** Interval. **2.30** (from **Vevey**), Gala Concert for the Twenty-ninth Festival of the Vaudois Singers. **5.30 to 7.0,** Interval. **7.0** (from **Geneva**), Religious Address: God in Nature. **7.30** (from **Geneva**), News Bulletin. **8.0** (from **Fribourg**), Talk: The Life of St. John. **8.35,** Concert by the Radio Suisse Romande Orchestra. In the Interval at **9.0** (from **Geneva**), Act I of Le Misanthrope—Comedy (Molière). **9.50,** News and Weather. **10.0,** Concert by the Radio Suisse Romande Orchestra. **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.**—**10.10 a.m.,** News, Sports Notes and Amusement Guide. **10.30,** Agricultural Notes. **10.45,** Bible Reading. **11.0 to 12 Noon,** See **Turin. 12.30 to 2.30 p.m.,** See **Turin.** In the interval at **1.0,** Report on the Cycle Tour of Italy. **3.45** (from **Naples**), Programme for Children, followed by Weather and Sports Notes. **4.0 to 6.15,** Orchestral Concert. In the interval at **4.15,** Report on the Last Stage of the Cycle Tour of Italy, and at **5.45,** Sports Notes. **6.15,** Press Review. **7.30,** Sports Report and News. **8.0,** Time and Summary of the Day's Results of the Cycle Tour of Italy. **8.15,** Gramophone Music. **8.30,** Sports Notes. **8.45,** Variety Concert. **10.0** (approx.), Signori, si parte Play in One Act (Messandro de Stefani). **10.30** (approx.), Variety Concert (contd.). **10.35,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres,** and by **W2XAD** on **19.56 metres.**—**7.0 to 8.45 p.m., New York** Relay. **7.0,** Wayne King's Orchestra. **7.30,** Dr. Ralph W. Sockman in the Radio Pulpit. **8.0,** Fiddlers Three. **8.15,** Wildroot Institute. **8.30,** Temple of Song. **8.45** (approx.) **to 11.45,** Interval. **11.45,** Horse Sense Philosophy. **12.0 to 2.45 a.m. (Monday), New York** Relay. **12.0,** Chase and Sanborn Programme. **1.0,** Manhattan Merry-go-round. **1.30,** American Album of Familiar Music. **2.0,** Current Government by David Lawrence. **2.15,** Highlights and Shadows. **2.45,** Sunday at Seth Parker's, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,299 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—**10.0 a.m.** (from **Basle**), Catholic Service, relayed from Riehen. **10.45** (from **Basle**), Concert of Chamber Music. **11.30** (from **Basle**), Review of Books by Swiss Authors. **12 Noon** (from **Basle**), Gramophone Music. **12.28 p.m.,** Time and Weather. **12.30,** News. **12.40** (from **Zürich**), Concert by the Station Orchestra. **1.30** (from **Basle**), Agricultural Programme. **2.0** (from **Basle**), Programme to be announced. **2.30 to 5.0,** Interval. **5.0,** (from **Basle**), Programme to be announced. **6.30** (from **Basle**), Talk in a Foreign Language. **7.0** (from **Basle**), Time and Sports Notes. **7.5,** Concert by the Station Orchestra. **8.0** (from **Basle**), From Mozart to Beethoven—Programme by Dr. Bernhard Paumgartner. **9.0,** News. **9.10** (from **Basle**), Programme to be announced. **10.15** (from **Basle**), Sports Notes.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—**11.0 a.m.,** Divine Service Relay. **12.45 p.m.,** Weather Report. **2.30,** Programme in Memory of Johann Christian Friedrich Haeffner, relayed from **Göteborg. 3.20,** Programme for Children. **4.0,** Reading. **4.30,** Gramophone Music. **5.30,** Talk. **6.0,** Evensong. **7.35,** Concert of Light Music with Songs by Sven d'Ailly. **8.15,** After All—a Comedy (John van Druten). **10.0,** Orchestral Concert. Soloist:

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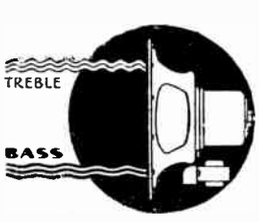

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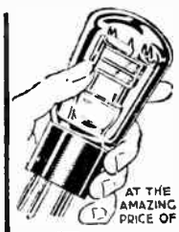

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Gustav Gröndahl (Cello). Concerto in D Minor for 'Cello and Orchestra (Lalo); Movement from String Quartet in C Minor (Rubinstein); Symphonic Poem (Saint-Saëns); Overture, Meeresstille und glückliche Fahrt (Mendelssohn). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**9.45 a.m.**, Opening Ceremony of the Esperanto Congress, relayed from the Excise Hall at Hagenau. **10.45**, Protestant Service, relayed from Colmar. **11.30**, Catholic Service in German. **12 Noon**, Gramophone Music. **12.45 p.m.**, News. **1.0**, Time Signal. **1.1**, Variety Music on Gramophone Records. **2.0**, Talk in French: Mothers' Day. **3.0**, Pianoforte Recital by Mme. Wanda Landowska from St. Leu-la-Forêt, relayed from **Radio Coloniale (Paris), 15,243 kc/s (19.68 metres).** **4.0**, Gramophone Music. **5.0**, Orchestral Concert, conducted by M. Roskam: March, Hortstein (Fucik); Waltz, Transaktionen (Jos. Strauss); Minuet (Mozart); Overture, Martha (Flotow); Selection from Véronique (Messager); 'Cello Solo: La Serenata (Braga); Selection from Les Mousquetaires au couvent (Varney); March (Mezzacapo). **6.0**, Medical Talk in French: Children's Clothes. **6.15**, Sports Talk. **6.30**, Orchestral Concert, conducted by M. de Villers: Overture, The Golden Cross (Brüll); Selection from Faust (Gounod); Elegy (Tchaikovsky); Ballet Music from Masaniello (Auber); Le pas des Fleurs (Delibes); Selection from De Puppenfee (Bayer). **7.30**, Time Signal and News. **7.45**, Talk with Gramophone Illustrations: Music of our Fathers' Time. **8.15**, Press Review in German. Lottery Results, and News. **8.30**, Andromaque — Tragedy in Five Acts (Racine). In the interval at **9.30**, approx., Press Review in French. **10.30**, Dance Music from the Savoy. **12 Midnight**, Close Down.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**11.15 a.m.**, Transmission for all German Stations, relayed from **Langenberg. 11.45** (approx.), Transmission for all German Stations, relayed from **Leipzig. 12.30 p.m.** (approx.), Regimental Celebrations of the Baden Grenadiers, relayed from the Castle Square, Karlsruhe; Music and Addresses. **1.0**, Topical Talk. **1.15**, Gramophone Concert of Songs. **2.25** (from **Freiburg**), Talk: German Dress Designing. **2.50**, Choral Concert, relayed from Schwetzingen. **3.30**, Gaildapfelburg—Play for Young People. **4.30**, Orchestral Concert by the Municipal Orchestra, conducted by Karl Assmus, relayed from Baden-Baden: Turkish March (Mozart); Overture, The Merry Wives of Windsor (Nicolai); Ballet Suite (Pogojev); First Suite from Peer Gynt (Grieg); Two Irish Folk Dances (Grainger): (a) Shepherd's Hey, (b) Mock Morris; Overture, The Kiss (Smetana); Waltz, The Bear (Oki-Albi). **5.0**, Transmission for all German Stations, relayed from **Langenberg. 5.45**, Concert from Baden-Baden (contd.). **6.0**, Sports Notes. **6.15**, For Whitsun, 1933—Swabian Programme of Literature and Music. **7.0**, Programme of Contemporary Music and Literature. Poems by Gertrud Fundinger, Karl Fuss, Franz Hurthe, Manfred von Pinelli and Peter Russ. Songs and Chamber Music by Hermann Unger. **8.5**, See **Berlin (Witzleben). 10.0**, News. **10.30 to 12 Midnight**, See **Vienna. 12 Midnight**, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—**6.30 to 7.0 p.m.**, Programme in English by the I.B.C., W. Brown-Constable announcing. **6.30**, Light Music: A Waltz, a Night, a Time; In Santa Lucia; The Girl in the Little Green Hat; Try a little Tenderness; I'll never have to dream again; A Letter to my Mother; Roll along Kentucky Moon; My Darling; Jolly old Ma, jolly old Pa. **7.0**, Popular Music. **7.15**, News and Racing Results. **7.25**, Local News Bulletin. **7.30**, Orchestral Music. **8.0**, Extracts from Opera: (a) Figaro (Mozart), (b) Messaline (Lara), (c) La Favorita (Donizetti). **8.15**, Music by a Mandoline Orchestra. **8.30**, Spanish Songs. **8.45**, Opera Music. **9.0**, Music Hall Programme. **9.30**, Concert by a Viennese Orchestra. **10.0**, Extracts from Opera: (a) Rigoletto (Verdi), (b) Tosca (Puccini), and (c) Carmen (Bizet). **10.15**, North African News. **10.30 to 11.30**, Programme in English by the I.B.C. **10.30**, Light Music: Happy Days are here again; Kathleen Mavourneen; On with the Show; Girls of the Old Brigade; Killarney; The Old Contemptibles' Reunion; Time, Gentlemen, Please. **11.0**, Orchestral and Vocal Concert: Poupée valsante; Dream a little Dream of me; One little Raindrop; Stephanie Gavotte; Ständchen; I'll always be true; Life's Desire; Demande et réponse. **11.27**, I.B.C. Goodnight Melody. **11.30**, Sound Film Music. **11.45**, Classical Music. **12 Midnight**, News, Weather, and Announcements. **12.5 a.m. (Monday)**, Hawaiian Guitar Music. **12.15**, Light Music. **12.30** (approx.), Close Down

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**9.40 to 9.55 a.m.**, See **Turin. 9.55**, Mass from the Cathedral of San Giusto. **11.0**, Religious Address. **11.20**, Agricultural Report. **11.40 to 12 Noon**, Interval. **12 Noon** 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.**—**9.40 to 9.55 a.m.**, Giornale Radio. **10.40**, Agricultural Report. **11.0**, Mass from the Church of the Annunciation, Florence. **12 Noon**, Religious Programme. **12.30 p.m.**, Variety Concert. **1.30 to 2.30**, Orchestral Concert, conducted by Ugo Tansini. **4.0**, Variety Concert. In the intervals, Report on the Cycle Tour of Italy and Sports Notes. **6.15**, Giornale Radio, Football Results, and Sports Notes. **7.4**, Time and Dopolavoro Announcements. **7.10**, Gramophone Music. **8.0**, Announcements and Report on the Cycle Tour of Italy. **8.10**, Giornale Radio and Sports Notes. **8.35**, Talk on the following Transmission. **8.40**, Siberia — Opera in Three Acts (Giordano), conducted by the Composer. In the intervals, Talk, Theatre Notes and Giornale Radio.

VIENNA

581 kc/s, 517 metres; 15 kW. Relayed by **Graz, 852 kc/s, 352.1 metres; Innsbruck, 1,058 kc/s, 283 metres; Klagenfurt, 662 kc/s, 453.2 metres; Linz, 1,220 kc/s, 245.9 metres;** and **Salzburg, 1,373 kc/s, 218.5 metres.**—**11.30 a.m.**, Talk: Mountains and Strongholds in the Valley of the Danube. **11.55**, Talk: Farewell to the Rosenhügel Transmitter. **12.5 p.m.**, The Opening of the Bisamberg High Power Station, relayed from **Bisamberg.** Addresses by Eduard Heinl, President of the Ravag, and Herr Wilhelm Miklas, President of the Association. **12.40 p.m.**, Concert by the Vienna Philharmonic Orchestra, conducted by Oswald Kabasta: Symphony No. 2—the London (Haydn); The Seventh Symphony in E (Anton Bruckner). **1.40**, Radio Report: Austria's High Power Station. **2.5**, Time and Programme Announcements. **2.10**, Concert of Light Orchestral Music. **3.30**, Review of Books. **4.0**, Chamber Music: Pianoforte Trio No. 4 in C (Mozart); Pianoforte Trio in B flat, Op. 99 (Schubert). **5.0**, Wind Instrument Concert. **6.30**, Talk: The History of the Bisamberg. **7.0**, Recital of Songs and Arias by Franz Völker. **7.25**, Karl Schönherr reads from his own Works. **7.50**, Time and Sports Notes. **8.0**, The Austrian Homeland—Programme of Literature and Music. **10.15**, News. **10.30**, Hinüber-Herüber—Play in One Act (Johann Nestroy). **11.10**, Variations on the Bundeshymne for Organ and Wind Instruments (Franz Schmidt).

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**9.55 a.m.**, Programme Announcements. **10.0**, Divine Service, relayed from **Lwów. 11.40**, Interval. **11.57**, Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.**, Programme Announcements. **12.10**, Weather Report. **12.15**, Concert by the Warsaw Philharmonic Orchestra, conducted by J. Oziminski, and a Choir conducted by T. Mayzner. Soloists: A. Dobosz (Tenor), Mme. L. Nowacka-Ilska (Pianoforte). In an interval, Talk on the Labour Bureau. **2.0**, Talk for Housewives. **2.20**, Song Recital by Mme. D. Gutowska. **2.40**, Agricultural Talk. **3.0**, Weather for Farmers. **3.5**, Musical Programme. **4.0**, Programme for Young People. **4.25**, Gramophone Music. **4.45**, Talk: The Polish Language. **5.0**, Pianoforte Recital by F. Lukasiewicz: Pastorale e capriccio (Scarlatti-Tausig); Gigue (Locillet); Serenade (Schubert-Liszt); Dedication (Schumann-Liszt); Scherzo in B Flat Minor, Op. 35 (Chopin); Berceuse (Chopin); Six Studies from Op. 10 and 25 (Chopin); The Musical Clock (Sauer); In Autumn (Moszkowski); Intermezzo (Leschetizky). In an interval, Announcements. **5.55**, Programme Announcements. **6.0**, Dance Music and Light Music. In an interval, News. **7.0**, Miscellaneous Items. **7.25**, Reading. **7.55**, Interval. **8.0**, Programme relayed from **Lwów, 788 kc/s, 381 metres.** In the interval, Sports Notes. **8.30**, Concert by the Station Orchestra, conducted by J. Oziminski. Soloist: I. Dygas (Tenor). Overture, Rosamund (Schubert); Minuet (Boccherini); Divertissement from Les Erynnies (Massenet); Serenade from Mazeppa (Münchheimer); Parle-moi encore (Karlowicz); Two Songs (Tchetwertynsky): Danse macabre (Saint-Saëns); Poem (Fibich); Sylvan Scenes (Percy Fletcher); Chanson (Tchaikovsky); Spring (Rimsky-Korsakov); Song (Leoncavallo); Song (Tirindelli); Selection from Madame Butterfly (Puccini); Waltz, Dorfschwalben aus Oesterreich (Jos. Strauss); Serenade (Toselli); The Musical Snuff-Box (Nikolaievsky); Mazurka from The Haunted Castle (Moniuszko). **10.30**, Dance Music. In the interval at **10.55**, News.

ZURICH.—See **Schweizerischer Landessender.**

MONDAY

MAY THE TWENTY-NINTH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral Concert from the National Museum of Wales.
LONDON REGIONAL	Military Band Programme.
MIDLAND REGIONAL	Bach pianoforte recital. Variety programme.
NORTH REGIONAL	"Fire-Accident-Marine," a duologue by A. A. le Bean and "Bill's Awakening," a comedy by H. R. M. Simpson, "The Night Mail," a play by F. A. Ramsden.
WEST REGIONAL	Orchestral concert from the National Museum of Wales
SCOTTISH REGIONAL	"Crieff," a programme of story and song from the Valley of Strathearn.
BELFAST	Light Orchestral Concert.

ABROAD

BARI	8.35 p.m. Guiseppe Mulè Concert, conducted by the composer.
BERLIN (Witzleben)	8.15 p.m. Opera: "Iphigenia in Aulis" (Gluck), from the Pergamon Museum.
BRUSSELS (No. 2)	8.0 p.m. Tchaikowsky, Dvorak and Smetana Concert.
HAMBURG	9.0 p.m. Baroque Music of the Hanseatic Towns, from Bremen.
HILVERSUM	7.40 p.m. Act 2 of Gounod's "Faust."
LAHTI	7.25 p.m. Mozart Duettino Recital.
STOCKHOLM	9.15 p.m. Brahms' Sonata No. 2, in A, for Violin and Pianoforte.
STRASBOURG	8.30 p.m. Extracts from Opera: "Don Giovanni," by Verdi.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, Gramophone Music and Results of the Irish Hospital Sweep Draw. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** Talk on Dogs. **7.30,** Time Signal. **7.31,** Concert by the Station Orchestra. **8.0,** Edmund Keane—Play by the Studio Players. **8.30,** Talk by Padraic Gregory: The Revival of the Mystery and Miracle Play in Ireland. **8.55,** Songs and Readings by Fay Sargent. **9.15,** The Station Orchestra. **9.25,** Tenor Solos by D. MacCoilig. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.20,** Sports Notes. **8.30,** Exchange Quotations and Talk in Catalan. **9.0,** Gramophone Music and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Humorous Review of the Week in Verse. **10.15,** Concert of Sardanas. **11.0,** Concert by the Station Orchestra. **11.30,** Literary and Musical Programme. **12 Midnight,** Concert by the Station Orchestra (contd.). **12.30 a.m. (Tuesday),** Gramophone Music. **1.0** (approx.), Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Press Review. **8.30,** Time Signal and Announcements. **8.35** (approx.), Giuseppe Mulè Concert, conducted by the Composer. Part I: La Baronessa di Carini—Opera in One Act. Part II: Intermezzo and Chorus from Le coefore; Dance from Iphigenia in Aulis; Lament and Aria for Soprano and Mezzo-Soprano from I Sette a Tebe. Part III: Symphonic Intermezzo from and Act III of Dafni. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Talk. **7.30,** Gramophone Records. **8.0,** Programme (not yet announced) relayed from **Zagreb, 977 kc/s, 307 metres. 10.10,** News.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Concert of Descriptive Music. **3.0,** Talk on Handicraft for Women. **3.30,** Weather and Exchange. **3.45,** Review of Books. **4.0,** See **Breslau. 5.0,** Educational Talk. **5.35,** Recital of German Songs by a Women's Trio: All mein Gedanken; Innsbruck, ich muss dich lassen; Schnitter Tod; Es steht ein Lind'; Maria durch ein Dornwald ging; Die liebe Maienzeit; Drei Laub auf einer Linden; Wenn alle Brünnlein fliessen. **6.0,** A Poem, followed by Dances and Music of Three Centuries for Violin and Pianoforte. **6.25,** Talk: The End of the Middle Class Outlook on Life. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** An Epigram, followed by a Short Introduction to Gluck's Opera Iphigenie in Aulis. **8.10 to 10.0,** See **Berlin (Witzleben). 10.0,** News. **10.25,** Topical Talk. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Leipzig. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert of Music by Prince Joachim Albrecht of Prussia: The Berlin Wireless Orchestra, conducted by the Composer: Toten-Insel; Reminiscenzen an Wien; Etoile d'amour; Kemal-Pascha-Marsch. **5.10,** Flute Recital: Sonata in B Minor for Flute and Thorough-Bass (Johann Matthesson); Quartet in D for Flute, Violin, Viola, and 'Cello (Mozart). **5.30,** Dialogue in 3 Travel Bureau. **5.55,** Wulf Bley reads from his new book, Götzen werden Götter. **6.13,** Talk on Music. **6.20,** Concerto grosso in D (Handel), by the Berlin Wireless Orchestra, conducted by Eugen Jochum. **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations: The Heritage of the Fathers: Symbolic Play (Martin Raschke). **8.5,** The Watch-Word. **8.10,** Talk on the following Transmission. **8.15,** Iphigenie in Aulis—Opera in Three Acts (Gluck), relayed from the Pergamon Museum. **10.0,** News, followed by Dance Music from the Europa-Pavillon. **12 Midnight** (approx.), Close Down.

BERNE.—See **Schweizerischer Landessender.**

BERomunster. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.30,** News, Exchange, and Market Prices. **7.40,** Talk: Bordeaux a Century ago. **7.55,** Lottery Results. **8.0,** Programme for Children. **8.15,** News. **8.30,** Musical and Dramatic Programme.

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**4.10,** Concert by the Station Orchestra, conducted by F. Dyk. Soloist, Vera Strelcova-Zachova (Songs). Symphony No. 2 in A Minor, Op. 16 (Moyzes), for Orchestra and Voice. Selection from The Secret (Smetana); Scherzo Caprice, Op. 5 (Nedbal). **5.10,** See **Prague. 5.50,** Talk: Art and the Crisis. **6.5,** Concert of Chamber Music by the Station String Quartet: Quartet in D (Schubert); Quartet in A Minor (Mendelssohn). **6.55,** Talk for Housewives. **7.9,** See **Prague. 7.10,** Talk for Women. **7.25,** See **Brno. 8.0,** See **Prague. 8.45,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—1.15 p.m.,** Gramophone Concert of Rhapsodies. **2.15,** Programme arranged by the Post Office, with Gramophone Music. **3.10,** Market Prices. **3.40,** Review of Books. **4.0,** Concert by the Station Orchestra, conducted by Bruno Janz; Soloist, Gretl Sedlacek (Soprano): Overture, Ballo in Maschera (Auber); Hymn to the Sun from Le Coq d'Or (Rimsky Korsakov); Hindu Song from Sadko (Rimsky-Korsakov); Selection from the Traumspielsuite (E. N. Rezniček); Intermezzo No. 2 in B Flat (Gal); Overture, Nachklänge von Ossian (Gade). **5.0,** See **Berlin (Deutschlandsender). 5.35,** Weather and Talk. **6.5,** Talk on Physical Culture. **6.30,** Variety Programme with Gramophone Records. **6.50,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Orchestral Concert; Soloist, Ernst Tschirner (Flute): Sinfonietta for String Orchestra and Harp (Paul Graener); Suite in B Minor for Flute and String Orchestra (Bach); Suite, Aus Holbergs Zeit (Grieg). **9.0,** General News. **9.10,** South Sea Flight—A Radio Play (Peter Steinbach). **10.10,** Time and News. **10.30,** Wireless Technical Talk. **10.40,** Talk: Breslau's New Railway Station. **11.9** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**7.0 p.m.,** See **Prague. 7.25,** Concert of Light Music. **8.0,** See **Prague. 8.45,** Mozart in Prague—Radio Play in Two Acts (Slaby and Rarek) by Members of the National Theatre in Brno, a Mixed Choir, and the Station Orchestra, conducted by Jan Janota. **10.0,** See **Prague. 10.15** (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 P. Leemans: March (Stolz); Ballet Music from Isoline (Messager); Neapolitan Song, Miramar (d'Ambrosio); Selection from Le Petit Duc (Lecocq); Pianoforte Solo: Minuet varié (Mortelmans); Tango, Jealousy (Gade); Waltz (Sylviano); One-step, Dans tous les ports du monde (Van Parys). **2.0,** Broadcast for Schools. **5.0,** Concert by the Radio Orchestra, conducted by F. André. **6.0,** Talk: Making Artificial Flowers. **6.15,** Gramophone Records: Overture, Idomeneus (Mozart); Dionysiaques (F. Schmitt). **6.30,** Recital of French Sonatas for 'Cello and Pianoforte by M. Pitsch and M. Scharrès: Sonata (Boëllmann); Sonata (Debussy). **7.15,** Talk: The Influence of Literature on Civilisation. **7.30,** Film Review. **8.0,** Concert by the Radio Orchestra, conducted by Franz André: Overture, Zampa (Hérold); Waltz from Faust (Gounod); Fête polonaise from Le Roi malgré lui (Chabrier); Potpourri of Jazz Music (Candrix); Three Dance Airs; In a Monastery Garden (Ketelbey); Le bal masqué (Poulenc). **9.0,** Talk. **9.30,** Concert (contd.): March, Entry of the Gladiators (Fucik); Waltz, Tales from the Vienna Woods (Strauss); Just an Echo in the Valley (Woods); Waltz, España (Chabrier-Waldteufel); Railway (Brusselmans). **10.0,** Le Journal Parlé. **10.10,** Concert relayed from the Ancienne Belgique.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Zampa (Hérold); Persian Dance (Guiraud); Melody (Lindemann); Selection from Boccaccio (Suppé); Prelude in E (Rachmaninov); Suite, La Feria (Lacôme); Neapolitan Song, Canzone Vesuviana (Marenucci); Tarantella (Scassola). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Italian Music. **2.0,** Broadcast for Schools. **5.0,** Quintet, Op. 163 (Schubert) on Gramophone Records. **5.45,** Programme for Children. **6.30,** Concert by the Little Station Orchestra, conducted by P. Leemans: Overture, Il sogno di Scipione (Mozart); Ukrainian Pieces (Akimenko); Oriental Dance (Donliez); Ballet Music from Bacchus (Massenet); 'Cello Solo: Chanson Louis XIII et Pavane (Couperin); Syncopation (Kreisler). **7.15,** Talk on Economics. **7.30,** Le Journal Parlé. **8.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: Mlle. R. Monet (Pianoforte). Part I: Tchaikovsky Programme: Overture, 1812; Allegro from the Concerto in B Minor for Pianoforte; Italian Caprice; Flower Waltz from the Nutcracker Suite. **8.45,** Talk: Pigeon Flying. **9.0,** Concert, Part II: Smetana and Dvořák Programme: Overture, The Bartered Bride (Smetana); Symphonic Poem, The Moldau (Smetana); Songs; Overture (Dvořák); Humoresque, for Orchestra (Dvořák); Songs; Dances (Dvořák). **10.0,** Le Journal Parlé. **10.10,** Gramophone Dance Music.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert of Military Music. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Clarinet Trio (Beethoven). **8.30,** Talk. **8.45,** Pianoforte Duets by Mlle. Grünspann and M. Soarec: Suite, Dolly (Fauré); Petite Suite (Debussy). **9.15,** Light Music and Romanian Music, relayed from a Restaurant. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.50 p.m. to 12 Midnight.**—**5.0 p.m.,** Gramophone Music. **6.30,** German Lesson. **7.0,** Violin Recital by Alexander Vegh. **7.40,** Market Prices. **7.50,** Hungarian Folk Songs on Gramophone Records. **8.30,** Concert by the Choir and Orchestra of the Coronation Church, conducted by Viktor Sugar, relayed from the Academy of Music: Gregorian Concerto (Respighi); The Szegedin Mass (Dohnanyi). **10.40,** News Bulletin. **10.50** (approx.), Concert by the Anton Kocze Cigány Band, relayed from the Café Ostende; Soloist: Paul Kalmar (Folk Songs). In the Interval, An Interview with Viscountess Snowden. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Town Hall Chimes. **12.1 to 2.0 p.m.,** Concert from the Hotel d'Angleterre. **2.50,** Talk for Women: Spanish Women since the Revolution. **3.0,** Concert by the Radio Orchestra, conducted by Emil Reesen: Overture, The Nuremberg Doll (Adam); Waltz, L'etoile polaire (Waldteufel); Allegretto from the Military Symphony (Haydn); Selection from Javotte (Saint-Saëns); Mandoline (Debussy); Fête foraine from Namouna (Lalo); Reading; Overture, Les Brigands (Offenbach); Selection from The Circus Princess (Kálmán); Three Pieces (Dvořák): (a) Waltz in A, (b) Slav Dance, (c) Humoresque; Morning and In the Hall of the Mountain King, from Peer Gynt (Grieg). **5.0,** Gramophone Music. **5.35,** Exchange and Market Prices. **5.50** (from the **Esbjerg Studio**), Talk. **6.20,** English Lesson. **6.50,** Weather and News. **7.15,** Time. **7.30,** Talk. **8.0,** Polenblut—Operetta in Three Acts (Nedbal). **9.0,** Pictures of Everyday Life—Training for Horse Racing. **9.30,** Verklärte Nacht, Op. 4 (Arnold Schönberg) by the Radio Orchestra, conducted by Fritz Mahler. **9.55,** Reading. **10.15,** News. **10.30,** Pianoforte Duets (Schubert): (a) Divertissement à la hongroise, (b) Marche caractéristique. **11.0,** Dance Music from the Nimb Restaurant. In an interval at **12 Midnight,** Town Hall Chimes. **12.30 a.m. (Tuesday),** Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk on the Deliverance of Vienna from the Turks. **7.15,** Miscellaneous Items and News. **7.30,** See **Warsaw. 11.0,** Concert of Gramophone Music. **12 Midnight,** Fanfare from the Tower of St. Mary's Church, Cracow.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. Announcers: T. St. A. Ronald and B. McNabb. **5.30,** Concert for Hastings and Eastbourne Listeners: In a Japanese Garden (Higgs); Falling in Love again (Hollander); Kashmiri Love Song (Woodforde-Finden); Songs: (a) I bring a Love Song, (b) You will remember Vienna; The Love Waltz (Heymann); Love's Garden of Roses (Haydn Wood); Songs: (a) Because (d'Hardelot), (b) For you alone; Chanson (Friml); Sylvan Scenes (Fletcher); Broken Dreams (Spitalny). **6.15,** Vocal and Orchestral Concert for Chichester and Bognor Listeners: Orchestra: Waltz, Très jolie (Waldteufel); Little White Lies (Donaldson); With my Guitar and you (Snyder); Orchestra: (a) African Lament (Gilbert), (b) Mama Inez (Grenet); Absent minded (Summers); Girl of a Million Dreams (Gay); Orchestra: (a) Dreams, (b) Four little Blackberries; In Sleepy Hollow (Robinson); There's another Empty Saddle (Colville); Orchestra: Jungle Drums Patrol (Ketelbey). **7.0 to 10.0,** Programme in French. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Ebcolians: Toy Town Admiral (Godfrey); Who am I? (Clifford); My Coquette (Andrew); This is the Missus (Brown); Two Little Blue Little Eyes (Valle); Got a Date with an Angel (Tunbridge); Maybe it's the Moon (Whiting); Who do you love? (Tunbridge); Hang out the Stars in Indiana (H. Woods); What could be sweeter than your Love? (Brodsky); If you'll beckon with your Finger (Montague); Give me a Tune (Scotto); Eccentric (Caplat); Tea for Two (Youmans); My Baby (Gilbert). **11.0,** Orchestral Concert: Rakoczy March (Berlioz); Spring Song (Mendelssohn); Airs from Peer Gynt (Grieg): (a) Morning, (b) Anitra's

Dance, (c) Solveig's Song; Minuet (Mozart); Selection from Il Trovatore (Verdi). **11.30,** The Studio Chorus in National Songs: Songs of England; Quartet: Loch Lomond; Orchestra: Hornpipe; Gems of Erin; Quartet: John Peel; Orchestra: The Glasgow Highlanders; Land of Hope and Glory; Songs of Wales. **12 Midnight,** Club Concert of Walthamstow Listeners: Overture, Morning, Noon and Night (Suppé); Songs: (a) Goin' Home (Dvorák), (b) Waiting at the End of the Road (Berlin); Bells across the Meadow (Ketelbey); Songs: (a) The Two Grenadiers (Schumann), (b) You along o' me (Sanderson), (c) A Hunting Song, (d) Love's Pleading, (e) Come back to Sorrento; For Valour; Duets: (a) Leave the Pretty Girls Alone (Robison), (b) 'Way down in Georgia; Returning Home. **1.0 a.m. (Tuesday),** Accordion Solos and Songs: Flor d'Espagne (Vola); La Java de Doudonne (Padilla); Rosa (Vola); Songs: (a) My Fate is in your Hands, (b) Mona; Donauwellen (Rosas); La Tourterelle (Damare); Au revoir (Cuvelier). **1.30,** Songs and Orchestral Selection: Melody Divine; I wish I had died in my Cradle; Mother's Smile; Orchestra: Selection from White Horse Inn; A Convict's Dream; Darling Old Mother of Mine; Golden Gates of Paradise. **2.0,** Dance Music by the Ibcolians: The King's Navee (Leslie); Moon Over Dixie (Koehler); Toasts (Sarony); How do you do, Mr. Brown? (Abraham); I can't write the Words (Marks); Let's all dance the Polka (Lawton); The Lady I love (Young); How are you (Pola); Isn't it Romantic (Hart); Balloons (Shawn); Liszt, Chopin, and Mendelssohn (Nicholls); Ain't cha coming out Tonight (Carson Robison); When they're on the Love Parade (Hogan); Big Ben's saying Goodnight (Murray) **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW., **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** Concert. **5.45,** Economic Notes. **6.0,** Dialogue on the Centenary of the Death of Anselm Feuerbach, the German Writer on Criminal Law. **6.15,** Italian Lesson. **6.45,** Notes of the Day. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Strauss Concert by the Station Orchestra, conducted by Dr. Reinhold Merten. Gallop, Reise (Joh. Strauss, Sen.); Waltz Op. 244, Denksprüche (E. Strauss); Waltz, Odeon-Tänze (Joh. Strauss, Sen.); Victoria-Polka Op. 228 (Joh. Strauss); Waltz, Feenmärchen, Op 312 (Joh. Strauss); Fest-Marsch (Joh. Strauss); Patronessen-Polka Op. 286 (Joh. Strauss); Waltz, Die Jubilanten (E. Strauss); Waltz, Frauenwürde Op. 277 (Jos. Strauss); Knickebein-Marsch (Jos. Strauss); Waltz, Wien mein Sinn (Joh. Strauss); Polka-Mazurka, Nachtschatten (Jos. Strauss); Radetzky-Marsch (Jos. Strauss, Sen.). **9.0,** Germany honours Schlageter. **9.15,** Violin Recital by Arrigo Pelicia with the Station Orchestra, conducted by Hans Rosbund. Gregorian Concerto (Respighi); Concerto in G (Mozart). **10.15,** Time and News. **10.45,** Programme from **Stuttgart. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

CALL ha (In Morse), 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.,** Talk: From the Germanic Militia to the Standing Army. **6.20,** Concert by the Women's Choir of the Municipal Theatre, conducted by Max Thurn. **6.45,** Frankfurt Exchange. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Baroque: Musical and Literary Programme. **9.0** (from **Bremen**), Baroque Music of the Hanseatic Towns. Grete Götte (Harpsichord), Dr. Kratzi (Flute), Dr. Budde (Violin), Martin Corssen (Viola da Gamba) and Dr. Stocker ('Cello) and Thorough-Bass). Introductory Talk by Dr. Budde. First Performance: Trio-Sonata in F for Violin, Viola da Gamba and Thorough-Bass (Buxtehude); Toccata for Harpsichord (Reinken); Sonata in B Minor for Unaccompanied Flute and Violin (Telemann); Suite from Hortus Musicus (Reinken). **10.0** News. **10.20,** Topical Talk. **10.30** (from **Kiel**), Light Music by the Kiel Orchestra of Unemployed Musicians.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Anna Bolena (Donizetti); Russian Rhapsody (Mansz); Selection from Coppélia (Delibes); Waltz (Löhr); Two Pieces (Richter): (a) An der Wiege, (b) Sérénade Drolatique; Potpourri, So schön wie's einmal war (Dauber). In the interval at **1.20,** News. **2.30 (Danzig),** Exchange. **3.0,** Exchange and Market Prices. **3.30,** Radio Report from the Königsberg Stallion Show. **4.0,** Concert by the Königsberg Opera House Orchestra, conducted by Karl Rrubetz; Overture, The Bohemian Girl (Balfe); Waltz, Rundgesänge (Helmesberger); Potpourri, Sänger heraus (Arthur Ostermann); Deutschmeister - Regiments-Marsch (Bayer); Suite, The Minaret (Leopold); Osmarken-Rundfunk-Marsch (Brubetz). **5.0,** See **Berlin (Deutschlandsender). 5.35,** Talk: Memorable Days of the Week. **5.45** (from **Danzig**), Talk: The Port of Danzig. **6.15,** Market Prices. **6.25,** Schubert Song Recital by Hans Eggert: Im Abendrot; Greisengesang; Gesänge des Harfners, Nos. 1 and 2; Gruppe aus dem Tartarus; Dem Unendlichen. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** News. **8.5,** Concert by the Small Station Orchestra. Soloists: Ilse Vahlpahl (Soprano) and Eugen Wilcken (Tenor). Overture, Fatinitza (Suppé); Popular Songs; Violin Solo, Carmen Fantasia (Sarasate); Catalan Caprice (Albeniz); Woodland Sketches (Macdowell); Songs from New Operettas; Waltz, Die Romantiker (Lanner); Selection from Der arme Jonathan (Millöcker). **9.15,** Egon von Kapherr reads from his own Works. **9.45,** Elementary English Lesson. **10.15,** News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m.** till Close Down. Programme of the Workers' Radio Society (V.A.R.A.). **11.40 a.m,** Concert by the De Notenkrakers, with Gramophone Records. **1.40 p.m.,** Interval. **2.10,** Talk on Music by M. P. Tiggers, with Gramophone Illustrations. **3.25,** Recitation. **3.40,** Gramophone Music. **4.10,** Concert by De Flierefluiters. **4.40,** Programme for Children. **5.10,** Concert (contd.). **5.40,** Gramophone Music. **5.55,** Organ Recital by J. Jong. Die schöne Galathée (Suppé); Souvenir (Drdla); Songs my Mother taught me (Dvorák); Selection from Manon Lescaut (Puccini); Where you are (Connelly). **6.40,** Talk on Music by M. P. Tiggers, with Gramophone Illustrations. **7.40,** Second Act of Faust—Opera (Gounod). by the V.A.R.A. Orchestra, conducted by F. Bosmans. Soloists: Mlle. F. Hongaerts (Soprano), Mlle. I. de Borger (Mezzo-Soprano), J. Sterkens (Tenor), and J. Heirstrate (Bass). **8.25,** Extract from Faust (Goethe), by the V.A.R.A. Players. **8.55,** Concert by the V.A.R.A. Orchestra and Soloists. **9.25,** News. **9.40,** Concert (contd.). **10.10,** Gramophone Music. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.).—**12.10 p.m.,** Organ Recital from the Lutheran Church, Amsterdam. **1.40,** Gardening Talk. **2.25,** Dressmaking Lessons. **2.55,** Programme to be announced. **3.10,** Part Relay of the Eighteenth Maranatha Conference at Zeist. Programme of Addresses and Sacred Music. **4.40,** Concert by the Amsterdam Chamber Orchestra, conducted by D. Kiekens: Mélodie solennelle (Fr. Rosse); Legend (Paderevski); The Caravan Procession (F. L. Rey); Suite, Impressions rustiques (Razigade); Overture, Der Schuspieldirektor (Mozart); Potpourri, Aus Offenbachs Musterkoffer (Urbach); Three Pieces (Robert Nacf): (a) Frühlingsblumen, (b) Herbststürme, (c) Morgenständchen; Waltz, Les Sirènes (Waldteufel); Suite, Hyde Park (Roger Jalowicz); Catalonian Serenade (Walter Niemann); Marche russe (Ganne). **6.10,** Answers to Correspondence. **6.40,** Police Notes. **6.50,** News. **7.0,** Answers to Correspondence (contd.). **7.25,** Part Relay of the Eighteenth Maranatha Conference at Zeist. Addresses and Sacred Music. **8.40,** Concert by the Choir of St. Thomas', Leipzig, conducted by Prof. Karl Straube: Motet Warum ist das Licht gegeben dem Mühseligen, Op. 74, No. 1 (Brahms); O Lamm Gottes unschuldig—for Five-Part Choir (Joh. Eccard); Weihnachtslied (Bodenschatz); Motet: Vater unser (Jakob Handl); Deutsches Magnificat—for Two choirs (Heinrich Schütz). **9.20,** Concerto No. 7 in D, for Violin and Orchestra (Mozart), on Gramophone Records. **9.50,** News. **10.0,** Variety Concert on Gramophone Records. **10.50** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** News Bulletin. **8.15,** Sports Review. **8.30,** Radio Concert. **9.0,** Weather and News. **9.15,** Literary Talk. **12 Midnight to 1.0 a.m. (Tuesday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Songs and Orchestral Music. Orchestra: Just once for all Time (Heymann); One more Kiss then Good-night (de Rose); It seems all a Dream, but it's true (Wallace); My Bluebird's back again (Friend); You're the one (Field and Marks); Orchestra: Live, Love, and Laugh (Heymann); Little Girl (Hyde and Henry); What's gonna happen to me (Nicholls). **12.30 a.m.,** Dance Music: I may never pass your way again; I called to say Good-night; Till to-morrow; Street of Dreams; Young and Healthy; Love will find a way; The Japanese Sandman; Butterflies in the Rain. **12.57,** I.B.C. Good-night Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.15 p.m.,** Announcements and Gramophone Music. **7.25,** Announcements. **7.30,** See **Warsaw. 10.15,** The Letter Box. **10.30,** See **Warsaw.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW.—**7.0 p.m.,** Time and News. **7.30,** Divine Service Relay. **8.0,** Announcements. **8.15,** Concert. **8.40,** Political Review. **9.0,** 'Cello Sonata (Banaitis), by S. Frunkinas. **9.30,** Talk: Foreign Trade and the Budget. **9.50,** Concert: Ballet Music from Lakme (Delibes); Violin Solo (Wieniawsky); Valse appassionata (Ketelbey). **10.30** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.25 p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko. Overture, Isabella (Suppé); Tango (Albéniz); Luxembourg Waltz, from The Merry Widow (Lehár). **7.0,** Talk. **7.25,** Mozart Duettino Recital by Karin Ehder and Erkki Eklund. Two Duettinos from Figaro; Duettino from Don Giovanni; Two Duettinos from The Magic Flute. **7.45,** Sketch (Toivo Raita). **8.20,** Concert by the Station Orchestra. Romance (Grünfeld); Waltz, Wo die Zitronen blühn (Joh. Strauss); Viennese Song (Sieczynsky); Kleiner Wienermarsch (Kreisler). **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert conducted by Eysoldt. Soloist: August Zimmermann (Baritone). March, In die Freiheit (Gernet); Overture, Indigo und die vierzig Räuber (Joh. Strauss). Baritone Solos: (a) Feldeinsamkeit (Brahms), (b) O liebliche Wangen (Brahms), (c) Morgen (R. Strauss), (d) Nachtgesang (R. Strauss); Waltz, Flieger-Mädel (Frantzen); Selection from Il Natale die Pierrot (Monti); Czardas No. 8 (Michiels); Selection from Wenn Liebe erwacht (Künneke); Bravour-Mazurka for Flute (Popp); Polka, Zugvögel (Waldteufel). In the interval at **2.0,** News. **2.30,** Meat Market Prices. **3.30,** Exchange and Time. **3.50,** Programme for Young People—Whitsun Customs in the Country. **4.30,** Chamber Music: Horn Trio (Brahms); Scottish Song, Op. 108 (Beethoven); Clarinet Trio (Brahms). **5.50,** Reading (Karl Kessler). **6.5,** Anecdotes by (Wendunmuth Alverdes). **6.20,** Talk: Are all beginnings difficult? **6.45,** Time and News. **7.0,** Transmission for all German Stations relayed from **Berlin (Witzleben). 8.0,** First General News. **8.5,** Talk. **8.15,** Concert of Light Music by the Small Station Orchestra and Soloists. **10.15,** News. **10.45,** Dance Music from **Stuttgart. 12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Old-Time Dance Music on Gramophone Records, followed by News Bulletin. **2.10,** Art and Film Review. **2.30,** Talk for Women: The Household Medicine Cupboard. **3.0,** Song Recital by Hilde Braud (Soprano). **3.20,** Agricultural Notes. **3.35,** Exchange and Market Prices. **4.0,** Talk: A Thousand Years of German Literature: The Eighteenth Century. **4.20,** Concert of Light Music by the Emdé Orchestra. **5.50,** Exchange, Time, and Weather. **6.0,** Educational Talk on Gramophone Records: Christian Instruction in the Elementary Schools. **6.35,** An Interview with a Baths Supervisor. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Concert of Viennese Songs and Schrammel Music. In the Intervals, Two Sketches: (a) A Present of Flowers, (b) The Leg of Mutton. **10.5,** News Bulletin. **10.20** (approx.), Concert by the Leipzig Symphony Orchestra, conducted by Willy Steffen: Spring Overture (Goetz); Serenade in E Flat, Op. 7, for Thirteen Wind Instruments (Richard Strauss); Abendlied (Schumann); Burlesque, Harlekinsstreiche, Op. 83 (Schroeder); Suite, Tanzspiele (Schettler); Overture, The Merry Wives of Windsor (Nicolai); Five Minuets (Schubert). **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Esperanto Lesson. **7.30,** Serbo-Croatian Lesson. **8.0,** Programme relayed from **Zagreb, 977 kc/s, 307 metres. 10.0,** News and Light Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Talk. **7.20,** Miscellaneous Items. **7.30,** See **Warsaw. 10.15,** Talk. **10.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 15 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Symphony Concert; Soloist, Roland Charmy (Violin). After the Concert, News.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Tuesday),** Sports and Bullfighting Notes. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, and Request Gramophone Records. **9.15,** News Bulletin. **9.30** (approx.), Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.20 p.m.,** German Transmission: Two Talks. **7.0,** See **Prague. 7.25,** See **Brno. 8.0,** See **Prague. 8.45,** See **Brno. 10.0,** See **Prague. 10.15** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**2.45 p.m.,** Weather. **3.0,** Concert of Music by Glazunov and Tchaikovsky. **3.30,** Red Army Programme. **4.0,** Talk on Politics. **4.30,** Literary Programme: Reading from Diaries and Letters; A Nasty Story—Radio Play, and Readings from the works of Sochenko. **6.30,** Dance Music. **9.0,** News. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserlautern, 536 kc/s, 560 metres,** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.5 p.m.** (from **Nürnberg**), Orchestral Concert. **5.0 to 5.35,** Programme from **Berlin (Witzleben). 5.45,** Talk: What everyone should know about the Saar Election. **6.5,** Reading from the Works of Ernst Krieck, with Introductory Notes. **6.25,** Sonata in E Flat, Op. 7, for Pianoforte (Beethoven), played by Clemens Scheitz. **6.45,** Time, Weather, and Agricultural Report. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** Rund um den alten Peter—Old Munich in Literature and Music (arranged Konrad Scherber); The Small Station Orchestra, conducted by Erich Klosz; Soloists: Nini Diehl (Soprano), Hans Schindler (Tenor), Hans Hamer (Baritone), Konrad Scherber (Bass), and Hans Loscher (Recitations). **9.0,** Reading of a Short Story (Friedrich Georg Jünger). **9.20,** Chamber Music by the Nürnberg Trio: Trio in C Minor (Hausmann); Trio in C Minor, Op. 101 (Brahms). **10.20,** Time and News. **10.45,** Programme from **Stuttgart. 12 Midnight,** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Concert by the Radio Ensemble. **6.0,** German Lesson. **6.30,** Norwegian Song Recital by Theda Lien. **7.0,** News Bulletin. **7.30,** Agricultural Talk: Agriculture and the Economic Situation. **8.0,** Time Signal. **8.1,** A Tour of Trondheim and its Surroundings, relayed from **Trondheim, 493.4 metres. 9.15,** Political Review. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Jazz on Pianofortes and Gramophone Records. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements. Tourist Talk. Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.20,** Gramophone Music. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Concert of Chamber Music. **10.55,** News.

MAY 29th **MONDAY** *continued*

PARIS

EIFFEL TOWER, Call FLE, 237.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Talk. **7.0,** Le Journal Parlé. **8.30,** Extracts from Operettas (Yvain), by an Orchestra, conducted by M. Flament and Soloists. **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW.—**6.45 p.m.,** Le Journal Parlé. **7.0,** Hot Jazz on Gramophone Records. **7.30,** Tyrolese Music. **8.0,** Medical Talk. **8.5,** Talk on Aviation. **8.15,** Interval. **8.30,** Song Recital by Max Régnier. **9.0,** Interval. **9.15,** Sponsored Concert. **10.15,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc s, 1,725 metres; 75 kW. **6.45 a.m.,** Physical Culture. **7.20,** Weather and Physical Culture (contd.). **7.45,** Light Music on Gramophone Records. **8.0,** Press Review and Weather. **12 Noon,** Concert of Opera and Ballet Music by the Radio-Paris Orchestra: Overture, Titus (Mozart); Air from Fidelio (Beethoven), on Gramophone Record; Selection from Falstaff (Verdi); Two Arias from The Barber of Seville (Rossini), on Gramophone Records; Suite for Orchestra, Caligula (Fauré); La Farandole (Dubois). **1.0,** Exchange, News, and Weather. **1.5,** Chopin Pianoforte Recital by Lucy Vanthrin and Marie Pantheis. **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Elementary English Lesson. **6.50,** Talk on the Cinema. **7.0,** Review of Books. **7.20,** Music by the Radio Paris Orchestra: Polinchinelle (Rachmaninov); Scènes gitanes (Intante). **7.40,** Talk: Touring in France. **7.45,** Press Review, News and Weather. **8.0,** Variety Concert. **8.30,** News, Sports Notes, and Weather. **8.40,** Review by Paul Reboux. **8.45,** The Damnation of Faust—Opera (Berlioz), on Gramophone Records. In the interval at **9.15,** Press Review and News.

PITTSBURGH

(KDKA), 980 kc/s, 306 metres; 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—7.30 p.m.,** KDKA Home Forum. **8.0,** Betty and Bob, from **New York.** **8.15,** Monday Matinée, from **New York.** **8.58,** Baseball Scores. **9.0,** Radio Guild—Drama, from **New York.** **10.0,** Market Reports. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Hotel McAlpin Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Sport Review. **11.22,** Press News-Reeler. **11.29,** Temperature Report. **11.30 to 4.0 a.m. (Tuesday), New York** Relay. **11.30,** Variety Programme. **11.45,** To-day's News by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15,** Al Mitchell's Orchestra, with Everett Marshall (Baritone). **12.30,** Marx Brothers. **1.0,** Cliquot Club Eskimos. **1.30,** Hill Billy Heart Throbs. **1.45,** Phil Cook and the Ingram Shavers. **2.0,** Sinclair Minstrels. **2.30,** Jack Frost Melody Moments. **3.0,** Time Signal and the Hour Glass.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** Talk. **6.5,** Miscellaneous Items. **6.20,** Programme for Soldiers. **7.5,** News. **7.28,** Time Signal. **7.30,** See **Warsaw.** **10.15,** Time Signal. Sports, and Police Notes. **10.30** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Bratislava.** **5.0,** Educational Programme. **5.20,** Talk: The Training of Teachers for the National Schools. **5.30,** Programme for Children. **5.50,** Gramophone Music. **6.5,** Agricultural Talk. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk: Hunting and its Economic Significance. **7.0,** Chimes from the Church of St. Ludmila. **7.5,** News. **7.10,** English Lesson for Beginners. **7.25,** See **Brno.** **8.0,** Talk: The Blind Actor Frantisek Bohuslav his Life and Theatre Reminiscences. **8.15,** Round the World on Gramophone Records. **8.45,** See **Brno.** In the Interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.2,** News. **10.15** (approx.), Close Down.

RABAT

721.1 kc/s, 416 metres; 6 kW.—**1.30 to 3.0 p.m.,** Gramophone Concert of Variety Music. In the interval at **2.0,** Talk: The Battle of Hastings. **5.0 to 6.0,** Gramophone Concert. **8.30,** Popular Music on Gramophone Records. **9.0,** Variety Concert on Gramophone Records. **11.30** (approx.), 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 from Neuchâtel Observatory. **12.30,** News and Weather. **12.40** (from **Geneva**), Gramophone Music. **1.0** (from **Geneva**), Financial Report. **1.10** (from **Geneva**), Gramophone Music. **2.0 to 3.28,** Interval. **3.28,** Time Signal from Neuchâtel Observatory. **3.30** (from **Lausanne**), Concert by the Radio-Suisse Romande Orchestra, conducted by Edouard Moser. **4.0** (from **Lausanne**), Talk. **4.15** (from **Lausanne**), Concert (contd.). **5.0** (from **Lausanne**), Programme for Children. **5.30 to 7.0,** Interval. **7.0** (from **Lausanne**), Talk: The Manufacture of Electric Lamps in Switzerland. **7.30** (from **Lausanne**), News Bulletin. **7.35** (from **Lausanne**), Answers to Correspondence. **8.0** (from **Lausanne**), Chamber Music by the Hertel Quartet. **8.50** (from **Lausanne**), Songs by Mmes. Daltys and Talalaieff and MM. Andrevor and Bregnet. **9.50,** News and Weather. **10.0** (from **Geneva**), Gramophone Music. **10.30** (from **Geneva**), Talk: The League of Nations. **10.50** (approx.), Close Down.

REYKJAVIK

250 kc s, 1,200 metres; 24 kW. **9.5 p.m.,** Musical Programme. **9.30,** Weather Report. **9.40,** Musical Programme and Announcements. **10.0,** Chimes and News Bulletin. **10.30,** Talk. **11.0,** Concert of Popular Music by the Station Quartet with Songs.

RIGA

572 kc s, 525 metres; 15 kW.—**3.0 p.m.,** Talk: The Importance of Folk Literature in the Life of the Latvians. **3.30,** Concert of Popular Music. **4.0,** Talk. **4.30,** Talk. **5.0,** Concert of Wind Instrument Music. **6.0,** Talk on Angling. **6.30,** English Lesson. **7.5,** Concert by the Radio Orchestra: Eine Kleine Nachtmusik (Mozart); Serenade (Gemnod); Berceuse (Godard); Nocturne (Becce); Evening (Sinding); Serenade (Drigo); Nocturne (Drigo); La procession nocturne (Raband). **8.0,** News. **8.15,** Pianoforte Recital by L. Reinhlobls: Chaconne (Bach-Busoni); Sonata in C (Beethoven). **8.50,** Concert of Light Music by the Station Orchestra, conducted by Prof. Medins: Operetta Revue (Fetras); Musical Comedy Melodies (Kerker); Waltz, Moonlight on the Aster (Fetras). In the Interval at **9.0,** Weather and News. **9.30,** Dance Music. **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.—1.0 to 2.15 p.m.,** Gramophone Concert. In the interval, from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Children's Radio Review. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Soloist Concert: Cesarina Buonerba (Pianoforte), Yoshiko Beltramelli (Soprano), Renzo Sabatini (Violin), and Leandro Forti (Baritone): Pianoforte Solos: (a) Trois Mignardises (Pick-Mangiagalli), (b) Minuet in B Minor (Schubert); Four Songs to Poems by Antonio Beltramelli (Pratella): (a) Le sette stelle, (b) Nostalgia, (c) L'ultima fola, (d) Pasqua, Pasqua; Violin Solos: (a) La caccia (Chiabrano-Corti), (b) Chanson arabe (Rimsky-Korsakov-Kreisler), (c) Introduction and Humoresque (d'Ambrosio); Soprano Solos: (a) Le ciarmelle (Gaudino), (b) Il girotondo dei golosi (Castelnuovo-Tedesco); Arias by Carissimi and Mozart, for Baritone. **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.10,** Tourist Report. **7.20,** Announcements in Foreign Languages. **7.40,** Giornale Radio. **8.0,** Time, Announcements, and Gramophone Music. **8.15,** Song Recital by Maria Valente (Soprano). **8.30,** Giornale Radio and sports Notes. **8.45,** Talk. **10.0,** Concert of Light Music. **10.55,** Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY (WGY), 790 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.—8.0 p.m.,** Book News by Levere Fuller. **8.15 to 9.0** (approx.), **New York** Relay. **8.15,** Salon Concert Ensemble. **8.30,** Three Scamps. **8.45,** The Lady Next Door. **9.0 to 11.45,** Interval. **11.45,** Stock Reports. **12.0 Midnight to 1.30 a.m. (Tuesday), New York** Relay. **12.0,** Sooonyland Sketch. **12.30 a.m.,** Soloists. **12.45,** Band of Famous Brands. **1.0,** A and P Gipsies. **1.30,** WGY Players in One Man's Family. **2.0,** Contented Programme from **New York.** **2.30,** Musical Programme from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.: **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather. **12 Noon,** Swiss Songs and Marches on Gramophone Records. **12.30 p.m.,** News. **12.40** (from **Basle**), The Four Ages of Man—A Radio Sequence, with Music arranged by Papa Thoms. **1.25** (from **Basle**), Exchange, Time, and Weather. **1.30** (approx.) **to 5.0,** Interval. **5.0** (from **Basle**), Talk for Women. **5.30** (from **Basle**), Gramophone Music. **6.30** (from **Zürich**), Programme for Children. **7.28,** Time and Weather. **7.30** (from **Zürich**), English Lesson. **8.0** (from **Zürich**), Song Recital by Salvatore Salvati. **9.0,** Weather and News. **9.10** (from **Zürich**), Organ Recital. **10.15** (approx.), Close Down.

SEVILLE

(EAJ7), 368.1 metres; 1.5 kW.—**3.0 to 4.0, p.m.,** Orchestral Concert, followed by Dance Music. **10.0,** Pianoforte Recital: Étude in E Flat (Paganini-Liszt); Mazurka in B Flat (Chopin); Fantaisie-Impromptu (Chopin); Danza del terror, from El amor brujo (Falla); Minstrels (Debussy); Serenade for the Doll (Debussy); Miramar (Turina); In the Gardens of Murcia (Turina). After the Recital, News, followed by Song Recital and Dance Music. **12 Midnight,** Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.** (from **Ostersund**), Provincial Programme. **5.45,** Concert of Gramophone Music. **6.45,** Reading. **7.15,** Weather and News. **7.30,** Parliamentary Report. **7.50,** Military Band Concert, conducted by Ivar Widner. **8.45,** Talk, relayed from **Uppsala, 662 kc/s, 453.2 metres. 9.15,** Sonata No. 2 in A for Violin and Pianoforte (Brahms) by Charles Barkel and Algot Haquinius. **9.45,** Weather and News. **10.0,** Concert of Light Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc s, 345 metres; 11.5 kW.—**11.30 p.m.,** Overtures from Operas, on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time Signal. **1.1,** Exchange Quotations. **1.5,** Songs by Famous Singers, on Gramophone Records. **2.0 to 4.0,** Interval. **4.0,** Recital of Compositions by M. Barrand, relayed from **Radio Coloniale (Paris), 15,243 kc/s, 19.68 metres. 5.0,** Dance Music by the Orchestra, conducted by M. Roskam. **6.0,** Fortnightly Literary Review in French. **6.15,** Talk: Poets of Alsace-Lorraine. **6.30,** Song Recital. **7.30,** Time and News. **7.45,** Gramophone Music. **8.15,** Press Review in German. Lottery Results, and News. **8.30,** Extracts from Don Giovanni—Opera (Mozart), by the Station Orchestra and Soloists, conducted by M. de Villers. **9.25** (approx.), Press Review in French. **9.30,** Verdi Concert, by the Station Orchestra and Soloists: Selection from Don Carlos; Three Songs from Othello; Overture, Joan of Arc; Song from Falstaff; Selection from Aïda. **10.30,** Close Down.

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,** Folk Music on Gramophone Records. **2.0,** Programme arranged by the Post Office, with Gramophone Music. **2.30,** Spanish Lesson. **3.0 to 3.30,** Elementary English Lesson. **4.30,** Concert from **Munich. 5.0,** See **Berlin (Deutschlandsender). 5.35,** Gramophone Music. **5.50,** Time, Weather, and Market Prices. **6.0,** Talk: German Leaders and Notabilities: Joseph Goebbels. **6.25,** See **Frankfurt. 6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Witzleben). 8.0,** War Stories. **8.15,** See **Berlin (Witzleben). 10.15** (approx.), News. **10.35,** Chess Lesson. **11.0,** Dance Music. **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions Irregular owing to Fire. **6.0 p.m.,** News. **6.15,** Operetta Music: Selections from La Fille de Madame Angot (Lecocq); Waltz and Air from Die Teresina (O. Straus). **6.30,** Sound Film Music. **6.45,** Dances from Prince Igor (Borodin). **7.0,** Opera Music: Arias from (a) Boris Godunov (Mussorgsky), (b) Tannhäuser (Wagner), (c) La Favorita (Donizetti). **7.15,** Racing Results, Market Prices, and News. **7.25,** Local News Bulletin. **7.30,** Accordion Music. **7.45,** Light Orchestral Music. **8.0,** Extracts from Opera: (a) Carmen (Bizet), (b) Mignon (Thomas), and (c) Lakmé (Delibes). **8.15,** Concert by a Viennese Orchestra. **8.45,** Popular Melodies. **9.0,** Music-Hall Programme. **9.30,** Music by an Argentine Orchestra. **9.45,** Instrumental Solos. **10.0,** Military Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco: Overture, Martha (Flotow); Selection from Mirella (Gounod); Melodies from Rose Marie (Friml); Dans la Marine (Bousquet); Marche des Petits Pierrots (Bosc). **11.0,** Russian Songs. **11.15,** Orchestral Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Pianoforte Recital. Musical Comedy Memories: The Diver; Mother Machree; Memories of Maurice Chevalier; Go down Moses; I certainly don't need you; The Death of Nelson. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News, Weather, and Announcements. **12.5 a.m. (Tuesday),** Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 to 6.0 p.m.,** See **Turin. 6.0 to 6.35,** Interval. **6.35** 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.—5.0 to 6.0 p.m.,** Variety Music **6.35,** Giornale Radio, Agricultural Report and Dopolavoro Announcements. **7.0,** Time and Tourist Talk. **7.10,** Gramophone Records. Bruna Madonna (Lopez); Barca d'oro (Fiorilama); Caternette (Ravasini); Quinnece anne (De Lutis-Ricciardi); Parles-moi d'amour (Lenoir); Ram pam pam (De Vita). **7.20,** Giornale Radio. **7.45,** Gramophone Music. **8.0,** Announcements, Giornale Radio, Weather and Opera Music on Gramophone Records. **8.45,** Chamber Music Concert. Soloist: Arrigo Serato (Violin). **9.45,** One-Act Comedy, followed by Gramophone Music. **11.0,** Giornale Radio.

VATICAN CITY

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

VIENNA

581 kc/s, 517 metres; 15 kW. 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.—4.35 p.m.,** Programme for Young People. **5.0,** Talk: Wagner in Bayreuth. **5.25,** Instrumental Concert of Old Music: Magda Baillon (Flute), Karl Stumvoll (Viola), and Werner Doumes (Harpsichord). Sonata No. 5, in D, for Flute, Viola, and Harpsichord (Leclair); Sonata No. 3 in G, for Flute and Harpsichord (Handel); Trio in G, for Flute, Viola, and Harpsichord (C. P. E. Bach). **6.5,** Theatre Review. **6.25,** Reference Books in Connection with the Week's Talks. **6.30,** English Lesson. **7.0,** From the Far East. Concert by the Vienna Symphony Orchestra, conducted by Max Schönherr. Soloist: Magda Schwell (Soprano): Overture to Schiller's Turandot (Weber); Two Arias from Turandot (Puccini); Overture and Waltz from The Mikado (Sullivan); Song from San Toy (Jones); Song, Dance, little Geisha, from The Geisha (Jones); Japanese Mazurka (Ganne); Chinese Procession and Li-Tsching-Lu's Song from The Yellow Jacket (Lehár); Song from The Land of Smiles (Lehár); Selection from Madame Butterfly (Puccini); Overture, Sakuntala (Goldmark). In the interval at **7.30,** Time and News. **8.15,** Topical Talk. **8.30,** Concert of Modern Viennese Music, with an Introductory Talk. The Pepi Wichart Schrammel Quartet. Soloists: Mimi Schön (Soprano) and Franz Hoffmann (Tenor). **10.0,** News, Wetaher, and Announcements. **10.15,** Glück muss man haben!—Operetta in Three Acts (Marischka and Feiner), relayed from the Municipal Theatre. **11.0,** Music from Paper.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.40 a.m.,** Press Review. **11.50,** Weather for Aviation. **11.57,** Time Signal and Fanfare from St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Gramophone Music. **1.20,** Weather. **1.25,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Answers to Correspondents. **3.30,** Interval. **3.35,** Answers to Technical Correspondence. **3.50,** Gramophone Music. **4.25,** Elementary French Lesson. **4.40,** Talk on Economics. **5.0,** Recital for Two Pianofortes, by E. Steinberger and G. Lefeld: Sonata in D for Two Pianofortes (Mozart); Variations on a Theme by Haydn for Two Pianofortes (Brahms); Le Désir (Chopin-Liszt); Waldesrauschen (Liszt); Tarantella (Liszt). **5.55,** Programme Announcements. **6.0,** Light Music. In the interval, News. **7.0,** Miscellaneous Items. **7.20,** Agricultural Correspondence. **7.30,** Topical Talk. **7.45,** Radio Journal. **8.0,** Rigoletto—Opera (Verdi), on Gramophone Records. In the intervals, Sports Notes and Radio Journal. **10.15,** Answers to Technical Correspondence. **10.30,** Dance Music. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** Gramophone Music. **6.40,** Lithuanian Talk. **6.55,** Miscellaneous Items. **7.0,** Daily Reading. **7.10,** Miscellaneous Items. **7.15,** Sports Report. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.26 p.m.,** Book Review. **7.40,** Announcements. **8.0,** Concert of Music by Dobronic by Maja Cviljusac (Soprano), Ljerka Dobronic (Pianoforte), Alexander Smirnov (Oboe), and Ivan Maretic (Cor anglais). **9.0,** Song and Violin Recital by Vera Holesek (Soprano) and Jaroslav Front (Violin): Sonata in D (Handel); Songs: (a) Chanson (Konjovic), (b) Melody (Rubinstein), (c) Aria from Eugene Onegin (Tchaikovsky), (d) Ich liebe Dich (Grieg), (e) Death and the Maiden (Schubert), (f) Aria from Samson and Delilah (Saint-Saëns), (g) Habanera from Carmen (Bizet); Romances in G and F (Beethoven). **10.0,** News and Weather. **10.10,** Dance Music. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

ATHLONE

725 kc/s, 413 metres; 60 kw.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, Gramophone Music, and Results of the Irish Hospital Sweep Draw. **6.0,** Programme for Children. **6.40,** News and British Market Report. **7.0,** Gaelic Talk. **7.15,** Recitations by Frances Moynagh. **7.30,** Time Signal. **7.31,** Concert by the Station Orchestra. **7.50,** Gaelic Song Recital by Kitty O'Flaherty. **8.5,** Traditional Fiddle Music by Frank O'Higgins. **8.20,** Gaelic Songs by T. Flynn. **8.35,** Irish Music by the Station Orchestra. **9.0,** 'Cello Solos by Dorothy Clifton. **9.15,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW. **7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Gramophone Music and News. **10.0,** Chimes, Weather Forecast, Messages to Seamen, Exchange Quotations, and Market Prices. **10.5,** Sponsored Programme. **10.30,** Two Musical Plays: (a) El Husar de la Guardia (Vives and Jimenez), (b) La Corte de Faraon (Lleo). 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 Press Review. **8.30,** Time Signal and Announcements. **8.35** (approx.), Orchestral Concert, conducted by M. Carmelo Preite. Overture, The Italian Girl in Algiers (Rossini); Symphonic Variations (Elgar); Overture, Nina o la Pazza d'Amore (Paisiello); Rondo (Paisiello); Adagio (Vivaldi); Intermezzo from I quattro rusteghi (Wolf-Ferrari); Dance from La Giara (Casella); Hungarian Rhapsody No. 2 (Liszt); Prelude to Act I of La Traviata (Verdi); Prelude to Act III of Manon Lescaut (Puccini); Intermezzo from Cavalleria rusticana (Mascagni); Dance from Il castello nel bosco (Casavola). In the interval, Sports Talk. **10.30,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Folk Song Recital. **7.30,** Talk. **8.0,** Violin Recital: Sonata in A (Händel); Romance, Op. 50 (Beethoven); Melody (Gluck-Kreisler); Tambourin (Leclair-Kreisler); Prelude and Allegro (Pugnani-Kreisler). **8.40,** Recital of Songs from Yugoslav Operas. **9.10,** Radio Play. **9.40,** News. **9.45** (approx.), Concert by the Station Orchestra: Spanish March, Merida (Guiliani); Overture to an Operetta (Lincke); Nocturne, Einsamkeit (Schebeck); Pizzicato Polka (Jos. Strauss); Selection from The Bayadere (Kálmán).

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW. **2.0 p.m.,** Gramophone Concert of Operatic Music. **3.0,** Talk for Young People. **3.30,** Weather and Exchange. **3.45,** Reading (Ernst von Wildenbruch). **4.0,** See **Leipzig. 5.0,** Talks for Women. **5.25,** Topical Talk. **5.35,** Violin Sonata in C Minor, Op. 44 (Grieg). **6.0,** A Poem. **6.5,** Klara Maria Elshorst in a Recital of Songs by Greta von Zieritz, with the Composer at the Pianoforte: Prelude and Fugue; Amore—Six Songs for Voice and Pianoforte. **6.30,** Political Press Review. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** An Epigram, followed by Topical Talk. **8.10,** See **Berlin (Witzleben). 8.45,** Talk by Dr. Hans Henningsen. **9.10,** Concert of Seventeenth and Eighteenth Century Music, relayed from the Schlüterhof: The Philharmonic Orchestra, conducted by Erich Kleiber. **10.0,** News. **10.45,** Weather Report for Shipping. **11.0,** Concert from **Hamburg. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 716 kc/s, 419.5 metres; 1.5 kW.—**6.10 p.m.,** Review of Books. **6.40,** The Witzleben Station informs its Listeners. . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.5,** The Watch-word. **8.10 to 12 Midnight,** Dance Music by the Berlin Wireless Orchestra, the Hans Schindler Dance Band, and the Berlin Wireless Chorus, directed by Maximilian Albrecht. In the intervals from **9.0 to 9.40,** Swabian Humoresques and Songs, and at **10.0,** News. **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.—**6.0 p.m.,** Concert of Choral and Quintet Music, arranged by the Svoradov College. **6.55,** Talk for Housewives. **7.0,** See **Prague. 7.25,** Concert by the Station Orchestra, conducted by Josef Odchazel: French Comedy Overture (Keler-Béla); Potpourri (Morena); Waltz (Kasik); Gavotte (Czibulka); Intermezzo (Leopold); Melody of Songs (Hasler); March (Balling). **8.20,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

TUESDAY

MAY THE THIRTIETH

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Icelandic Folk Song recital. Orchestral Concert.
LONDON REGIONAL	The Lancashire Mummers Concert Party.
MIDLAND REGIONAL	"In my Garden," orchestral concert.
NORTH REGIONAL	The Lancashire Mummers Concert Party.
WEST REGIONAL	Programme from University College of South Wales and Monmouthshire, Cardiff.
SCOTTISH REGIONAL	Instrumental and Vocal concert.
BELFAST	Variety programme.

ABROAD

BERLIN (Deutschlandsender)	9.10 p.m. Orchestral Concert of Seventeenth and Eighteenth Century Music.
LANGENBERG	7.0 p.m. Comic Opera: "Abu Hassan," by Weber (relayed by other German stations).
POSTE PARISIEN	8.30 p.m. Symphony Concert, conducted by T. Mathieu.
PRAGUE	8.30 p.m. Josef Slavik Concert, for the centenary of his death (relayed from the Smetana Hall).
RADIO PARIS	8.45 p.m. Symphony Concert, conducted by Eugène Bigot.
STUTTGART	9.30 p.m. The Würtemberg Symphony Orchestra.
TURIN	8.45 p.m. Operetta: "Giroflé-Girofla," by Lecocq.
VIENNA	9.0 p.m. Serenade by the Vienna Philharmonic Orchestra and State Opera Choir.

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Glaiwitz, 1,184 kc/s, 253 metres.—1.15 p.m.,** Concert of Folk Songs and Dances on Gramophone Records. **2.15,** Programme arranged by the Post Office, with Gramophone Music. **3.10,** Market Prices. **3.40,** Songs for Children. **4.10,** Review of Books: German Political Novels. **4.30,** Pianoforte Recital. **5.0,** Reading of Legends. **5.20,** Orchestral Concert, conducted by Bruno Janz. **6.25,** Edwin Erich Dwinger reads from his new Book: Wir rufen Deutschland. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Topical Talk. **8.30,** Concert by the Station Orchestra, conducted by Franz Marszalek. Overture, Norma (Bellini); Preciosen (O. Lindemann); Waltz, The Wedding of the Winds (Hall); Potpourri, Deutscher Kampf im Lied (Stepani). **9.20,** Animal Stories (arr. Erich Kohler). **10.0,** Time and News. **10.25,** Political Press Review. **10.45,** Talk: A Silesian in the Dolomites. **11.0,** Programme from **Hamburg. 12 Midnight,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **6.15 p.m.,** Talk for Workers. **6.25,** German Transmission. News and Talk on Gardening. **7.0,** See **Prague. 7.10,** Talk: American Negroes. **7.25,** See **Moravská-Ostrava. 8.20,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Mozart Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Don Giovanni; Serenade from Don Giovanni; Andante for Flute; Larghetto from a Quintet; Rondo for Violin; Turkish March; Minuet for Violin; Eine kleine Nachtmusik; Ballet, Les Petits Riens. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert. Part I.—Symphonic Marches. Part II.—Records of Yehudi Menuhin. **5.0,** Concert by the Radio Orchestra, conducted by F. André: Rhapsody dahoméenne (De Boeck); Persian Dance (Guiraud); Exotic Suite (Delmas); Hindu Song (Rimsky-Korsakov). **5.30,** Programme for Children. **6.5,** Literary Review. **6.15,** Song Recital by Mlle. Lucie Defrance: La Procession (Franck); La chapelle sonnait encore (Dupuis); Von ewiger Liebe (Brahms). **6.30,** Concert of Suites by the Small Station Orchestra, conducted by Leemans. **7.15,** Catholic Review and Film Notes. **7.30,** Review for Women and Notes on Art. **8.0,** Concert of Waltzes by the Station Symphony Orchestra, conducted by Meulemans: Invitation to the Waltz (Weber); Waltz (Maes); Valse Caprice for Flute (Chopin); Waltz from Faust (Gounod); Flower Waltz (Tchaikovsky); Soirée d'été (Waldteufel); Waltz (Strauss). **8.45,** Talk. **9.0,** Concert by the Radio Orchestra, conducted by Franz André; Soloist: Lucie Defrance (Songs): Pastorale for Five Wind Instruments (Pierné); Paysage (Hahn); Rêverie du Soir (Saint-Saëns); Pastorale from L'Arlésienne (Bizet); Angelus from the Scenes alsaciennes (Massenet); Two Arias from Werther (Massenet); Overture, A Midsummer Night's Dream (Mendelssohn); Airs from En Vacances (Baton); Aubade (Lalo). **10.0,** Le Journal Parlé. **10.10,** Gramophone Records. **10.40,** Choreographic Concerto, Aubade (Poulenc) for Orchestra and Eighteen Solo Instruments. **10.55,** Christus Vincit (Liszt).

BRUSSELS (No. 2)

N.I.R., 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Organ Recital on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Les Hirondelles (Hirschmann); Selection from Hérodiade (Massenet); Gramophone Records: Serenata (Caruso), sung by Caruso; Russian Rhapsody, Moscow (Leemans); Pianoforte Solo: Tarantella (Chopin); Gramophone Record: Tiempo Antico (Caruso), sung by Caruso; Waltz (Steffan); Foxtrot (Mann-Weise). **5.0,** Concert by the Symphony Orchestra, conducted by Meulemans: Overture, The Mastersingers (Wagner); Fantasia No. 3 (Benoit, arr. Broeck); Concert Waltz (Glazunov); Naples (Charpentier); Ballet of the Seasons (Verdi). **5.45,** Music from Many Lands Gramophone Concert. **7.15,** Talk: The Aim of the Radio Co-operative Society. **7.30,** Le Journal Parlé. **8.0,** Concert by the Radio Orchestra, conducted by Walpot: Russian March (Ganne); Waltz Potpourri, Was die Donau erzählt (Morena); Two Airs (Stolz) on Gramophone Records; Potpourri, Contrasts (Robrecht); Duet and Song from The Land of Smiles (Lehár) on Gramophone Records; Potpourri of Russian Folk Songs (Eisler); Two Airs from The Land of Smiles (Lehár) on Gramophone Records; Potpourri, Das Beste vom besten (Dostal). **9.0,** Waar Liefde woont Radio Sketch. **9.15,** Concert by the Symphony Orchestra, conducted by Meulemans; Soloist: M. Goldstein (Bass-Baritone); Overture, Figaro (Mozart); Two Arias from Don Giovanni (Mozart); Waltz, Wiener Bonbons (Strauss); Aria from Martha (Flotow); Aufenthalt (Schubert); Selection from Lilac Time (Schubert-Berté). **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 the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In the interval at **7.20,** Gramophone Music. **8.0,** Song Recital by Adolphe Kottlar. **8.20,** Concert by the Station Orchestra; Soloist: D. Teodoru (Violin): Carnival Overture (Dvorak); Suite, Conte d'Avril (Widor); Selection from The Girl of the Golden West (Puccini); Selection from The Gipsy Baron (Joh. Strauss); Tchaikovsky Potpourri (Urbach); Waltz, Les Sirènes (Waldteufel); Symphonic Poem, The Moldau (Smetana); Waltz from Raymonda (Glazunov); Violin Solo, Le Cygne (Saint-Saëns); March (Schubert). In the interval at **9.0,** Talk. **9.45,** Radio Journal. **10.0,** Talk in French on Romania.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.10 p.m. to 12 Midnight.**—**5.0 p.m.,** Pianoforte Recital by Irene Marik. **5.30,** Talk. **6.0,** Song Recital by Alexander Farkas. **6.30,** Talk. **7.0,** Exchange. **7.10,** Bunter Abend. **8.10,** Concert by the Budapest Concert Orchestra, conducted by T. Polgar: Selection from The Carnival Fairy (Kálmán); Selection from Cinderella (Butykai); Ballet Scene (Nagy); Strauss Potpourri (Morena); Hungarian Dance (Molnar): Selection from Der lachende Ehemann (Eysler); Song from Madame Pompadour (Fall); Hungarian Rhapsody (Losonczi). **9.40,** News Bulletin. **9.50,** Gramophone Music. **10.10,** Weather. **10.20,** Trio Concert from the Café Simplon. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW., and **Kalundborg, 260 kc/s, 1,153 metres;** 75 kW.—**12 Noon,** Town Hall Chimes. **12.1 to 2.0 p.m.,** Concert from the Bellevue Strandhotel. **3.10,** Modern Swedish Pianoforte Music. **3.30,** Concert from the Wivel Restaurant. **5.0,** Programme for Children. **5.35,** Exchange and Market Prices. **5.50,** Talk (from the Aarhus Studio). **6.20,** German Lesson. **6.50,** Weather and News. **7.15,** Time Signal. **7.30,** Talk: Population and Provisions. **8.0,** Town Hall Chimes. **8.1,** German Folk Melodies, arranged by Brahms, sung by Margrit Franke: In stiller Nacht; All' mein Gedanken; Die Sonne scheint nicht mehr; Da drüben im Tale; Feinsliebchen, du darfst mir nicht barfuss geh'n; Schwesterlein; Mein Mädel hat ein Rosenmund. **8.20,** Rose Bernd—Play in Five Acts (Gerhart Hauptmann). **10.5,** News. **10.30,** Mandoline Concert: Comedy Overture (Kéler-Béla); Spieluhr (Josef Leiss); Frais sourire (Mariton); Russian Fantasia, Siberia (Charles Ferei); March (Maciocchi). **10.50** (approx.), Close Down.

CORK.—See **Athlone.**

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres. 5.30 to 7.0 p.m., Programme in English by the I.B.C. Announcers: T. St. A. Ronald and B. McNabb. **5.30 p.m.,** Trio Concert for Torquay and Exeter Listeners: Selection from Cavalleria rusticana (Mascagni); Pearl of mine; Vocal Duets: (a) Only one Girl in the World for me, (b) Star of the Night; Chanson triste (Tchaikovsky); Cavatina (Raff); Narcissus (Nevin); Vocal Duets: (a) The Keys of Heaven (Broadwood), (b) A Paradise for Two (Tate); Friend o' mine (Sanderson); Evensong (Easthope-Martin); Love's Old Sweet Song (Molloy). **6.15,** Concert of Popular Songs for Plymouth and Devonport Listeners: Orchestra: The Mighty Deep (Guy); I'll stay with you (Woods); Let's put out the Lights (Berlin); Try a little Tenderness (Woods); Horses carry tails (Redmond); Orchestra (a) Die Spieluhr der Pompadour (Noack), (b) The Song of the Nightingale (Ailbout); Always in my Heart; How deep is the Ocean? (Hupfeld); I'll never be the same; Thomson's old grey Mule (Pickard); Orchestra: Pale Volga Moon (Borganov). **7.0,** Programme in French. **10.0 till Close Down,** Programme in English by the I.B.C. **10.0,** Dance Music by the Decolians: I want to be happy (Youmans); To-day I feel so happy (Abraham); Oh Mona (Washburn); On a cold and frosty Morning (Hargreaves); Mausie (Abraham); Home (Steeden); Pardon Madame (Abraham); Lullaby of the Leaves (Petkere); It's a Girl (Oppenheim); When Work is through (Sherman); Sweet and Lovely (Arnheim); Heaven for Two (Pepper); Love, here is my Heart (Ross); From Saturday Night till Monday Morning (Dubin); Deep in my Lady's Eyes (Cartman). **11.0,** Welsh Concert: Welsh Medley (arr. Somers); Chorus: Hen wlad fy nhadau; Solo: Y Bore Glas; Song: Land of my Fathers; Solo: All through the Night; Cymru Fyss; Chorus: Ruthen Tywysog Cymru; Accordion Duet: Medley of Welsh Airs. **11.30,** Light Concert: Sleepy Valley (Hanley); Memories of Paris (Christiné); Glockenspiel Solo: The Black Forest Chiming Clock (Doppler); Cuban Serenade (Herbert); Oriental Serenade (Herbert); Last Night I dreamed of you (Kálmán); Piccolo Solo: Deep Blue Sea (Brewer); Gipsy Moon (Borganov); Barcarolle (Waldteufel). **12 Midnight,** Club Concert for Harwich Listeners: Hands across the Sea; Song: The Rebels

are out (Tunbridge); Trio: To-day's a Sunny Day; Song: March of the Musketeers (Friml); Commander of the Legion; Choral Selection from Miss Hook of Holland; Song: A Beggar can sing the Song of a King (Guest); Xylophone Solo: Spanish Dance (Moszkovsky); Song: River stay 'way from my Door (Dixon Woods); Thunder and Blazes; Choral Selection from Cavalcade (Coward); Songs: (a) The Hiker's Song (Longstaffe), (b) The Old Inns of England (La Touche); On the Mall. **1.0 a.m. (Wednesday),** Concert by a Hawaiian Band: Palikiko Blues (Traditional); Kilima (Traditional); Somehow (Hackforth); Steel Guitar Solo: Dear Old Pal of Mine (Robe); Song of the Islands (King); Land of the night have been (Adeler); Hawaiian Hotel (Traditional); Sleep Head (Hackforth). **1.30,** Concert of Popular Songs: Only for you (Wienberg); Mammy is gone (Henderson); My Song of the Nile (Meyer); Orchestra: Miracle Melodies; A Banjo Song (Homer); Just keepin' on (Carter); Wid de Moon, Moon, Moon (Cook). **2.0,** Dance Music by the Beedians: Oh you Sweet Thing; What have got to lose; Leave a little for me (Abraham); Hyde Park Corner; Sloppy Joe; Moon Song; Hot Feet; Twenty Million People; Mad Moments; What did I get in return; Hot 'nd anxious; Hold up your Hands; If I ever get a Job again; The Girl in the little green Hat. **2.57,** I.B.C. Good-night Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

259.3 metres; 17 kW.; and **Cassel, 245.9 metres;** and **Trier, 259.3 metres.**—**4.30 p.m.,** See **Langenberg. 5.50,** Economic Notes. **6.0,** Talk: The Work of a Prison Chaplain. **6.30,** Variety Programme. **6.45,** Notes of the Day. **6.50,** Time and News. **7.0,** Transmission for all German Stations relayed from **Langenberg. 8.0 to 10.10,** See **Stuttgart. 10.10,** Time and News. **10.45,** Programme from **Stuttgart. 12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.,** (from **Hanover**), May Songs from the Hanover District. **6.45,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Herbert Ernst Groh Farewell Concert. The Station Orchestra and Choir, conducted by Adolf Secker. Herbert Ernst Groh (Tenor) and Erna Kroll-Lange (Soprano). Overture, William Tell (Rossini); Tenor Songs: (a) Idreno's Aria from Semiramis (Rossini-Secker), (b) Max's Aria, Durch die Felder, durch die Auen, from Der Freischütz (Weber); Tambourin (Rameau-Mottl); Tenor Songs: (a) Nacht und Träume (Schubert), (b) Ständchen (Schubert); Overture, The Barber of Bagdad (Cornelius); Tenor Solos: (a) Flower Song from Carmen (Bizet), (b) Radames' Aria from Aida (Verdi); Festival March from Aida (Verdi); Tenor Solos: (a) Canio's Song from I Pagliacci (Leoncavallo), (b) Walter's Prize Song from The Mastersingers (Wagner); Overture, Banditenstreiche (Suppé); Soprano and Tenor Duet with Chorus from The Bird-Fancier (Zeller), (b) Duet from Act I of Gasparone (Millöcker); Dream Waltz from Der Feldprediger (Millöcker); Tenor Solos: (a) Song from Act III of The Count of Luxembourg (Lehár), (b) Song from Act I of The Czarevitch (Lehár); March from The Gipsy Baron (Joh. Strauss); Duet from Act II of The Czarevitch (Lehár), (b) Duet from Act II of Paganini (Lehár); Waltz from The Geisha (Jones); Tenor Song, You are my Heart's Delight, from The Land of Smiles (Lehár). **10.0,** News. **10.20,** Time Signal. **10.30** (from **Hanover**), Concert by the Symphony Orchestra of Unemployed Musicians, conducted by Otto von Sosen.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig. 662 kc/s, 453.2 metres. 1.5 p.m.,** Gramophone Concert of Popular Music. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Music. **3.0,** Exchange and Market Prices. **3.30,** Programme for Children. **4.0,** Concert by the Königsberg Opera House Orchestra, conducted by Werner Franz; Overture, Die Marketenderin (Humperdinck); Suite from Sigurd Jorsalfar (Grieg); Polonaise from His Life for the Czar (Glinka); Prelude to the Second Act of Der Kuhreigen (Kienzl); Slav March (Tchaikovsky); Ballet Overture, Scherzwelpeter (Henberger); Selection from The Gipsy Princess (Kálmán); Waltz, Espana (Wahlteufel); Overture, The Land of Smiles (Lehár). In the interval at **5.0,** Review of Books. **5.45,** Talk: Modern Systems of Defence. **6.15,** Market Prices. **6.25,** Dialogue for Architects. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** News. **8.10,** The Sea—Programme of Literature and Music (arr. Gert Randolf-Schmalhauer). **9.0,** Programme from **Vienna.** News after the Programme.

HILVERSUM

1,013 kc/s; 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Gerharz: March from The Queen of Sheba (Gounod); Overture, La Fête du Village voisin (Boieldieu); Selection from La Périchole (Offenbach); Two Pieces for String Orchestra (Gillet): (a) Loin du bal, (b) Entr'acte gavotte; Selection from The Black Domino (Auber); Interlude on two Concertinas; Ballet russe (Luigini); Two Pieces (Ganne): (a) Rêverie, (b) Patrouille enfantine; Selection from La dame blanche (Boieldieu); Waltz, Morgenblätter (Strauss); Pizzicato (Morena); Fünf Uhr Tee im Puppenhaus (Rosen); Streiflichter (Morena). **1.55 to 2.10,** Interval. **2.10,** Pianoforte Recital by Greet Wortman: Waltz in C Flat (Chopin); Fantaisie-Impromptu (Chopin); Novelette (Schumann); Aufschwung (Schumann); Two Arabesques (Debussy); Cordoba (Albéniz). **2.40,** Fashion Talk. **3.40,** Gramophone Music. **4.10,** Recital by a Children's Choir. **4.40,** Programme for Children. **5.10,** Organ Recital by Pierre Palla, relayed from the Kurhaus, Scheveningen. Soloists: Piet Vanderbilt (Songs) and Boris Lensky (Violin): Organ Solos: (a) Rigaudon from Ernelinde (Philidor), (b) Minuet from Orpheus (Gluck), (c) Le camp de grand pré (Gossec); Songs: (a) Song (Besly), (b) Torna amore (Buzzi-Peccia), (c) Slumber Song (Gretchaninov); Violin and Organ Duets: (a) Andante from the Concerto for Violin (Mendelssohn), (b) Mazurka (Mlynarski); Organ Solo, Dancing Doll (Poldini); Songs, with Violin and Organ accompaniment: (a) Caro mio ben (Papini), (b) An Old Violin (Fisher), (c) Gipsy Melodies (Borganov); Organ Solo, Oriental Suite (Popy). **6.10,** Talk. **6.40,** Organ Recital (contd.): Organ Solo, March from The Queen of Sheba (Gounod); Violin and Organ Solos: (a) Cradle Song (Brahms), (b) Valse bluette (Drigo-Auer), (c) Hymn to the Sun; Organ Solo, Second Hungarian Rhapsody (Liszt). **7.10,** Talk on Holidays. **7.40,** Time and News. **7.45,** Concert by the Wireless Orchestra, conducted by Nico Gerharz. Soloist: Evert M'edema (Tenor): Overture, Il Seraglio (Mozart); Aria from Il Seraglio (Mozart); Ecossaises (Beethoven); Aria from Der Freischütz (Weber); Dance of the Hours from La Gioconda (Ponchielli); Two Arias from Tosca (Puccini); Humoresque (Dvorák); Songs: (a) Marushla (Dermot), (b) Lolita (Buzzi-Peccia). **8.40,** The Fifth Avenue Murder Case—Detective Play (Kommer Kleijn). **8.55,** Popular Music by Kovacs Lajos and his Dance Orchestra. In the interval from **9.10 to 9.30,** Songs. **10.40,** News. **10.50,** Gramophone Concert. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. **11.55 a.m.** till Close Down, Programme of the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Sextet. **1.25 to 1.40,** Interval. **1.40,** Programme for Women. **2.40,** Vocal and Instrumental Concert. Mlle. Ogier (Violin), Mme. Brautigam-Ides (Soprano), and Mme. Luns (Pianoforte). Hymn (Diepenbrock); Nocturne (Boulanger); Three Pieces (Haydn); Pianoforte Sonata in D (Haydn); Herdertje (v. Rennes); Zick geweest (v. Rennes); Two Pieces (Nicolai); Gramophone Music; Sonata for Violin and Pianoforte (Pierné); Three Songs; Tambourin (Rameau); Solveig's Song (Grieg); Mit einer Primula Veris (Grieg); Rheinlegendchen (Mahler); Wo die schönen Trompeten blasen (Mahler). **4.40,** Gramophone Music. **5.10,** Concert by the K.R.O. Boys, conducted by P. Lustenhouwer. Soloist: J. Mossel (Songs). **5.40,** Recitations. **5.55,** Concert by the K.R.O. Boys (contd.). **6.40,** Police Notes. **6.55,** Religious Address. **7.15,** Gramophone Music. **7.25,** Talk. **7.40,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. Soloists: M. Boshart (Pianoforte), M. Hartvelt (Violin), and M. Brill ('Cello). Overture, The Ruins of Athens (Beethoven); Triple Concerto, Op. 56 (Beethoven); Extracts from the Haffner Serenade (Mozart). **8.25,** News. **8.30,** The Virgin Mary and the Poor Street Sweeper—Radio Play (van de Eynde). **9.10,** Concert (contd.): Festival Overture (Leutner); Ballet Music from Sylvia (Delibes); Melody (Arezzo). **9.40,** Sports Talk. **9.50,** Concert (contd.): Overture, Berlin, wie es weint und lacht (Conradi); Selection from Der Bettelstudent (Millöcker). **10.10,** News. **10.15,** Concert (contd.): Overture, Im Reiche des Indra (Lincke); Waltz, Manöverklänge (Fetras); Clair de lune (Ketelbey); Gavotte (Eilenberg); March, Frisch voran (Blankenburg). **10.40,** Gramophone Music. **11.40** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** News Bulletin. **8.10,** Agricultural Talk. **8.20,** Radio Notes. **8.35,** Radio Concert. **9.0,** Weather and News. **9.15,** Gramophone Concert. **12 Midnight to 1.0 a.m. (Wednesday),** Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Vocal and Orchestral Concert: The Vicar of Bray (arr. Tait); The Crocodile (Maitland); The Lincolnshire Poacher (Barrett); Orchestra, Selection of Jerome Kern's Songs; The Leader of the Town Brass Band (Longstaffe); Bonnie wee thing (Fox); One of the Guard (Longstaffe); Orchestra, George Gershwin Medley. **12.30 a.m.,** Dance Music: What a perfect Combination; A Letter to my Mother; Look what you've done; Standing in the Corner; I'm playing with Fire; Do you recall; I may never pass your way again; A Boy and a Girl were dancing. **12.57,** I.B.C. Goodnight Melody. **1.0 a.m. (Wednesday),** Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres, 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Talk. **6.40,** Song Recital by Alma Kunla. **7.5,** Recitations by Sakari Pälsi. **7.30,** Concert by the Station Orchestra. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Wolf. Soloist: W. Winterberg (Baritone). Overture, Sein Lied (Stierlin); Second Suite from L'Arlésienne (Bizet). Baritone Solos, Dance of the Nations (Mannfred); Three Pieces (Schmalstich); Waltz, Abendsterne (Lanner). In the interval at **2.0,** News. **2.30,** Sponsored Programme, with Gramophone Music. **3.0,** Programme for Children. **3.30,** Talk: Exchange and Time. **3.55,** Talk: Legends and Stories of the Rhineland and Westphalia—The Cross in Westphalia. **4.20,** Talk. **4.30,** Concert, conducted by Eysoldt: Overture, Die Fabler (Langert); Two Pieces (Reger): (a) Liebeswalzer, (b) Gavotte; Bolero from Don Quixote (Kienzl); Träumerei (Schütt); Hungarian Rhapsody No. 6 (Liszt); Der blaue Vogel (Spiess); Waltz, Marienklänge (Strauss). **5.50,** Talk: Inherited Talent. **6.20,** Italian Lesson. **6.45,** Weather, Time, Exchange, and Sports Notes. **7.0,** Transmission for all German Stations: Abu Hassan—Comic Opera in One Act (Weber). **8.0,** News. **8.5,** Concert by the Station Orchestra, conducted by Kühn: Overture, Genoveva (Schumann); Three Pieces from the Music to Sigurd Jorsalfar (Grieg); Waltz, Die Romantiker (Lanner); Selection from The Miracle (Humperdinck); Reiter-Marsch (Schubert). **9.0,** Der Doktor Eisenbarth—Radio Picture in Four Scenes (Josef Winckler). **10.15,** News and Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**1.15 p.m.,** Popular Instruments on Gramophone Records, followed by News. **2.10,** H. W. Stein-Saaleck reads from his own Works. **3.35,** Exchange and Market Prices. **4.0,** Concert by the Leipzig Symphony Orchestra, conducted by Hilmar Weber. Soloist: Richard Sturzenegger ('Cello). Scherzo eromatico (Gillmann); 'Cello Concerto (Sturzenegger); Shakespeare Suite No. 1 (Humperdinck); Comedy Overture (Grosch); Norwegian Dances Nos. 1 and 2, Op. 35 (Grieg); Polonaise in E Flat, No. 2 (Liszt). In an interval, Talk: Italy's North-African Colonies. **5.50,** Exchange, Weather, and Time. **6.0,** Talk: Recent Publications of the German Sängerbund. **6.20,** Talk for Parents: German Fairy Tales as an Educational Influence. **6.45,** Programme Announcements. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Radio Report: The Life and Work of the German Police Force. **9.0,** See **Vienna.** News in the interval at **10.0. 10.30,** News Bulletin. **10.45** (approx.), Gramophone Concert: Overture, Donna Diana (Reznicek); Aria from Der Wildschütz (Lortzing); Selection from Tiefland (d'Albert); Two Brahms Songs (Brahms): (a) Die Mainacht, (b) Vergebliches Ständchen; Two Marches, Op. 57 (Richard Strauss); Swedish Dance Melodies, Op. 36 (Juon); Saltarella, Op. 105 (Sitt); Annenpolka (Joh. Strauss); Suite, The Flute of Sans-Souci (Graener); Two Songs for Male Voice Choir (Schubert): (a) Liebe, (b) Die Entfernten; March, Frühlings Einzug (Blon). **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW. **11.30 p.m.,** Concert of Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Wednesday), Talk. 12.45,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW. **8.0 p.m.,** Chimes, Exchange, Radio Journal, and Request Gramophone Records. In the interval, Talk. **8.30,** Talk by Joaquin Espana Cantos. **8.40,** Scientific Talk. **9.0,** Talk on the Municipal Bank. **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Guitar Recital by Trinidad Garcia Aguado. **11.30,** Relay from the Theatre. **12.45 a.m. (Wednesday),** News. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**4.30 p.m.,** Concert by the Station Orchestra, conducted by J. Plichta. **5.10,** See **Prague. 5.50,** Gramophone Music. **6.0,** Talk: Russian Literature. **6.15,** See **Brno. 7.0,** See **Prague. 7.25,** Light Music by the Station Orchestra. **8.20,** See **Prague. 11.0** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**10.0 a.m.,** Carmen—Opera (Bizet), relayed from the Grand Theatre. **2.15 p.m.,** Review of Literature and Art. **2.45,** Weather. **3.0,** At Grips with Life—Play (Knut Gamsun), relayed from the Moscow Art Theatre. **3.30,** Red Army Programme. **4.0,** Talk on Agricultural Machinery. **4.30,** Soviet Literature—Part I: Reading from the Works of Lavrenev. Part II: Literature of the Past. In the interval, Light Music. **6.30,** Tchaikovsky, Delibes, and Liszt—Concert, relayed from the Radio Theatre. **9.0,** News. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres. 4.30 p.m.,** Concert, conducted by Erich Kloss. Comedy Overture (Kéler-Béla); Berceuse and Caprice (Dvorák); Polonaise (Huber-Anderach); Selection from Die toten Augen (d'Albert); Waltz, Geheime Anziehungskräfte (Jos. Strauss); Sextet from Lucia di Lammermoor (Donizetti); Potpourri, Eisblumen (Leuschner); Maikäfer-Marsch (Becker). **5.45,** Talk: The Struggle for Oil in Asia Minor. **6.5,** German Aviation—a Discussion with Bruno Loerzer, Gerd v. Hoeppner, and Major Baur de Betaz. **6.25,** Popular German Songs on Gramophone Records. **6.45,** Time, Weather, and Agricultural Report. **7.0,** Transmission for all German Stations, relayed from **Langenberg. 8.0,** Harpsichord Recital by Li Stadelmann: Chromatic Fantasia and Fugue (Bach); Sonata (Scarlatti); Variations on Fortuna (Scheidt). **8.25,** Provincial Programme, relayed from **Coburg. 9.30,** Talk: Art under the National Socialist Government. **10.0,** Zither Concert. **10.20,** Time and News.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.,** Concert of Light Music, relayed from the Grand Café. **6.0,** Programme for Women. **6.45,** Popular Music on Gramophone Records. **7.0,** News Bulletin. **7.30,** English Lesson. **8.0,** Time Signal. **8.30,** Concert by the Station Orchestra, conducted by Hugo Kramm. **9.38,** Agricultural Report. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Paul Gjesdahl reads from his own Works. **10.45** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. **8.20,** Gramophone Music. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Concert of Opera Music, conducted by F. Russo. In the interval, Talk: The Doctor. **10.55,** News Bulletin.

PARIS

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

Orchestral Concert of Eastern Music, conducted by M. Flament; Soloist, M. Maki (Japanese Songs). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW. 6.45 p.m., Le Journal Parlé. 7.0, Sponsored Concert. 8.0, Talk on the Cinema. 8.5, Legal Talk. 8.15, Interval. 8.30, Symphony Concert, conducted by M. Théodore Mathieu. Soloists: Mlle. Marcelle Herrenschmitt (Pianoforte) and Jean Hazart (Songs). Overture and Airs from Figaro (Mozart); Concerto in F. No. 459 for Pianoforte and Orchestra (Mozart); Suite, A quoi rêvent les jeunes filles (Fraggi). Songs (Fraggi): (a) J'aime l'âne, (b) Avec ton parapluie bleu, (c) Nessus. La métamorphose d'Eve (Inghelbrecht); Melodies (Inghelbrecht); Cigues Noirs (Philippe); Feux follets (Philippe); First Suite from The Pearl Fishers (Bizet). 10.30, News.

PARIS

RADIO PARIS, Call CFR, 1,725 metres; 75 kW. 6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Music. 8.0, Press Review and Weather. 12 Noon, Concert by the Krettly Orchestra. Part I. Classical and Romantic Music. Concert in G (Bach, arr. Dillard). Andante and Minuet from the Symphony, La Reine (Haydn); Turkish March from The Ruins of Athens (Beethoven); Overture, Die Heimkehr aus der Fremde (Mendelssohn); Waltz in A Minor (Chopin); Mazurka in D (Chopin); Ballet Music from Rosamund (Schubert); Pieces from the Quartet (Boëllman). Part II. Opéra—Comique Music. Overture, Masaniello (Auber); Selection from Le postillon de Longjumeau (Adam); Overture, The Secret Marriage (Cimarosa); Selection from Thérèse (Massenet); Invocation à la nuit from Julien (Charpentier); Selection from Madame Butterfly (Puccini). Part III. Music from Abroad. A Brown Bird Singing (Haydn-Wood); Elegy (Sibelius); A Dinder Courtship (Eric Coates). 6.10 p.m., Agricultural Talk. 6.30, Market Prices. 6.35 (approx.) English Lesson. 6.50, Theatrical Review. 7.5, Talk on Art. 7.20, Music by the Krettly Orchestra. En Tapinois (Filipucci). Valse des blondes (Ganne); Stanza (Razigade); Caresse Musicale (Sudessi); Chanson de Marinette (Tagliafico); Budapest (Leoni); Sérénade nicoise (Volpatti). 7.45, News. 8.0, Programme by Paul Weill. 8.30, News, Sports Notes and Weather. 8.45, Symphony Concert, conducted by M. Eugène Bigot. Prelude, Don Quixote (Tournemire); Concerto No. 5 (Beethoven). Songs: (a) Aria from Il Seraglio (Mozart), (b) Aria from Figaro (Mozart), (c) Aria from The Flying Dutchman (Wagner). Symphony (Cesar Franck). In the intervals at 8.40, Review by Pierre Seize and at 9.15, Press Review and News.

PITTSBURGH

(KDKA), 980 kc s, 306 metres; 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—7.30 p.m., Programme to be announced. 8.0, Betty and Bob, from **New York.** 8.15, Radio Troubadours, from **New York.** 8.45, Congress of Clubs Period. 8.58, Baseball Scores. 9.0, Meredith Wilson's Orchestra, from **New York** 9.15, Programme to be announced. 9.45 Programme to be announced. 10.0, Baseball Scores. 10.5 to 10.45, **New York** Relay. 10.5, Harold Stokes' Orchestra. 10.15, Dick Daring. 10.30, The Singing Lady. 10.45, Little Orphan Annie. 11.0, Village Barn Orchestra, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Sport Review. 11.22, Press News Reelet. 11.29, Temperature Report. 11.30, Riggs and Moke. 11.45 to 2.59 a.m. (Wednesday), **New York** Relay. 11.45, To-day's News, by Lowell Thomas. 12 Midnight, Amos 'n' Andy. 12.15 a.m. (Wednesday), National Advisory Council on Radio in Education. 12.45, Irene Bordoni and Emil Coleman. 1.0, Crime Clues. 1.30, Adventures in Health. 1.45, From the Composer to You, with Herman Hupfield. 2.0, Deep River Orchestra. 2.30, Time Detective. 2.45, Pickens Sisters. 2.59, Time Signal. 3.0, Hour-hold Musical Memories, from **New York.**

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc s, 488.6 metres; 120 kW.—4.0 p.m., Report from the Vyschrad Cemetery on the Interment of the Remains of Josef Slavik the Famous Violinist, transferred from Budapest to Czechoslovakia after a Century. 4.30, See **Moravska-Ostrava.** 5.10, Talk on Industry. 5.20, Czech Lesson for Germans and German Lesson for Czechs. 5.50, Gramophone Records. 6.5, Agricultural Market Prices. 6.15, Topical Talk for Workers. 6.25, News in German. 6.30, German Transmission: Humorous Recitations and Reading from Turgenicv's Works. 7.0, Chimes and News. 7.10, Medical Talk. 7.25, See **Moravska-Ostrava.** 8.20, Introductory Talk to the Following Transmission. 8.30, Josef Slavik Concert for the Centenary of his Death, relayed from the Smetana Hall: The Conservatoire Orchestra, conducted by Pavel Dedecek: Movement from the Violin Concerto in B Minor; Caprice for Violin; Violin Solo: Variations on the G String; Grand Fantasia for Violin and Pianoforte; Rondo (Paganini, arr. Slavik); Violin Concerto in A Minor. In the interval at 9.0, Time Signal. 10.0, Time, News, and Sports Notes. 10.5, Orchestral Concert of Contemporary Music, conducted by Jeremias: Soloist: Karel Reiner (Pianoforte); Symphony No. 1 (Vuckovic); Pianoforte Concerto (Reiner). 11.0 (approx.), Close Down.

RJUKAN.—See **Oslo.**

RADIO-SUISSE ROMANDE

SOTTENS, 742 kc s, 403 metres; 25 kW.; and **Geneva, 395 kc s. 760 metres.**—7.0 p.m. (from **Geneva**), Talk for Stamp Collectors. 7.30 (from **Geneva**), News Bulletin. 7.45 (from **Geneva**), Answers to Correspondence. 8.0 (from **Geneva**), Reading from the Diary of Anna-Magdalena Bach. 8.20 (from **Geneva**), Cantata No. 106 (Bach), by the Bach Society Choir and the Radio Suisse Romande Orchestra, conducted by Francis Golay; Soloists, Gabrielle Bobet (Soprano), Nelly Gretillat (Contralto), Ernest Bauer (Tenor), and Joseph Lombard (Bass). 8.55 (from **Geneva**), Variety Programme by the Broadcasting Serenaders, conducted by J. Pasche. 9.50, News Bulletin. 10.0 (from **Geneva**), Concert. 10.30 (from **Geneva**), Talk: The Work of the League of Nations. 10.50 (approx.), Close Down.

ROME

Call 1RO, 660 kc s, 441 metres; 50 kW. Relayed by **Naples, 941 kc s, 319 metres;** and **2RO, 11,810 kc s, 25.4 metres.**—1.0 to 2.15 p.m., Concert from **Turin.** In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.45, Children's Radio Review. 5.10, Announcements. 5.15, Exchange and Giornale Radio. 5.30 to 6.15, Orchestral Concert: Com'è bella la vita (Bixio); Melody from a Sound Film (Carabella); Sognando le Gardiosi; La canzone sei tu (Tagliaferri); Selection from Manon (Massenet); Melody (Mohr); Spanish Caprice (Malvezzi); One Step. Radio (Fiorillo). 6.40 (**Naples**), Shipping and Sports Notes. 6.50, Agricultural and Dopolavoro Notes. 7.0, Tourist Report. 7.10, Lesson in Morse. 7.20, Announcements in Various Languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.2, Talk: The Heavens in June. 8.15, Songs by Elena Cheli (Soprano). 8.30, Sports Notes. 8.45, Bacco in Toscana—Operetta in Three Acts (Renato Brogi). In the intervals: Talk on Art, and Reading of Poems by Giovanna Scotto. After the Operetta: 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.** 11.45 p.m., Musical Programme. 12 Midnight to 2.30 a.m. (Wednesday), **New York** Relay. 12.0, Blackstone Plantation. 12.30, Wayne King's Orchestra. 1.0, Ben Bernie's Blue Ribbon Orchestra. 1.30, Ed Wayne and the Fire Chief Band. 2.0, "Lives at Stake." 2.30, National Radio Forum from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc s, 459 metres, 60 kW.; **Basle, 1,229 kc s, 244.1 metres;** and **Berne, 1,220 kc s, 245.9 metres.**—11.59 a.m., Time Signal from Neuchâtel Observatory, and Weather. 12 Noon (from **Zürich**), Light Orchestral Concert. 12.30 p.m., News. 12.40 (from **Zürich**), Orchestral Concert (contd.). 1.25 (from **Zürich**), Exchange, Time, and Weather. 1.30 (approx.) to 5.0, Interval. 5.0 (from **Zürich**), Concert by the Small Station Orchestra. 5.30 (from **Basle**), Dance Music on Gramophone Records. 6.0 (from **Berne**), Programme to be announced. 7.0 (from **Berne**), Time, Weather, and Broadcast for Schools. 7.10 (from **Berne**), Programme to be announced. 8.0, Talk: A Journey in the Alps. 8.30, Concert by the Station Orchestra. 9.0, News. 9.10 (from **Berne**), Programme for the Swiss at Home and Abroad. 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; Goteborg, 932 kc s, 322 metres; Horby, 1,166 kc s, 257 metres; Motala, 221.5 kc s, 1,354.4 metres; Ostersund, 389 kc s, 770 metres;** and **Sundsvall, 554 kc s, 542 metres.**—5.5 p.m., Programme for Children relayed from **Norrköping, 1,292 kc s, 232.2 metres.** 5.45 (from **Göteborg**), Programme of Light Music. 6.45, French Lesson relayed from **Malmö, 1,301 kc s, 231 metres.** 7.15, Weather and News. 7.30, Talk. 8.0, Orchestral Concert: Soloist, A. Bernström (Bassoon): Overture, Raymond (Thomas); Gipsy Suite (Coleridge-Taylor); Nocturne (Sedström); Homage (Sedström); Scherzo and Ballad for Bassoon and String Orchestra (Wiesscnhorn); Waltz, Wine, Woman and Song (Joh. Strauss); Säterjäntens Söntag (Ole Bull); Offenbach Melodies (Offenbach-Senger); March, Pomp and Circumstance (Elgar). 9.15, Talk relayed from **Malmö, 1,301 kc s, 231 metres.** 9.45, Weather and News. 10.0, Concert of Gramophone Music. 11.0 (approx.), Close Down.

STRASBOURG

869 kc s, 345 metres; 11.5 kW.—11.30 a.m., Light Music on Gramophone Records. 12 Noon, Orchestral Concert, conducted by M. de Villers. Music by Saint-Saëns: Heroic March; Overture to a Comic Opera; Selection from Proserpine; A Night at Lisbon; Algerian Suite. 12.45 p.m., News. 1.0, Time Signal. 1.1, Exchange Quotations. 1.5, Concert (contd.). Russian Music. Overture, Russlan and Ludmilla (Glinka); Caucasian Suite No. 2 (Ippolitov Ivanov); Prelude, Waltz and Serenade (Rachmaninoff); Russian Rhapsody (Gretchaninov); Intermezzo (Tcherepnin); Polovtsian March (Borodin). 2.0 to 4.0, Interval. 4.0, Quintet Concert, relayed from **Radio Colonial (Paris), 15,243 kc s, 19.68 metres.** 4.45, Talk: Martinique. 5.0, Orchestral Concert of Light Music, conducted by M. Roskam. 6.0, Talk: La Fronde. 6.15, Legal Talk: Present Problems. 6.30, Chamber Music by the Soloists of the Station Orchestra. Quartet No. 2 (Beethoven); Pianoforte Quintet (Schumann). 7.30, Time Signal and News. 7.45, Light Music on Gramophone Records. 8.15, Press Review in German, Lottery Results and News. 8.30, See **Paris (Eiffel Tower).** After the Relay, Press Review in French.

STUTTGART

MUHLACKER, 832 kc s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc s, 570 metres.**—1.0, Gramophone Music. 1.15, Time and News. 1.30, Gramophone Records of Famous Tenors. 2.0, Programme arranged by the Post Office, with Gramophone Records. 2.30, Advanced English Lesson. 3.0, Talk on Flowers. 3.30, Talk for Women. 4.0, Hugo Wolf Song Recital by Käthe Ivers (Soprano); In der Frühe; Neue Liebe; Schlafendes Jesuskind; Frühling übers Jahr; Die Spröde; Die Zigeunerin. 4.30, see **Langenberg.** 5.45, Time and News. 6.0, Talk: A Carpet of Flowers and Ice and Snow. 6.25, Talk on the Author, Goreh Fuck. 6.50, Time and News. 7.0, Transmission for all German Stations relayed from **Langenberg.** 8.0, Concert of Folk Music by the Freiburg Mandoline and Guitar Society, relayed from **Freiburg:** Spanish March (Metra); Dance Suite (Hense); Tarantella (Millöcker-Köhler); Caprice (Sartori); Potpourri, Die lustigen Wandervögel (Köhler); Bundesgruss und Festmarsch (Köhler). 8.30, For Whitsun, 1933—Swabia and Germany (arr. August Lämmle and Martin Lang), with Address by Prof. Mergenthaler. 9.30, Concert by the Württemberg Symphony Orchestra, conducted by Gustav Görlich; Soloist, Bruno Müller (Baritone); Overture, Le roi d'Yvetot (Adam); Aria from La Favorita (Donizetti); Ballet Music from William Tell (Rossini); Aria from La Favorita (Donizetti). 10.10, Time and News. 10.30, Talk on the Theatre. 10.45, Dance Music. 11.0, Dance Music. 12 Midnight (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc s, 385 metres; 8 kW. Transmissions Irregular owing to Fire.—6.0 p.m., News. 6.15, Accordion Music. 6.30, Symphonic Poems, Till Eulenspiegel's Merry Pranks (R. Strauss). 6.45, Sound Film Music. 7.0, Opera Music: Prelude to Act III of Parsifal (Wagner); Selection from The Huguenots (Meyerbeer). 7.15, Racing Results. Market Prices and News. 7.25, Local News Bulletin. 7.30, Airs from Opera-Comique: (a) Cavalleria rusticana (Mascagni), (b) La Traviata (Verdi), and (c) Maruof (Raband). 7.45, Music by a Viennese Orchestra. 8.15, Popular Melodies. 8.30, Music by an Argentine Orchestra. 8.45, Arias from Opera: (a) The Bartered Bride (Smetana), (b) The Magic Flute (Mozart), (c) Siegfried (Wagner). 9.0, Concert by the Toulouse Symphony Orchestra, conducted by M. Tartanac. In the interval: Popular Melodies. 10.15, North African News. 10.30, Concert for Listeners in Morocco: Selection from Mignon (Thomas); March from Tannhäuser (Wagner); Danse des Phéniciens (Maquet); En parlant un peu de Paris (Moretti); Histoire de voir. 11.0, Orchestral Music: Entr'acte from Carmen (Bizet); Overture, Si j'étais Roi (Adam). 11.15, Chansonettes. 11.30 to 12 Midnight, Programme in English by the I.B.C. W. Brown-Constable announcing. 11.30, Light Music: Selection from On with the Show; My Heart is where the Mohawk flows; When it's Springtime in the Rockies; Gold Diggers of Broadway; Sophie Tucker's Songs; Little Old Church in the Valley; Apple Blossom Time; Selection, Say it with Songs. 11.57, I.B.C. Goodnight Melody. 12 Midnight, News, Weather and Announcements. 12.5 a.m. (Wednesday), Military Music. 12.15, Orchestral Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc s, 247.7 metres; 10 kW.—5.15 to 6.0 p.m., See **Turin.** 6.0 to 6.35, Interval. 6.35 to 7.45, Interval. 7.45, Talk: The Cathedral of San Giusto. 8.0 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, 59[illegible] kc s, 500.8 metres.** 5.15 to 6.0 p.m., Dance Music from the Select Savoia Dance Hall. 6.35, Giornale Radio, Agricultural Report and Dopolavoro Announcements. 7.0, Time and Report of the Royal Geographical Society. 7.10, Songs on Gramophone Records. Quando che cuori nell'amor (Cadderi-Mancini); Mal d'amore (Buzzi-Peccia); Melody (Gilbert-Heymann); Musica proibita (Gastaldon). 7.20, Giornale Radio. 7.45, Gramophone Music. 8.0, Announcements, Giornale Radio and Weather. 8.10, Gramophone Music. 8.45, Girolle-Girolla Operetta in Three Acts (Lecocq). In the intervals, Scientific Talk and Announcements. After the Operetta, Giornale Radio.

VATICAN CITY

15,120 kc s, 19.84 metres (Morning) and **5,969 kc s, 50.25 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; 15 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.**—5.35 p.m., Song and Pianoforte Recital by Nelia Cabussi (Soprano) and Rita Löbisch (Songs Marx): (a) Wanderers Nachtlied, (b) Nocturne, (c) An einen Herbstwald; Songs, Nachtgesang (R. Strauss); Songs (Wolf): (a) Denk' es, o Seele, (b) Lebe wohl; Pianoforte Solos: (a) Preludes, Op. 23, No. 5, in G Minor, No. 6 in E Flat, and No. 7 in C Minor (Rachmaninov), (b) Perpetuum mobile (Weber). 6.5, Reading. 6.15, Agricultural Talk. 6.35, French Lesson. 7.0, Concert of Folk Music by the Silvester Schiedel Orchestra. In an interval at 7.30, Time and Weather. 8.15, Talk: The Story of a Heroic Regiment, for the Two Hundredth Anniversary of the Linz House Regiment. 8.35, Reading. 9.0, Vienna Festival Week. Serenade by the Vienna Philharmonic Orchestra and State Opera Choir, relayed from the Josefsplatz. Conductor: Robert Heger. Symphony No. 2 in D (Schubert): Songs, Op. 17, Nos. 1 to 3 (Brahms), for Women's Choir, with Two Horns and Harp Accompaniment: (a) Es tönt ein voller Harfenklang, (b) Come away Death, (c) Der Gärtner; Wellington's Victory, or the Battle of Vittoria, Op. 91 (Beethoven); German Folk Songs for Four-Part Choir (Brahms): (a) Mit Lust tät ich ausreiten, (b) In stiller Nacht, (c) Die Wollust in den Mayen; Waltz with Male Voice Choir, Wine, Woman and Song, Op. 333 (Joh. Strauss); Katzen-Musik, Schnapspolka (Joh. Strauss); Turkish March (Mozart). In an interval at 10.0 (approx.), News, Weather and Announcements. 10.30, Variety Music on Gramophone Records.

WARSAW

212.5 kc s, 1,411 metres; 120 kW.—12.10 p.m., Gramophone Music. 1.20, Weather. 1.25 to 3.10, Interval. 3.10, Announcements. 3.15, Economic Notes. 3.25, Aviation Report and Anti-Gas Drill. 3.30, Announcements. 3.35, Book Review. 3.50, Gramophone Music. 4.25, Talk for Teachers. 4.40, Talk, relayed from **Lwow, 788 kc s, 381 metres.** 5.5, Symphony Concert by the Warsaw Philharmonic Orchestra, conducted by Grégoire Fitelberg. Soloist: A. Kapuscinski (Pianoforte). Symphony in G minor (Mozart); Pianoforte Concerto in C minor (Mozart); Leonora Overture No. 3 (Beethoven). 5.55, Programme Announcements. 6.0, Concert of Light Music. In the interval, News. 7.0, Miscellaneous Items. 7.20, Agricultural Notes. 7.30, Programme from **Cracow, 959 kc s, 312.8 metres.** 7.45, Radio Journal. 8.0, Concert by the Station Orchestra, conducted by J. Ozitinski. Soloist: R. Wraga (Bass). Selection from La Traviata (Verdi); Dance from Feramors (Rubinstein); Spanish Rhapsody (Chabrier); Aria from Il Seraglio (Mozart); Aria from Figaro (Mozart); Aria from Don Giovanni (Mozart); Ballet Suite from The Swan Lake (Tchaikovsky); Two Pieces (Sinding): (a) Canto patetico, (b) Andante religioso; Le Printemps (Debussy); Rapsodie chinoise (Gabriel Marie); Three Polish Songs; Symphonic Poem from the Suite, My Country (Smetana); Barcarolle (Rossini); Berceuse (Taubert-Manfred); Ukrainian Dance (Noskovska); Marche Militaire (Saint-Saëns). In the interval, Sports Notes and Radio Journal. 10.0, Reading. 10.15, Song and Pianoforte Recital by Lidia Blumentals and L. Barkath: Impromptu in B flat in the Form of Variations (Schubert); Aria from Madame Butterfly (Puccini); Aria from La Bohème (Puccini); Three Pieces (Withols): (a) Etude, (b) Berceuse, (c) Fantasia on Latvian Songs; Three Songs. 10.55, Weather for Aviation and Police Notes. 11.0, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

Foreign Programmes continued on page XIII.

MAY 30th **TUESDAY** *continued*

PROGRAMMES CONTINUED

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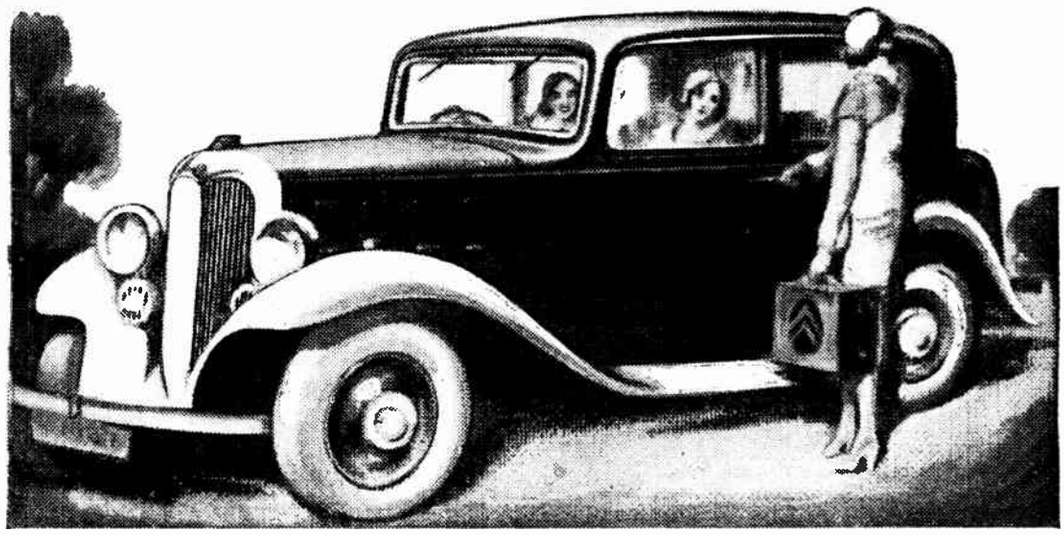

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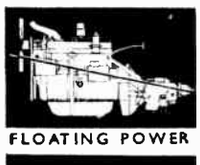
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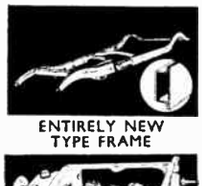
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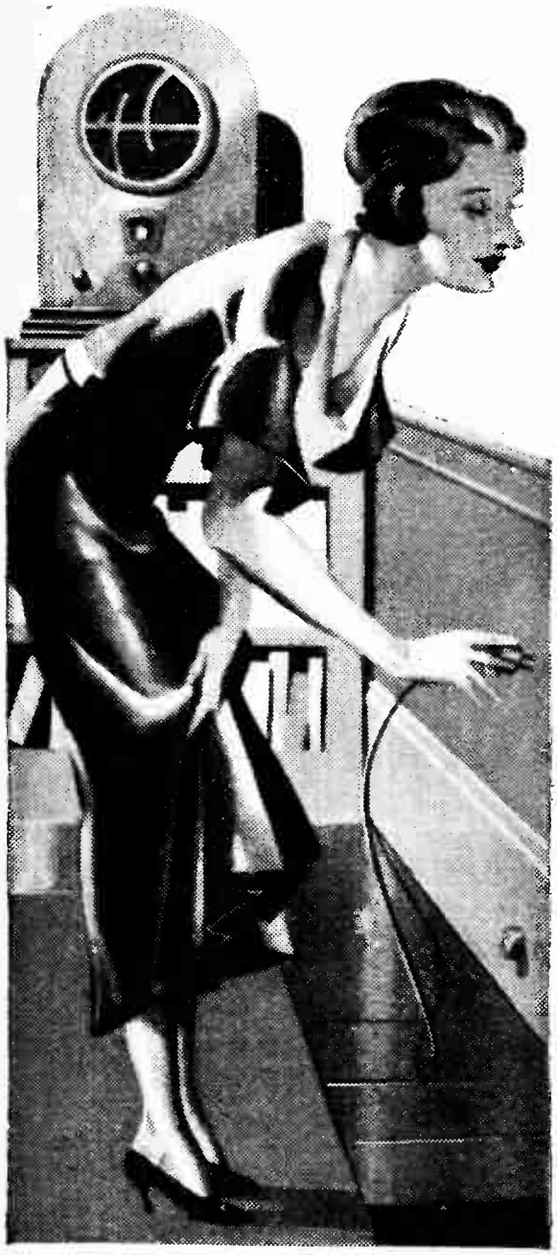

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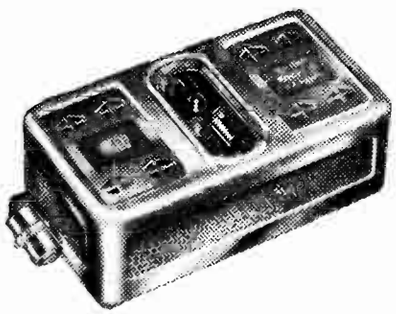

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23rd Year of Publication

No. 717. FRIDAY, MAY 26TH, 1933. VOL. XXXII. No. 21.

Proprietors: ILIFFE & SONS LTD.

Editor:
HUGH S. POCOCK.

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

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

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Telegrams: "Iliffe, Manchester." Telephone: Blackfriars 4412 (4 lines).

GLASGOW: 26B, Renfield Street, C.2.
Telegrams: "Iliffe, Glasgow." Telephone: Central 4857.

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.

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EDITORIAL COMMENT

Empire Broadcasting

Reception Lags Behind

EMPIRE Broadcasting is not making the progress which it was hoped would result as soon as regular programmes were inaugurated.

Although the service is undoubtedly appreciated in many parts of the Empire, the station is not so consistently and satisfactorily received on individual sets as to encourage any but the more enthusiastic sections of the population to invest in a short wave receiver and try to get the programmes regularly.

Frankly, our sympathies are largely with the people who, although they would like to hear home transmissions, do not feel justified in acquiring a special set for the purpose until they can be satisfied that reception will be reasonably satisfactory.

The B.B.C. has gone to considerable expense and effort to establish the short wave transmitter and distant reports indicate that the station is capable of giving a very good average account of itself.

It seems to us that the next step is really up to the broadcasting organisations situated locally throughout the Empire. It is for them to arrange for adequate reception facilities so that the Empire programme can be relayed on their local transmitters as required. Reception on a proper basis, where space and facilities are not restricted, can be very much more satisfactory than reception by private persons on individual short wave sets.

If in the Empire local broadcast authorities are apathetic towards the Empire station in principle, then it is not of much use to try to flog the scheme into activity from this end. If the nature of the programmes is responsible for lack of enthusiasm, then let us know about it so that something may be attempted to remedy the state of affairs.

Whatever may be the cause of the apparent lack of warmth of reception accorded to the Empire station in some places, let us get to the bottom of it and not allow apathy to kill a scheme so long projected and of which such great things were hoped.

International Broadcasts

A Good Example

WE may, we hope, be entitled to take to ourselves some small measure of credit for certain recent activities of the B.B.C. In February of this year we called attention to the motto of the B.B.C. "Nation Shall Speak Peace Unto Nation" and asked whether the Corporation were living up to this motto as fully as they might.

We said that there was ample scope for the B.B.C. to make their motto effective by arranging for talks to be broadcast in languages other than those of the country of origin.

The B.B.C. gave us, last week, another excellent example of what can be done in this way when they relayed from Berlin a description, in English, of the scene at the assembly of the Reichstag on the occasion of the pronouncement by the German Chancellor, Herr Hitler, of the German Government's policy and an account of the speech itself. We congratulate the B.B.C. on the truly excellent way in which this broadcast was conducted, although we regret that as, no doubt, this broadcast was fixed up only at a late hour, insufficient publicity for it may have resulted in the speaker having a far more limited audience than would otherwise have been the case. May we hope that the B.B.C. will do all in its power to encourage more broadcasts of this nature.

Five-Metre Work for Amateurs

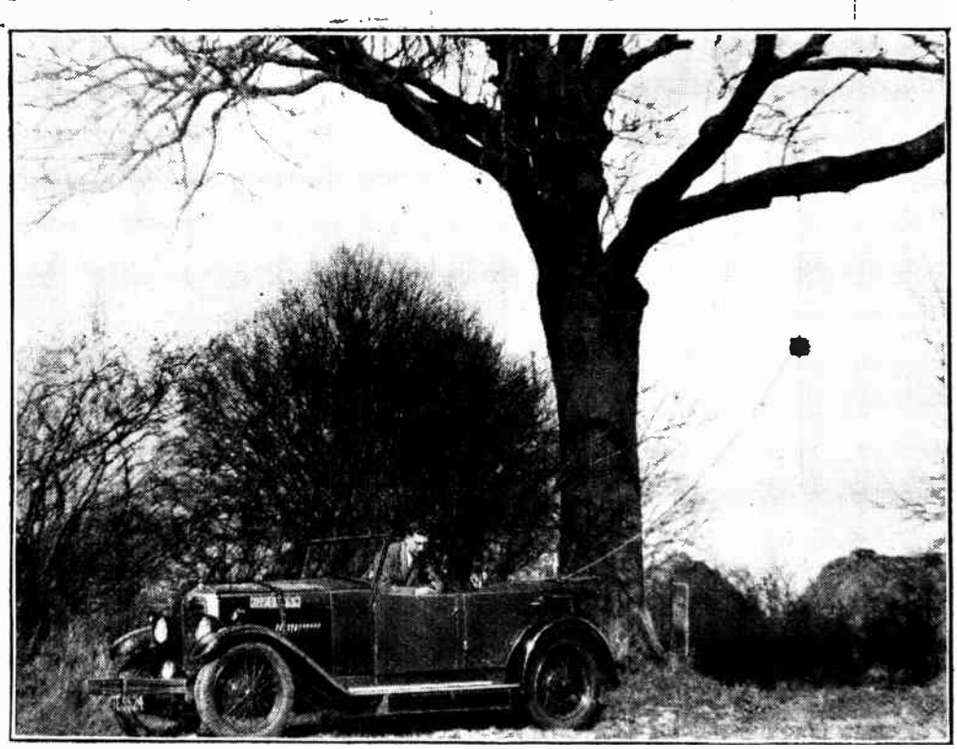
THE approaching summer will offer great opportunities for amateur tests on the ultra-short waves in the open air. The writers of this article, who have done much pioneering work on the 56 megacycle band, here describe some practical arrangements both for transmitters and receivers. The super-regenerative receiver, in their experience, is the pre-eminent type for work on the very high frequencies.

Practical Hints on Ultra-Short Wave Operation

By H. L. O'HEFFERNAN (G5BY) and S. G. MORGAN (G6SM)

THE ultra-short waves offer to the amateur experimenter such a tempting field of research that it is thought that it would be appropriate to give a brief outline of some of the major problems tackled by the writers during their work on the 56 megacycle (5-metre) band. It is only possible, within the scope of this short account, to touch lightly upon these features, and practicalities are chiefly dealt with in order to encourage others to emulate our example.

Let us begin, in logical sequence, with modulating systems. The method used almost exclusively up to the end of 1932 has been the straightforward Heising, or constant current, system (Fig. 1a). Until recently the great bugbear of field work has been the need for the provision of an adequate source of H.T. current for such modulation, which imposes a steady, heavy drain on the H.T. supply. Moreover, to secure 100 per cent. modulation of the high-frequency carrier, the modulator valve has to be operated at a higher mean anode potential than does the oscillator; hence the resistance R1 (Fig. 1). Here we have two sources of waste of very valuable H.T. current, especially if—as is generally the case—it be supplied by somewhat expensive dry batteries.



An impromptu aerial which has been found effective. It consists of a half-wave antenna with the transmitter mounted in the centre, fed with filament and modulated high-tension current through a three-wire cable.

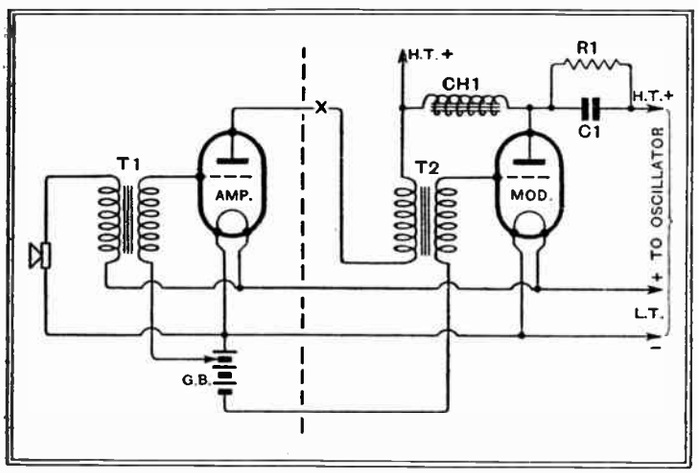


Fig. 1a.—Heising modulation, as used up to the end of last year. C1, 2mfd.; T1, microphone transformer; T2, intervalve transformer; CH1, heavy duty 30-henry choke; R1, 1,000-5,000 ohms, according to oscillator load characteristic.

Both of these disadvantages are removed at one fell swoop by the employment of Q.P.P., or Class "B" amplification. As has already been explained in *The Wireless World*, the H.T. consumption of these systems is proportional to the depth of modulation handled. The writers have used Class "B" with marked success; and now that British manufacturers are producing special valves for this purpose, it should prove extremely popular for the modulation of low power transmitters. (Fig. 1b.)

The push-pull circuit described in an earlier article[1] has proved itself a firm favourite, and by the insertion of radio frequency chokes in the filament leads, the debasing of the valves, and by keeping down stray capacities to the minimum, still greater efficiency has been obtained. (Fig. 2.)

The use of such self-excited oscillators, in conjunction with the aerial system mentioned later, is the only practicable apparatus for a mobile station; but for a fixed station something more stable is desirable. Self-excited oscillators are very susceptible to fluctuations in supply

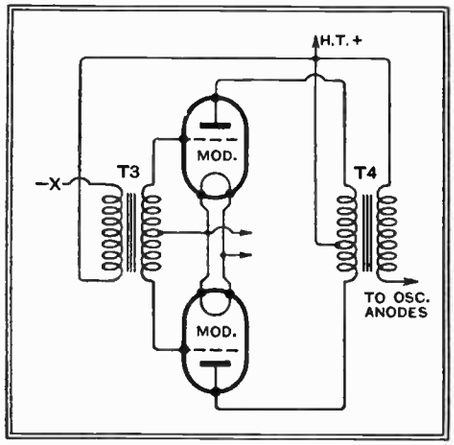


Fig. 1b.—Class "B" modulation. This arrangement is substituted for apparatus shown to the right of the dotted line in Fig. 1a. T3, Class "B" input transformer; T4, output transformer.

[1] "Practical Five-Metre Working," by H. L. O'Heffernan and S. G. Morgan, *The Wireless World*, June 8th, 1932.

Five-Metre Work for Amateurs—

voltages; quite a low percentage of modulation, for instance, causes the emitted frequency to swing between wide limits.

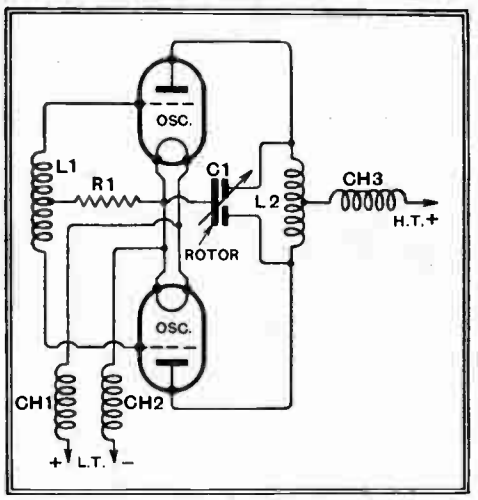


Fig. 2.—Push-pull self-excited oscillator. C1, double stator variable condenser, approximately 50 mmfd. each section; R1, 10,000 ohms; L1, 20 turns 16 S.W.G. copper wire, 1in. diameter; CH1, CH2, 30 turns each 20 S.W.G. ¼in. diameter spaced; CH3, 50 turns 32 S.W.G. D.S.C. ¼in. diameter spaced.

The ideal method of frequency stabilisation, crystal control, becomes a most cumbersome business at 56 mc/s.

Electron-coupled Oscillators

The solution seems to lie in the employment of "electron-coupled oscillators," which are becoming very popular in the United States. This system produces oscillations and strong harmonics which

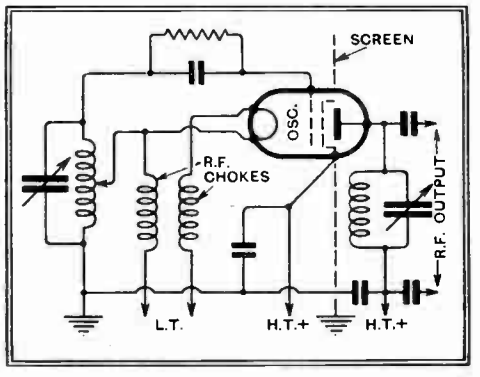


Fig. 3.—"Electron coupled" (screen-grid) oscillator.

possess a degree of frequency stability comparable with that of the crystal oscillator. This development employs a power type of screen-grid valve in a circuit such as Fig. 3. Wide variations of anode voltages and loads have little effect on the generated frequency. While the writers have not yet heard of the employment of this system on the ultra-high frequencies, and have hitherto been prevented from acquiring first-hand knowledge on the subject, because these special valves are not available to British amateurs, the evidence suggests that there is no reason why its utilisation should not be attended by complete success.

The aerial that has been most employed in the past has consisted of a half-wave antenna with the transmitter mounted in the centre, the whole outfit being hoisted up in the air and fed with filament and modulated high-tension current through a three-wire cable. This has proved most adaptable. The half-wave aerial gives, however, a high-angle radiation, which is undesirable in short-wave work. An ideal low-angle radiator would consist of a vertical wire, as many half-waves long as possible, carrying a uniform current in the same phase. The current distribution in aerials of various lengths is shown diagrammatically in Fig. 4. It must be borne in mind that the middle portions of each half wave (i.e., those portions carrying the greatest current) are productive of most of the radiation. In (b), (c) and (d) the currents in adjacent half-waves are in phase opposition, and thus tend to neutralise each other at low angles. If, therefore, some means of suppressing the radiation from alternate half-waves could be devised, the desired low-angle radiation would result. This can be done by folding up alternate half-waves as in (e), but the best plan is to fold them as in (f). Now, the previously unwanted currents actually assist the radiation from adjacent sections. This, the "Uniform" aerial, is the nearest approach to the idea mentioned above, and is due to the genius of C. S. Franklin. It will form the basis of a great deal of work by the writers this summer.

Super-regenerative Sets

And now for a few words regarding receivers. The super-regenerative receiver has firmly established itself as the pre-eminent type for work on the 5-metre band. Its only drawback is the high noise level due to the quenching action and consequent terrific amplification of valve noises. When a transmission is tuned in, however, the noise ceases and the station is heard comparatively free from background! In addition, the broadening effect which negative resistance, like positive resistance, has on positive tuning is a great advantage, as it makes the otherwise tricky task of tuning, in the vast frequency band under consideration, an easy matter.

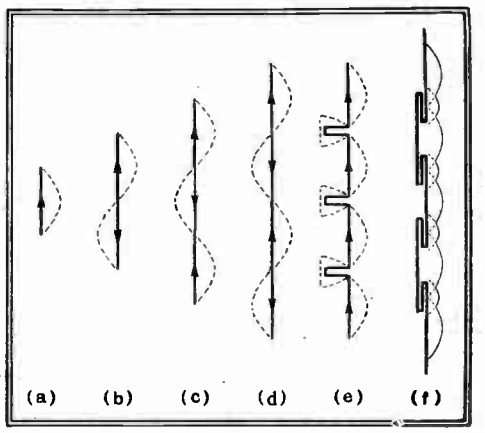


Fig. 4.—The current distribution in aerials of various lengths. The lengths of wire, from left to right, are respectively ½, 1, 1½, 2, 3½, 4½ wavelengths.

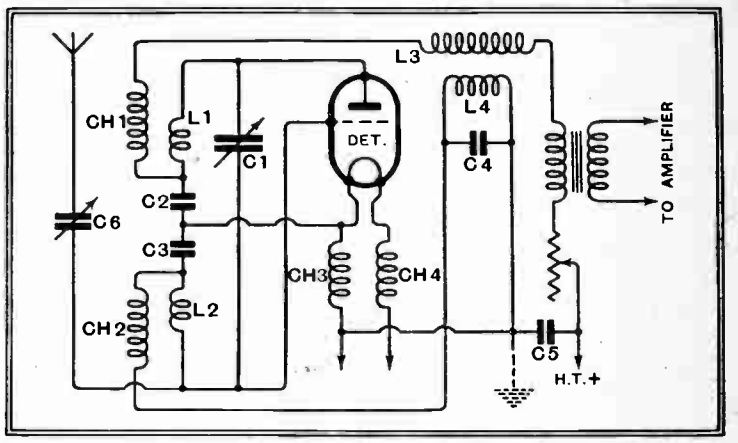


Fig. 5.—A super-regenerative ultra-short wave detector. C1, 50 micro-mfd.; C2, C3, .0001 mfd. each; C4, .002 mfd.; C5, 1 mfd.; C6, 50 m.mfd.; L1, L2, 5 turns 16 S.W.G. ¼in. diameter; L3, 1,500 turns of 38 D.S.C. on 1in. core; L4, 800 turns of 33 D.S.C. on 1in. core; CH1, CH2, 50 turns of 38 D.S.C. ¼in. diameter spaced; CH3, CH4, 30 turns 20 D.S.C., ¼in. diameter spaced.

At G6SM a single valve is made to serve the dual purpose of detector and quencher without any noticeable difference from the results obtained by the use of separate valves. The circuit developed is shown in Fig. 5, and, provided that the radio frequency end of the set is carefully laid out, nobody can fail to obtain good results. An HL type of valve is the most suitable. The anode voltage, which will be found to be fairly critical, is about 50 or 60, and the aerial coupling should be adjusted until regeneration can be controlled over the whole dial. Regeneration is characterised by the commencement of the loud rushing noise, at which point the receiver is in its most sensitive condition. An aerial about 16 feet long is all that is necessary provided that it is fairly high and clear; otherwise, a normal broadcast receiving aerial can be employed.

"THE WIRELESS ENGINEER"

THE June number of *The Wireless Engineer* is of special interest to the more technically minded readers of *The Wireless World*. A contribution of particular practical value deals with the design of a valve voltmeter for audio-frequencies calibrated by direct current.

A new point of view on Ferrocart coils is discussed in the leading article.

In addition to other contributions, the issue contains abstracts of the world's wireless literature and patents of importance.

Order your copy now from your newsagent, or direct from the publishers of *The Wireless World*.

UNBIASED

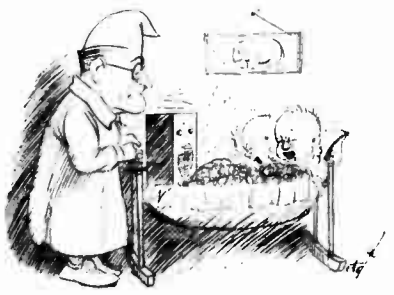
By

FREE GRID

Painful

IS it, or is it not, the duty of a newspaper Editor or his underlings to correct errors of spelling and grammar perpetrated by readers in letters intended for publication?

The thought is prompted by the continued misuse by correspondents in the lay press of the verb "to oscillate," which is too often regarded as transitive. Thus, in a newspaper from a western land there appears an indignant letter from a reader complaining that his listening is spoilt because his neighbours on either side persist in "oscillating his set."



Oscillating his set.

Now, in the first place, the obvious grammatical error should have been corrected. In the second place, the letter should have been passed along to the B.B.C. for transmission to the P.M.G. who, with his customary helpfulness where complaints are concerned, would have speedily sent a detector van down to track down the delinquents and haul them before the beak. I must confess, however, that it is the grammatical rather than the technical aspect of this matter which pains me most.

"The Light that Never was on Sea or Land"

FROM America comes a truly astonishing story which only shows, as my Aunt Matilda used to say anent the aeronautical experiments of the Wright brothers in 1903, what happens when mere man attempts to meddle with the affairs of Providence.

It appears that a well-known radio amateur who spends his life delving deeper and deeper into the realms of higher and higher frequencies, had suddenly tired of transmitting and receiving on such childishly long wavelengths as a centimetre or so, and had determined to build a *real* short-wave receiver capable of tuning down to a micrometre and below. What a micrometre is I don't know, my education in the decimal system of weights and measures having been sorely neglected, but I presume that it is some sort of poor relation of the metre.

At any rate, the results which he obtained were so astounding that I feel I must quote the actual words of the American journal from which I learnt this startling news.

"No sooner," says the writer, "had the bozo got everything hunky dory and sat on the key than he was almost blinded by a glare of light rivalling in candle power even that which, as Willie Shakespeare, a well-known British publicity man, reports, B.B.C. engineers use to floodlight the throne of England when King George is sitting there doing his stuff."

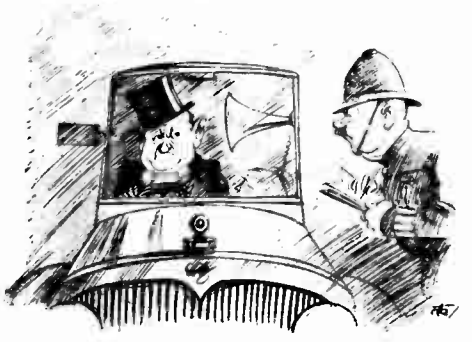
The paper goes on to say that, despite the glare of the light, no part of the apparatus was found to be in a state of incandescence "when investigated by the liquor squad, who scrammed up from the nearest precinct station to see why the old shack was all lit up."

As far as I can see, the whole thing seems to have been a newspaper stunt so beloved of our friends over the water, as I can scarcely believe that the youth can have successfully constructed a transmitter of light waves, using the ordinary principles employed in radio.

Record Runs

THE other day I was beguiled into taking a ride in an outsize in cars. The only thing that induced me to accept the invitation was the fact that the car was fitted with all the latest gadgets, including "built-in" wireless, which I had not hitherto had a chance to try out.

I was disappointed at not being able to find anything amiss with either the receiver itself or with its performance, which was really excellent. At the last moment, just as I had despaired of discovering a fault and was about to give a grudging assent to the joyful paeans sung by its owner, I found the chink in his armour and thrust hard home.



In the early hours.

"And how," I remarked, "do you amuse yourself in the early hours of the morning when nothing is on the air, for I perceive that no folding turntable and automatic record changer are provided to fill in these awkward gaps?"

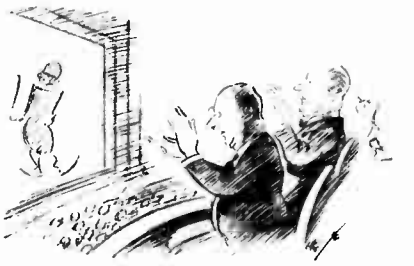
He was, of course, forced to admit that this had not been thought of, but so far from being depressed about it, the idea seemed to brighten him up. He said that he would get into touch with the makers forthwith, and so be the first motorist with a complete radiogramophone installation in his car.

I was able (as I thought) to take the wind out of his sails once more by pointing out that the motion of the car would joggle the needle off the record. He countered by saying that this would undoubtedly be true of some cars to which average members of the public are accustomed, but would scarcely hold good in the case of his own.

He is now negotiating with the gramophone manufacturers, so prepare for the worst.

Loud Clapping

SAY what you will, nothing can convince me that the land of hooch and hustle does not take the cake, the waffle or whatever other offensive article of food is customary over there, when it comes to ideas.



Couple of large clappers.

It appears that the manager of a local leg-show, tiring of paying out high fees to the members of his claque, evolved a scheme whereby he might reduce their number to two. He first fixed up a large number of loud speakers at strategic points in the theatre and coupled them to the input of a large amplifier. The input of the latter device was hooked up to a small microphone cunningly concealed at the back of two stalls behind which sat a couple of large clappers who were the remnant of the original claque.

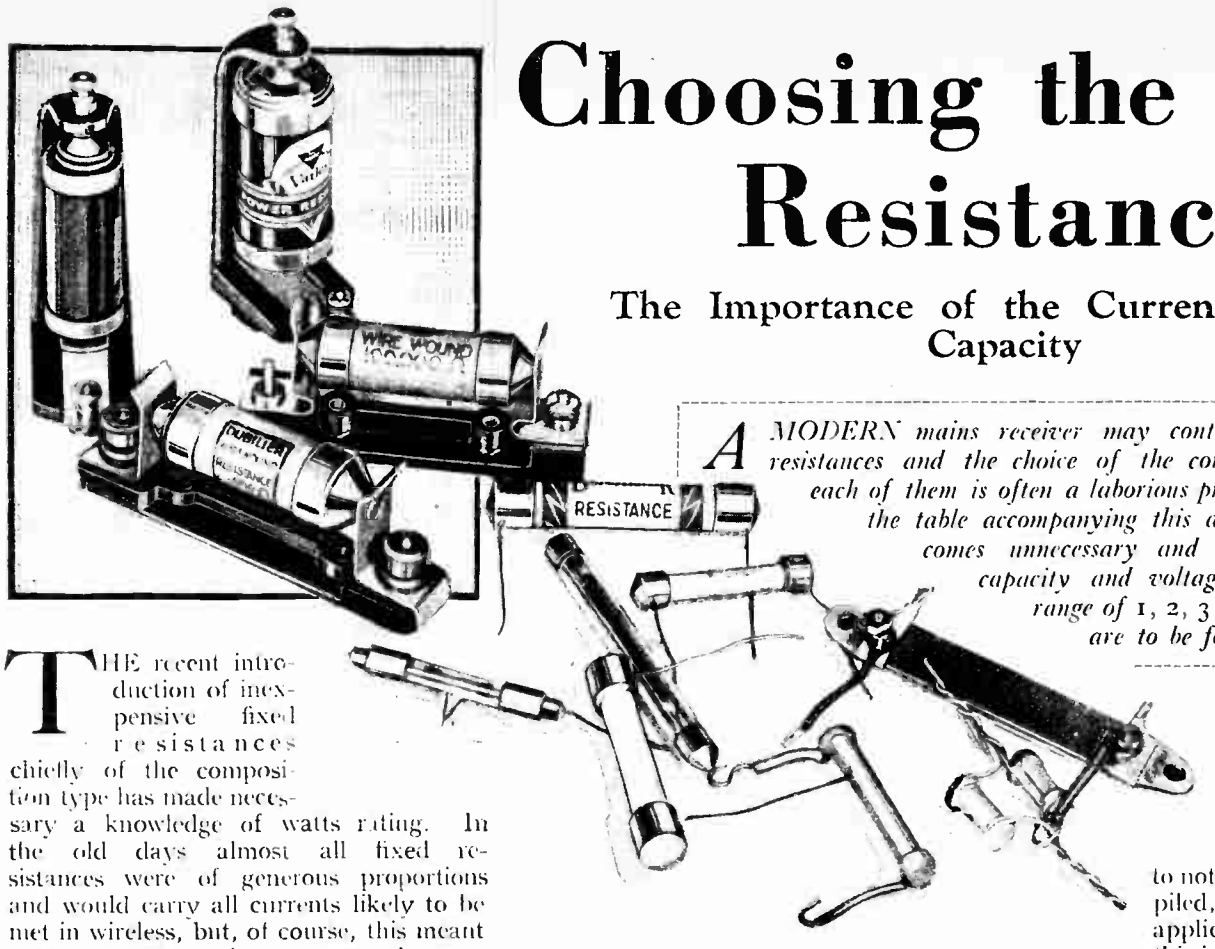
The efforts of these puppets were, of course, amplified and distributed to the various loud speakers, which owing to their aforementioned scientific positioning gave to the assembled mob the impression that a large number of people were applauding, and naturally the mob, with the yes-men complex associated with all crowds, vigorously followed suit.

Now I cannot fathom why they still retained *two* of the original claque unless they went to extreme limits, as they usually do across the Atlantic and insisted on providing an understudy even for the professional applauder.

The thing that really sticks in my gullet, however, is why they couldn't have fed the loud speakers from a gramophone record.

Choosing the Right Resistance

The Importance of the Current-carrying Capacity



A MODERN mains receiver may contain more than thirty resistances and the choice of the correct watts rating for each of them is often a laborious process. By the use of the table accompanying this article, calculation becomes unnecessary and the current carrying capacity and voltage rating of a large range of 1, 2, 3 and 5 watt resistances are to be found at a glance.

By
L. E. T. BRANCH, B.Sc.

THE recent introduction of inexpensive fixed resistances chiefly of the composition type has made necessary a knowledge of watts rating. In the old days almost all fixed resistances were of generous proportions and would carry all currents likely to be met in wireless, but, of course, this meant a very great waste in many cases because one found that one was using a resistance made to carry quite large currents for a purpose in which a very small current only passed through it. For instance, a well-made wire-wound resistance of 100,000 ohms will carry up to about 6 milliamperes, as will be seen by referring to the catalogue of any well-known maker such as Varley or Ferranti, whose names are household words in these matters.

Now more often than not, a high resistance such as 100,000 ohms is only required to carry one or two milliamperes, so that clearly a resistance made on less generous proportions can be used, and it will usually have the advantage of economy in size as well as price. However, to derive full value from the advantages of the new types of resistances, which are usually made to stand a maximum dissipation of either 1 watt, 2 watts, 3 watts, or 5 watts, it is clearly necessary to be able to find quickly and easily the wattage from either the voltage or the current alone, as usually only one of these will be known without making a calculation for the other.

In the usual way, if one of them is known the other can be calculated and then their product gives the wattage. When one is working on a set and there are numerous resistances to be provided, it is better to be able to take a short cut in each case from the known quantity to the wattage. This can best be done by evolving a table of maximum currents and voltages for all the usual values of resistances of the 1-watt, 2-watt, 3-watt, and 5-watt types, and then merely choose the component so that it does not exceed the specification for wattage dissipation. The writer has found such a table to be extremely useful, and he suggests that those who, in any case, find calculations rather a nuisance will welcome it.

It is interesting to note how such a table is compiled, and the following simple application of Ohm's Law gives this in full. At the same time it is at once obvious why the maximum wattage dissipation of a resistance does not vary in the same proportion as the voltage or current; thus a 2-watt resistance will not carry double, but only 1.4 times the current that a 1-watt resistance of the same value will carry. Likewise the maximum voltage is only increased 1.4 times for double wattage. These are small points and quite obvious when pointed out, but they are frequently overlooked, no doubt because they are small. The practical man cannot be too familiar with Ohm's Law and its numerous applications which arise at every turn in set designing and frequently in their upkeep. The present case is a very interesting and instructive example of such use of Ohm's Law, and it will pay many new readers to study it.

MAXIMUM CURRENTS AND VOLTAGES

Ohms Resistance	CURRENT CAPACITY (in Milliamperes). 1 Watt	2 Watts.	3 Watts.	5 Watts.	VOLTAGE CAPACITY. 1 Watt.	2 Watts.	3 Watts.	5 Watts.
1,000,000	1	1.4	1.7	2	1,000	1,400	1,700	2,200
500,000	1.4	2	2.5	3	700	1,000	1,200	1,600
250,000	2	2.8	3.5	4.5	500	700	870	1,100
100,000	3	4.5	5.5	7	315	450	550	710
50,000	4.5	6.5	8	10	220	315	390	500
30,000	6	8	10	13	170	250	300	390
20,000	7	10	12	16	140	200	240	310
10,000	10	14	17	22	100	140	170	220
7,500	12	16	20	26	87	120	150	200
5,000	14	20	25	32	70	100	120	160
3,000	18	26	32	41	55	78	95	120
2,000	22	32	39	50	45	63	78	100
1,000	31	45	55	70	31	45	55	71
750	37	52	63	82	27	38	47	62
500	45	63	78	100	22	32	39	50
300	59	82	100	130	17	24	30	39
200	72	100	120	160	14	20	24	32
100	100	140	175	220	10	14	17	22
50	140	200	250	320	7	10	12	16

Application of Ohm's Law

Now Ohm's Law is nothing more nor less than a simple relationship which is found to exist *always* between current, voltage, and resistance; thus, if a voltage E exists across the ends of a resistance R ohms the current in amperes which will flow through the resistance is E divided by R: that is to say, if I is the current in amperes, then $I = \frac{E}{R}$. Hence, since there are 1,000 milliamperes in one ampere we can work this formula for milliamperes by using I for milliamperes and then $I = \frac{E}{R} \times 1{,}000$. Now power or heat, generated electrically as when a current flows down a resistance, is expressed in watts and is found simply by multiplying the

Choosing the Right Resistance—

voltage across the ends of the resistance by the current in amperes flowing through it. Hence if W is the wattage we have simply $W = E \times I$. Now we know that according to Ohm's Law I is E/R, which is only another way of saying that $E = I \times R$, so that $W = I \times R \times I$: that is, $W = I^2 \times R$. From this formula we can, therefore, find very easily the wattage which a resistance must be capable of carrying if the current is known, and the table conveniently given here is obtained in this way. If W is one watt the permissible current is $\frac{1}{\sqrt{R}}$, while for a two-watt resistance the permissible current will be $\sqrt{\frac{2}{R}}$; and so on. Similarly, since $W = E \times I$ and $I = E/R$, we see that $W = E^2/R$, which enables us to find the wattage immediately providing we know only the voltage across the ends of the resistance.

DISTANT RECEPTION NOTES

Are Atmospherics on the Wane?

A GOOD many readers, I expect, have heard Vienna's new Bisamberg transmitter during the last week or two without knowing that they were doing so. I did not at first realise what was happening when Vienna after many evenings of feeble reception suddenly appeared with about the same strength as Langenberg, relapsing on the next night into weakness. The powerfully received programmes were undoubtedly experimental transmissions from Bisamberg. The official opening of the new station is due to take place on the day on which this issue of *The Wireless World* appears. Bisamberg should be a very popular station this summer, for some fine programmes are to be sent out, including not a few relays from the State Opera House.

That troublesome giant, the new Moscow transmitter, has been a real nuisance on several recent occasions. On one evening it was working apparently right on Huizen's wavelength and practically blotted out the Dutch station. On others it has caused trouble by using wavelengths from 1,480 metres upwards. A 500-kilowatt broadcasting station is a monstrosity which should not be tolerated within the limits of either the medium- or long-wave broadcasting bands. The output rating is, of course, vastly in excess of the maximum agreed upon at the recent Madrid Conference.

I am sorry to hear that the French Government has dropped the Broadcasting Bill of which so much was expected. The situation is rather complicated, but, so far as I understand it, the abandonment of the Bill means that the Government has now no powers to prevent the erection of new private stations or to control the doings of those which are already in operation. Apparently, though, it can prevent a station built without permission from broadcasting regularly.

"All Dressed Up . . ."

This is what has happened in the case of Radio Toulouse. The new station at St. Agnan appears to have been built without the Government's sanction. The old one was burnt down some weeks ago and permission to broadcast is still refused to the new one, though it is ready in every respect to take up the full programme service at a moment's notice.

France was the first country in the world to give a regular broadcasting service. Old hands will remember the daily transmissions from the Eiffel Tower at a time when there was nothing else to listen to in the way of wireless telephony with the exception of airways messages from Croydon, Lympne, St. Inglevert and Le Bourget, the conversations (usually highly technical) between enthusiastic amateurs, and the Tuesday evening programmes, lasting just one hour, from the old half-kilowatt station at Writtle. It is both curious and unfortunate that despite her pioneer work France should have caused so much trouble in European broadcasting by the uncontrolled and apparently uncontrollable wavelength wanderings of her small private broadcasting stations.

We have had rather a large dose of atmospherics in the course of nearly three weeks of unsettled and rather thundery weather. At the moment of writing the signs are that conditions are improving in this respect, and by all the indications a quiet spell is approaching. Except for the fact that some of the smaller and more distant stations are not worth bothering about, long-distance reception is little affected by summertime conditions. Daylight reception of several stations is still possible on the medium wavebaud, and in the evening the choice is far wider than it was in winter-time two or three years ago.

The Pick of the Foreigners

Radio-Paris, Zeesen, Huizen, Warsaw and Motala are the best long-wave stations at the moment. Kalundborg is still not too good and Oslo is unaccountably weak.

The two Brussels stations, Florence, Langenberg, Lyons Doua, Rome, Katowice, Strasbourg, the Poste Parisien, Breslau, Göteborg, Hilversum, Heilsberg, Turin, Trieste and Nürnberg are the pick of the medium-wave stations.

D. EXER.

IN POLAND. Space is at a premium in the small studio at Lwow (Lemberg) which serves mainly as a relay to the famous high-power station at Warsaw. Lwow's wavelength is 381 metres and the power is 16 kW.

MAKING FERROCART IN BRITAIN

Licences for Coil Manufacture

READERS will be interested to learn that Ferrocart, the material which has revolutionised radio coil design, is to be manufactured in this country by the General Electric Co., Ltd.

Definite arrangements for the commercial development of Ferrocart in this country have now reached an important stage. Messrs. Colvern, Ltd., Mawney's Road, Romford, Essex, have acquired the sole right for making and selling Ferrocart components and kits. The General Electric Co., Ltd., Magnet House, Kingsway, London, W.C.2, have acquired (a) the sole right of manufacturing Ferrocart material; (b) the sole right to use Ferrocart material for electric communication by wire; and (c) a licence for making Ferrocart coils for their own receivers.

More Licences Pending

A licence for making Ferrocart coils for their own receivers has been acquired by Electrical and Musical Industries, Ltd., Blyth Road, Hayes, Middlesex, while a licence for the use of Ferrocart material for radio transmitting purposes and commercial receivers has been obtained by Marconi's Wireless Telegraph Co., Ltd.

We understand that licence agreements for Ferrocart receiver coils are under negotiation with other prominent firms.

"Plan de Lucerne"

Secrecy at Europe's Biggest Wavelength Conference

By Our Representative at Lucerne

WITHOUT doubt the Lucerne Conference is the most important yet held in the history of European broadcasting. Significant though it was, the Prague Conference was an affair of European administrations; Lucerne is one of Governments. The Prague Conference tried to sort out existing stations, whereas Lucerne has asked all countries to make their maximum demands as regards stations, waves and power. The countries have responded, and what Lucerne decides will "stay put" until the next world-wide conference five years hence, unless somebody discovers a new type of wave.

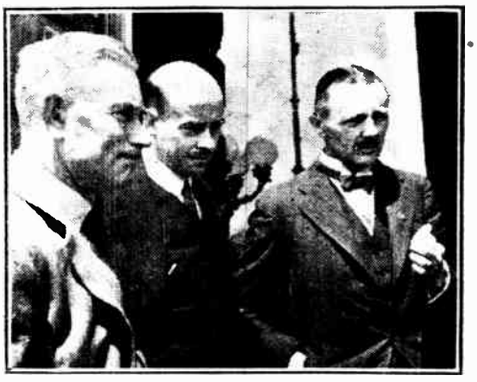
The badge worn by delegates at the "Conférence Européenne des Radiocommunications."

The Lucerne Plan is to be a solemn Government undertaking which will be adhered to, not to be discarded at will like the Prague Plan. *No station will be permitted to change its power or its wave without due notice of from three to six months and without the approval of all concerned.*

The Conférence Européenne des Radiocommunications opened on May 15th and will, it is hoped, close on June 1st. The first formality was the appointment of M. Muri, head of the Swiss delegation, as president. M. Keller, head of the radio department of the Swiss Post Office, is vice-president.

Five Committees at Work

The work of the Conference is being done by five committees. The first, presided over by Mr. Philipps, head of the British delegation, is considering the fundamentals of wavelength distribution; the second, under the Italian head delegate, is discussing which stations shall be placed outside the broadcasting band. The third committee, presided over by the Czech chief delegate, is concerned with power limitation. Ministerialdirektor Giesecke, the German chief delegate, is president of the fourth committee, which is actually apportioning the wavelengths; while the fifth committee, under the chief Russian delegate, is looking after juridical questions.



The B.B.C.'s Chief Engineer, Mr. Noel Ashbridge (in centre), "snapped" with the British Post Office representative, Colonel A. S. Angwin (on right), outside the Conference Hall.

It is regrettable that the Conference has decided to meet almost in secrecy. The Press representatives have to rely largely on official communiqués, which are more formal than informative.

So that readers may be prepared for the "Plan de Lucerne" when it is published in a fortnight's time, I append the tentative plan which was prepared by the Union Internationale de Radiophonie at their last meeting. I understand that the new plan will conform very closely to this proposed list, which clearly indicates that practically every European station will undergo at least a small wavelength modification.

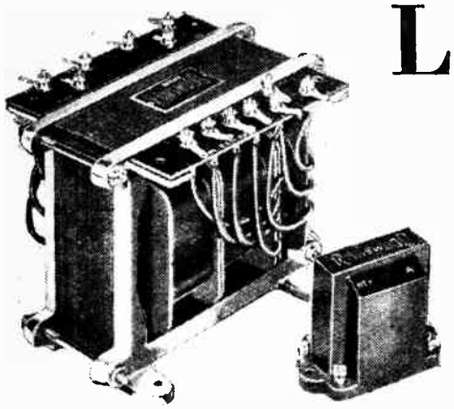
Admiral Sir Charles Carpendale, President of the U.I.R., sharing the optimistic outlook of Dr. Giesecke (Germany) and the Danish delegate, M. Lerche (on right).

PROPOSED ALLOCATION OF FREQUENCIES

kc s	Stations
152	Moscow R.V.I.
161	Huizen
170	Radio Paris
179	Lahti
188	Zeesen.
198	Daventry
207	Moscow RV49, Madrid
216	Warsaw
226	Motala
235	Bucharest, Reykjavik
244	Oslo
253	Kiev, Boden, Porto
262	Kalundborg
271	Minsk, Porto
279	Leningrad, Ankara
287	Moscow, Beromünster
340	Smolensk
349	Kharkov, Finmark
358	Petrozavodsk, Budapest II.
367	Samara
376	Saratov
385	Sverdlovsk, Austria
394	Voronej, Monte Ceneri
403	Slowakia
412	Moscow
421	Rostov, Ostersund
430	Oulu
520	Ljubljana, Krakov, Hamar
528	Slowakia, Bolzano
536	Lwow, Grenoble, Skoplje (Serbia)
546	Budapest
555	Ivanovo, Athlone, Palermo
564	Munich
573	Madono (Riga), Seville
583	Vienna
592	Sundsvall, Rabat, Cairo
601	Brussels I, Astrakhan
611	Florence, Orenburg
619	Trondheim, and Norway relays
628	Prague
638	Lyons PTT, Archangelsk, Valdikavkaz
647	North Regional, Stalingrad
657	Langenberg, Kazan
666	Stockholm
675	Beromünster, Makhatch Kala
684	Beograd
693	Paris PTT, Oufa
703	Rome
713	Mühlacker, Mourmansk, Krasnodar
722	Tallinn, Lisbon
731	Marseilles PTT, Tchernigov
740	Katowitz
749	Sottens
758	Midland Regional, Odessa
768	Bordeaux PTT, Vinnitsa
777	Leipzig
786	Helsinki, Coruna, Athens
795	Scottish Regional, Nijni-Novg
804	Milan, Syktyvkar
813	Bucharest
822	Hamburg, Naltchik
831	Wilno, Algiers
840	Strasbourg PTT, Pokrovsk
849	Poznan
858	London Regional, Tiraspol
867	Graz
876	Bergen, Tunis, Norway relays
885	Berlin
895	Toulouse PTT, Simferopol
901	Brno
913	Sofia
922	Brussels II., Oukhta
931	Barcelona, Moscow
940	Breslau
949	France, Leningrad
958	Göteborg, Groysni
967	West Regional, Gomel
976	Geneva, Torun
985	Hilversum, Elista
994	Zagreb
1003	North National, Dnepropetrovsk
1012	Viipuri, Valencia
1021	Heilsberg
1030	Rennes PTT, Louchkarola
1040	Scottish National, Smyrna
1049	Bari
1058	Bratislava
1067	France
1076	Naples, Falun
1085	Madrid
1094	Kosice, Oran
1103	Limoges PTT
1112	Cernauti
1121	Hörby
1130	Turin
1139	Moravská-Ostrava
1148	Lille PTT
1157	Copenhagen
1166	London National, Alexandrie
1175	Trier, Frankfurt, Cassel, Freiberg
1184	Nice PTT
1193	Prague II.
1202	Belfast (249.6 metres)
1211	Trieste
1220	Gleiwitz
1229	Montpelier PTT, Istanbul
1238	Albania
1247	San Sebastian, Kuldiga
1256	Nürnberg
1265	Norwegian National Common Wave, Salonika
1274	Belgian N.C.W.
1283	Austrian N.C.W.
1292	North German N.C.W.
1301	Luxembourg
1310	Hungarian N.C.W.
1319	Swedish N.C.W.
1328	Lodz
1337	Danzig, Sombor (Yugoslavia)
1346	Norwegian N.C.W.
1355	Swiss N.C.W.
1364	French relays
1373	Warsaw II.
1382	Swedish N.C.W., Algarve
1391	Finnish N.C.W.
1400	Roumanian N.C.W.
1409	Spanish N.C.W.
1418	International N.C.W.
1427	French N.C.W.
1436	German N.C.W.
1444	British N.C.W.
1452	Hungarian N.C.W.
1460	International C.W.
1468	International C.W.
1476	International C.W.
1484	International C.W.
1492	International C.W.
1500	International C.W. (200 metres)

LABORATORY TESTS

NEW RADIO PRODUCTS REVIEWED



Rawswood mains and intervalve L.F. transformers.

RAWSWOOD TRANSFORMERS

THE mains transformer sent in for test by the Rawswood Electrical Co., Preston New Road, Blackpool, is designed for use in receivers with a maximum of four valves. It is intended to be used with a "C" class full-wave rectifying valve, and carries an H.T. winding giving 350-0-350 volts at a nominal load of 80 mA. The two L.T. windings are rated at 4 volts 4 amps. and 4 volts 2.5 amps. respectively. Tappings are provided on the primary to suit supply mains of 200, 230, and 250 volts at 50 cycles A.C.

The coil is of generous dimensions and rigidly clamped by cast aluminium endplates with the terminal battens supported on projecting lugs.

Tested with a UU120, 350 rectifying valve it provided the following H.T. voltages after smoothing, using a choke of 100 ohms resistance, the output being measured across the second 4-mfd. condenser in the smoothing circuit.

Current.	D.C. Volts.	Current.	D.C. Volts.
mA.		mA.	
10	460	60	382
20	442	70	378
30	423	80	370
40	408	90	362
50	397	100	354

The H.T. winding shows good regulation for a component of this type, and both L.T. windings are satisfactorily adjusted for the respective loads. For example, on full load the 4-amp. winding gave 3.9 volts while the rectifier filament was operated at 3.95 volts. The price of this model is 29s. 6d.

We have tested also a small intervalve transformer made by this firm. It has a step-up ratio of 1 to 3, and the primary inductance was found by measurement to be 13.7 henrys with no D.C. flowing, 10.6 henrys with 2 mA., and 8.6 henrys with 4 mA. passing through the primary winding. Whether connected in the anode circuit of the valve or used in a parallel-feed circuit, the best results will be obtained with valves of comparatively low impedance. It is available, also, with a 1 to 5 ratio and the price in each case is 4s. 11d.

PIX INVISIBLE AERIAL

EVEN where facilities permit the erection of an outdoor aerial, it is not uncommon to find this aid to reception dispensed with and one located within the building used in its place. For, owing to the high sensitivity of modern receivers, exceptionally good results are possible under these conditions. An aerial for indoor use, which is easy to install and quickly changed if need be, is the Pix Invisible aerial.

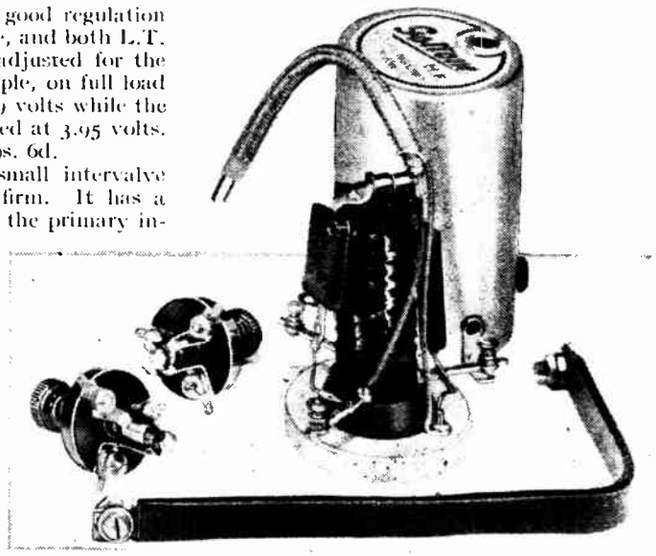
It consists of an adhesive ribbon one inch wide, having attached to its inside surface a strip of aluminium insulated on both sides and terminating in a flexible lead for connection to the receiver.

The Pix aerial should prove very useful in flats, for it can be installed in out-of-the-way corners or run just above or below the picture moulding. The makers are the British Pix Co., Ltd., 118-120, Southwark Street, London, S.E.1, and the price is 2s. for a roll containing 60ft.

GOLTONE COMPONENTS

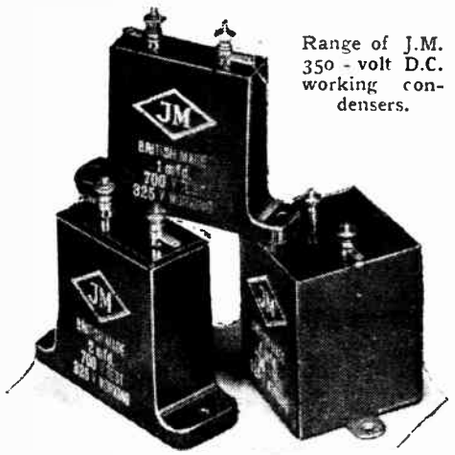
THE Goltone H.F. coupling unit has been developed especially to simplify the assembly of receivers in which the tuned grid or parallel-feed H.F. transformer circuits are employed. It consists of an H.F. choke of high inductance, a 0.0003 mfd. mica coupling condenser, a 600-ohm decoupling resistance, and a non-inductive 0.01-mfd. by-pass condenser, the whole housed in a cylindrical screened container. In addition, the lead joining the high potential end of the unit to the anode terminal of the H.F. valve is fully screened and earthed. The unit is very compact and requires no more baseboard space than a single valve holder, and the price is 9s.

Goltone push-pull switches are now obtainable in several types; all, however, embody a similar style of fitting. A single hole fixing bush is used with a screwed shank for mounting on panels varying in thickness from 1/32in. to 1in. Fibre insulating washers for use with metal panels are included. The contact springs are particularly robust, and are maintained in correct alignment by shoulders moulded on to the base plate. The single-pole on-off pattern costs 9d., a three-point switch 1s. 3d., and a four-spring single-pole change-over model retails at 1s. 6d.



Selection of Goltone components including H.F. coupling unit, push-pull switches and flexible lead-in strip.

The latest addition to their components is an insulated lead-in strip. This consists of a tinned wire-woven ribbon encased in tough rubber, and, since it is very flexible, can be located where the rigid-type tube lead-in could not be employed. It is available in 6in., 9in., and 12in. lengths; the price of the 6in. model is 6d. The makers are Ward and Goldstone, Ltd., Frederick Road (Pendleton), Salford, 6, Lancs.



Range of J.M. 350-volt D.C. working condensers.

J.M. CONDENSERS

A RANGE of condensers suitable for use in battery eliminators and mains sets has been introduced by J. Millet, 39, Farringdon Road, London, E.C.1. Known as the J.M. series, they are made in five values, namely, 0.01 mfd., 0.1 mfd., 1 mfd., 2 mfds. and 4 mfds. capacities, the prices being 1s. 3d., 1s. 7d., 1s. 9d., 2s. 6d. and 4s. 9d. respectively.

The normal working voltage is 350 D.C. and they have an adequate factor of safety for they are tested at double the working potential. Tests were made with a specimen of each value and in every case the condenser stood up, without a trace of leakage, to a D.C. potential of 700 volts.

The 4-mfd. size is mounted in a metal case finished green, while the smaller values are contained in moulded bakelite cases also coloured green. Soldering tags are provided in addition to small terminals.

IN NEXT WEEK'S ISSUE

will appear a review of components for Class "B" amplification. A table will be given classifying the driver and output transformers under suitable headings so that correctly matched components can be chosen for the various Class "B" valves now available.

News of the Week

Events of the Week in Brief Review

120 kW from Brittany

THE projected 120 kW. broadcasting station at Thourie, near Nantes, is expected to begin testing at the end of the year.

Short Waves from Uruguay

THE Republic of Uruguay has begun regular short-wave transmissions at midnight (G.M.T.) daily, telephony being on a wavelength of 26.39 metres.

Radio Saves Journeys

IN the Swiss canton of Vaud an Order has been passed prescribing broadcast lessons for certain categories of apprentices who cannot conveniently attend classes in the towns. Fifty receivers have been distributed to various radio educational centres.

More Power from Algiers

RADIO ALGIERS has always striven to be heard outside its own frontiers, and in order that the new European high-power stations shall not drown the programmes, steps are to be taken to increase the power of the transmitter, which at present works with 13 kW.

Better French Sets

NO real novelties were on view at the Paris Fair. Most modern trends in design were represented, including anti-fading devices and automatic volume control. According to a correspondent, the general standard of construction has noticeably improved, while prices show a downward tendency.

Unexpected Visitors

A FEW days ago, when the Belgian station, Radio La Louvière, was transmitting its afternoon programme, the Deputy Public Prosecutor, an examining magistrate, a court clerk, two Post Office technicians, and a police commissioner suddenly invaded the studio, stopped the transmission, and put seals on all the apparatus.

This drastic step might be incomprehensible but for the fact that Radio La Louvière is an unauthorised transmitter, operated in political party interests.

No Licences by Instalments

IN the House of Commons last week Colonel Baldwin-Webb asked the Postmaster-General whether he would be prepared to sanction the payment of the wireless licence fee by quarterly instalments in cases of persons registered as unemployed. Sir E. Bennett, the Assistant Postmaster-General, said, in reply, that the objection to a system of this kind was that it would very greatly increase the cost of collection and accounting. The suggested discrimination in favour of unemployed persons would also lead to difficulties and anomalies in practice. The Postmaster-General regretted that he was unable to make the desired concession.

Real Running Commentaries

ON the summer tourist trains in Belgium loud speakers are now used for running commentaries on the landscape.

Five and a Half Million

THE number of wireless licences in force at the end of April was 5,536,300, an increase during the month of 38,700. During the month 177 prosecutions of "pirates" were successfully undertaken by the Post Office, the total fines amounting to £166.

The R.A.F. Display

WIRELESS will play an important part at the fourteenth Royal Air Force Display, which will take place at Hendon on Saturday, June 24th. No fewer than 200 aircraft will participate, the principal novelty being a new Auto Gyro, in which control is obtained solely by the use of the rotating vanes. The fastest plane at the display will be an experimental high-speed Hawker "Fury," estimated to be capable of nearly 250 miles an hour.

Beer on the Ether

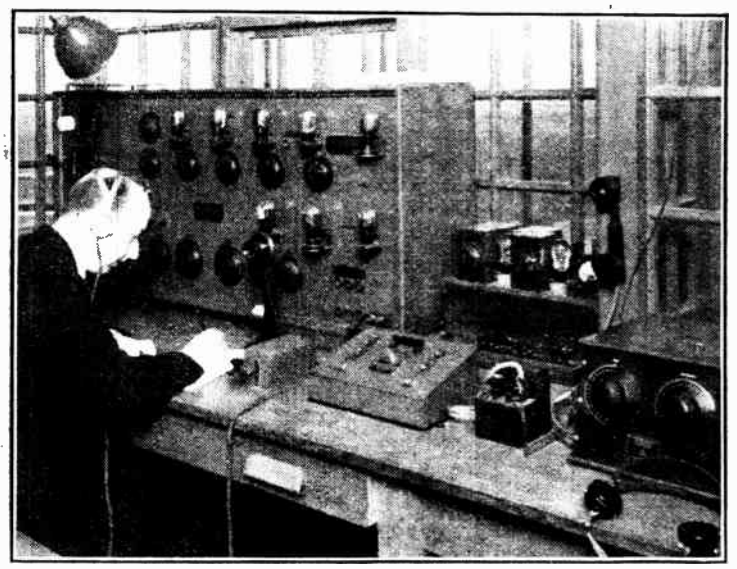
SHORT-WAVE receivers have been installed on 100 beer lorries in New York, the object being to enable orders to be transmitted from the central brewery, thus obviating the distressing spectacle of lorries returning with their tanks half full.

Honest Belfast

ACCORDING to the Belfast postal authorities, there are practically no wireless "pirates" in the Ulster area. In the past eighteen months the number of licence holders has increased by over 12,000, making a total for the Belfast area of over 35,000.

Should Valves be Marked ?

WHETHER imported wireless valves and rectifying valves should be required to bear an indication of origin will be discussed at a public enquiry by the Board of Trade at 11.30 a.m. on June 19th and (if necessary) at 10.30 a.m. on June 20th. The enquiry will be held at the Board of Trade Office, Great George Street, London, S.W.1.



AN AERIAL TELEGRAPH OFFICE. The Marconi directional receiver installed in the control tower of the new Manchester Air Port at Barton Moss. Telegraph and telephone messages are picked up from aircraft in flight.

Eyesight Saving

THE Gramophone Company has solved a problem. Up to a few weeks ago the factories had experienced great difficulty in obtaining girls with fine enough eyesight to see the wire—0.0016 of an inch thick, finer than a hair—which is employed in the coils incorporated in H.M.V. receivers. Now a member of the staff has devised a machine in which the wire is passed through spring pulleys which fly back as soon as a breakage occurs enabling the coils to be wound twenty times quicker.

An official said: "It costs us over £50 per worker for training before the girl is efficient enough to be employed on coil winding. At the moment we have over 250 operatives engaged on this work."

India and the B.B.C.

NEW life has been given to many smaller broadcasting stations centred around the Empire since the inauguration of the short-wave programmes from Daventry. According to an Indian correspondent, the Calcutta and Bombay stations now frequently relay the Empire programmes, and have, in consequence, secured a larger audience. Out of twenty relayed programmes the Calcutta station director classified ten as being well received throughout, nine in which reception was good but marred by fading, and only one in which reception was definitely unsatisfactory. At Colombo, Ceylon, a new station is being erected specially to relay the B.B.C. programmes each evening.

Radio and Riots

A NEW risk has been legislated against by the Czecho-Slovakian Minister of Posts and Telegraphs. The danger lies in the possibility that disturbance of the peace might result from collective listening to propaganda broadcasts from abroad. Therefore the Minister has forbidden reception on loud speakers in public places of speeches emanating from Germany. At present, presumably, listeners may tune in what they like in their own homes.

Echoes from Space

A CLEVER acoustic analogy demonstrating how wireless waves are reflected from the upper atmosphere was shown by the National Physical Laboratory at the Conversazione of the Royal Society at Burlington House on May 17th. At about four feet below a suspended metal plate, representing the Appleton Layer, a ticking device was placed close to a microphone. By means of a cathode-ray tube, the wave form was reproduced visually, and it could be seen at a glance how the wave produced by the direct pick-up of sound by the microphone was followed by the "echo" reflected from the plate above.

Outlaw Stations in U.S.

TEXAS is the land of wireless outlaws. According to the American Federal Radio Commission there are at least sixty unlicensed broadcasting stations in the U.S., and half are reported to be in Texas, with Pennsylvania a good second. Many of the stations are on very low power, and it is even believed that in some cases their owners are unaware of the regulations. But ignorance is no excuse, and the Radio Commission, armed with seven high-precision receiving sets and four recording units, intends to wipe out the outlaws and police the wavelengths more thoroughly.

New U.S. Radio Chain

ON or about June 1st America will have a third broadcasting network, the Amalgamated Broadcasting System, Inc., which will compete with the National Broadcasting Company and the Columbia Broadcasting System. The Amalgamated will comprise three New York stations—WCDA, WBNX, and WMSG—to be linked together under the call-sign WMET; WTNJ, Trenton; WPEN, Philadelphia, and other transmitters in Wilmington, Baltimore, and Washington.

"Small Ads." at Whitsun

THE advent of the Whitsun holiday necessitates slight alterations in our printing schedule. Miscellaneous advertisements intended for *The Wireless World* of Friday, June 9th, should reach the Advertisement Office, Dorset House, Stamford Street, London, S.E.1, not later than first post on Friday, June 2nd.

Practical HINTS AND TIPS

AIDS TO BETTER RECEPTION

IN the Class "B" Ferrocart receiver (*Wireless World*, April 7th) the reaction control condenser C4 is inserted at the high potential end of the reaction circuit, and therefore its rotor must be insulated from the metal supporting bracket. This insulation is actually effected by means of a pair of bushes. Constructors who are using a different type of condenser should bear this point in mind, and if insulating bushes are not available must devise other means of preventing contact between the one-hole fixing bush and the bracket.

Reaction Condenser Insulation

WHEN constructing a coil or similar component it is usual, if the job is to be nicely finished, to bring out the connections more or less in the manner shown in Fig. 1 (a). Separate single-ended soldering tags are used as terminal points for the internal and external wiring.

Soldering Tags

This procedure is correct enough, and makes for neatness, but for electrical continuity contacts made by a pair of nuts must be depended upon; it is possible that one or both of these may work loose, especially in a portable receiver, which may be subjected to vibration. To avoid this possibility the use of a double-ended soldering tag (Fig. 1 (b)) is recommended, although the finished job may not be quite so neat. When this type of tag is employed its fixing screw serves merely to anchor the tag in position, and does not have to carry any current; even if it works slightly loose, no harm will be done.

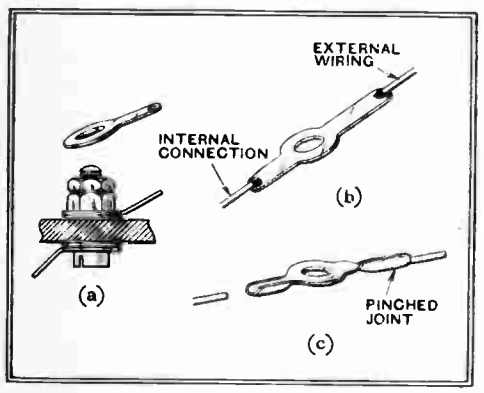


Fig. 1.—Types of commercially produced soldering tags.

To make an extremely strong and permanent joint, double-ended tags, with troughs pressed in their ends (see Fig. 1 (c)) may be used. Extra mechanical strength may then be given to the joint by "pinching" the wire into the trough before soldering.

IN dealing with a superheterodyne, there is a real risk of confusing instability (uncontrollable self-oscillation of H.F. or I.F. valves) with severe second-channel and similar forms of interference. The symptoms are similar, and it is none too easy to distinguish between them. Incidentally, it may be remarked that true instability is not a common fault in a superheterodyne; this is one of the advantages of that system of reception.

Second-channel Interference

If it happens that instability is really the cause of the trouble, this fact can be confirmed fairly easily by manipulation of the volume control. As intensity is gradually reduced, whistling will stop suddenly, and will not occur again when other stations—at any rate, those operated at a higher wavelength—are tuned in.

WHEN the lowest wavelength to which a gang-tuned receiver may be adjusted seems to be excessively high, the first thing to do is to see whether it is not possible to reset the trimming condensers to a lower capacity all round. This should be fairly obvious, but it would appear that many amateurs, having made a satisfactory trimming adjustment from the point of view of alignment, do not realise that less capacity might be employed without prejudice to accuracy.

Trimmer Adjustments

Experience shows that when this scheme is put into effect in a haphazard manner by adjusting one trimmer at a time, the final settings often come back to almost exactly the original values. It is sometimes better to slacken off each trimmer screw by an amount that will bring about roughly the same change in capacity before tuning to a signal and making the final critical adjustment.

WHEN it is observed that signal strength may be momentarily increased by touching the grid terminal of a valve or any of the high-potential wiring associated with its grid circuit, it may invariably be concluded that there is an interruption in the leakage path of the grid circuit of that valve, and that a charge is accumulating. The reader may be reminded that the grid circuit of every valve, whatever its function, must be completed to cathode or filament through a path which is conductive for D.C. current.

Accumulated Grid Charge

As an example of what may happen in practice, attention may be drawn to Fig. 2, which represents a fairly common type of input filter circuit with double-capacity coupling. A disconnection in the resistance R, through which bias is applied to the H.F. valve, will leave the grid "in the air," as the necessary condition laid down in the preceding paragraph no longer exists. Of course, the interruption might exist in any part of the grid-bias circuit.

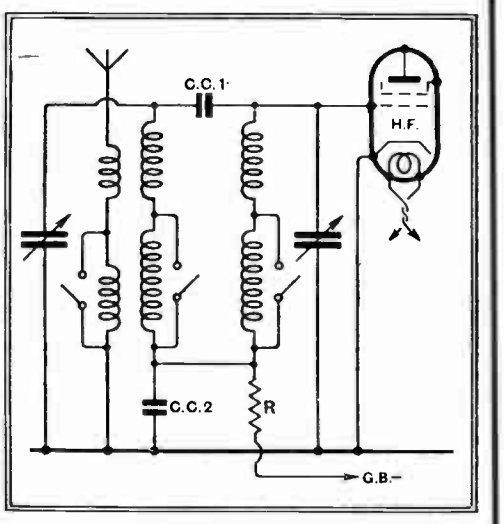


Fig. 2.—A typical arrangement in which interruption of the bias feed system results in a "choked" grid circuit. A charge will accumulate in the coupling condenser C.C.2.

IT is usually recommended that, when measuring voltage or current in a mains-operated set, all the valves should be working normally, in order that the power supply equipment loading may be the same as under ordinary working conditions.

More Accurate Voltage Measurements

This is a good general rule, but there are occasions where a little finesse may be employed with advantage. If, for example, the voltmeter resistance is on the low side it will impose an appreciable excess load on the rectifier, etc., and so a reading of total H.T. voltage will be more or less inaccurate.

In order to compensate for the extra current taken by the meter, it is often a good plan to remove one of the receiver valves before making the measurement. Of course, the valve chosen for removal should be one which normally takes about the same current as the meter, but even if its consumption is not exactly the same the reading will be sufficiently accurate for all practical purposes.

The same idea may be applied with advantage to a battery set, especially when the H.T. battery begins to develop an increasing internal resistance with age.

Broadcast Brevities

By Our Special Correspondent

The Organ

ALTHOUGH, as first exclusively announced in *The Wireless World*, the inaugural concert with the new organ in Broadcasting House will be given on June 16th, the instrument has already figured unofficially in the programmes. The first chords were actually broadcast during the Epilogue on Sunday evening, May 14th, as a special tribute to the memory of the late Mr. J. C. Stobart.

Pipes Missing

Actually the organ is still incomplete, as a number of pipes have to be added, but between now and the inaugural concert it may be used for simple accompaniments.

Mr. Berkeley Mason, I hear, is likely to be the official organist.

The Fun Will Begin

SUNDAY next, May 28th, will see Western Regional take over the complete service on 309.9 metres and the consequent fade-out of the old transmitters at Cardiff and Swansea.

Within a week the first tests on West National should begin, the wavelength being 261.6 metres. We shall then see whether London National, on the same wavelength, will look kindly on this "little grey home in the West."

Mr. Gladstone Murray's Return

ACCORDING to the Press prophets, no one who sets out from Broadcasting House to cross the Atlantic is ever likely to return. When Mr. Gladstone Murray, the B.B.C. Publicity Chief, went forth on his recent mission to Canada, the pens at once got busy to show why he would find a Dominion post too alluring to let slip.

Mr. Gladstone Murray has crowded a tremendous amount of organising work into the last three months, and Canada, now equipped with the framework for an efficient broadcasting system, will be sorry to drop the pilot; nevertheless, the B.B.C. will have its Publicity Chief back again in a month's time. Mr. Gladstone Murray sails for England on June 10th.

Henry Hall's American Visit

And now we have these rumours anent Henry Hall, who has innocently planned a summer holiday in the States. It has been alleged that, once on American soil, Henry will be unable to turn his back on "God's own country."

Busman's Holiday

Henry Hall has no intention of leaving the B.B.C. Indeed, it is not even definitely settled that he will go to America, for much will depend upon whether the Corporation can dispense with his services for the four weeks which (quite rightly) he considers the minimum time necessary for a carefree vacation. At the best it will be a sort of busman's holiday, for he is determined to hear as many dance bands as possible, and to renew friendships with all the best-known American dance leaders and composers. Irving Berlin is a close friend of Henry Hall's.

"Say, Folks . . . ."

It is, of course, quite probable that the B.B.C. Dance Band may take on a new flavour when its leader returns. It will probably be hotter than ever, and I guess that Henry's announcements may be infected with that Yankee flavour which seems to be inseparable from syncopation and saxophony.

Sir Charles Carpendale

ONCE more Admiral Sir Charles Carpendale has been re-elected President of the International Broadcasting Union, and he will hold this post until 1934, when, I understand, he will also be retiring from the Controllership of the B.B.C.

NATURE'S "EFFECTS" DEPARTMENT. B.B.C. officials conducting a rehearsal for last week's Zoo broadcast. The success of this venture suggests that a permanent "Zoo studio" should be installed.

A Master of Tact

Although some European countries would have liked to see a change in the Presidentship, it is universally agreed that Sir Charles has filled his very difficult office with distinction; his admirable tact and understanding in ticklish situations has provoked general admiration.

The Great Share-out

It is likely that the next President will be a German. The new plan for securing fair representation on the Council provides for four Vice-Presidents, the positions of President and two Vice-Presidents being divided between the largest contributors to the funds of the Union. Great Britain and Germany both pay equal amounts, while France comes next, so that these three nations will invariably hold important positions. The two remaining Vice-Presidentships will be shared by nations which contribute smaller amounts to the funds; this year the Vice-Presidents are from Denmark and Italy.

That Theme Tune

MANY listeners have written and telephone to Broadcasting House to enquire the title of the theme tune that has introduced the performances in the "Stars in their Courses" series on Saturday evenings. The chords that have been heard are excerpts from Gershwin's "Rhapsody in Blue," and a Paul Whiteman record is used for their reproduction. An exception was made on the evening when Fay Compton was the subject of Mr. Agate's talk. In this case the talk was introduced by the incidental music to "Mary Rose."

More "Stars in their Courses"

Future broadcasts by Mr. James Agate in the "Stars in their Courses" series will be as follow: May 27, Sir John Martin-Harvey; June 3, Hilda Trevelyan; June 10, Matheson Lang. Mr. Agate will probably select Marie Tempest as his subject for June 17 and Edith Evans for June 24.

An Ibsen Play

ELIZABETH BERGNER, the well-known cinema actress, is to play the part of Hedvig in the microphone version of "The Wild Duck," which the B.B.C. will broadcast to National listeners on May 31 and to Regional listeners on June 2. Leon Quartermaine will be Hjalmar.

Production will be in the hands of Val Gielgud.

Why Not B.B.C. "Serenades"?

IT has always been a mystery to me why the B.B.C. should imagine that people are most anxious to dance at the end of a long day. That the B.B.C. think so is apparent from the fact that for the last ten years there has rarely been any alternative to the dance broadcasts after 10.30 p.m. Yet this is the hour when many people are best able to appreciate the soothing influence of quiet music.

The other evening I listened to one of those delightful "Serenade" hours from Munich, which begin at 10.45. The atmosphere is informal; just a few instrumentalists are collected together under the direction of an amiable compère who introduces each selection with a brief chat.

"Bravo, Mr. Smith!"

Sometimes two or more speakers have something to say on the characteristics of each piece, and the leader will go so far as to commend a player when the selection is finished.

Imagine a B.B.C. announcer exclaiming "Bravo, Mr. Smith!" in the manner of Herr Erich Kloss at Munich on Thursday last!

I believe an informal hour once or twice a week would be very acceptable to B.B.C. audiences.

"Daventry International"

THE Empire is asking for more. So Mr. Cecil Graves, Director of the Empire Broadcasting Department, is responding to the demand by arranging omni-directional broadcasts from the Daventry short-wave station every day from 11 a.m. to 1 p.m. (G.M.T.) and on Sundays from 11.30 a.m. to 1 p.m. These new transmissions, which commence on June 11th, will consist mainly of relays of the National programme, and they will be available to anyone who can pick them up.

It looks as if the "National" programmes will soon have to be labelled "International."

How the SUPERHET WORKS

A Simple Explanation of the Signal-frequency Stage

By W. T. COCKING

EVEN to those who are thoroughly familiar with the straight set and are unafraid to tackle the most ambitious design, the superheterodyne often remains something of a mystery, an assembly of apparatus to be regarded with proper reverence, but too complicated for general use. In actual fact, there is nothing mysterious about the superheterodyne, and it functions in a perfectly straightforward manner in accordance with known laws. So far from being complex, it offers the simplest means of obtaining the best combination of quality, selectivity, and sensitivity.

The theory of the superheteroyne, however, is certainly more advanced than that of the straight set, and in the following it is assumed that the reader has at least a broad knowledge of how the latter type of receiver operates. If he has not he is advised to read the series of articles entitled "The Signal Through the Receiver,"[1] for he will then be in a much better position to appreciate the essential differences of the superheterodyne, and much recapitulation will be saved.

IN this series of articles dealing with the theory and practice of the modern superheterodyne receiver, Mr. W. T. Cocking, the well-known authority on this subject, explains in simple terms the function of each essential component. The present instalment covers the signal-frequency tuning system and stresses the importance of avoiding grid current.

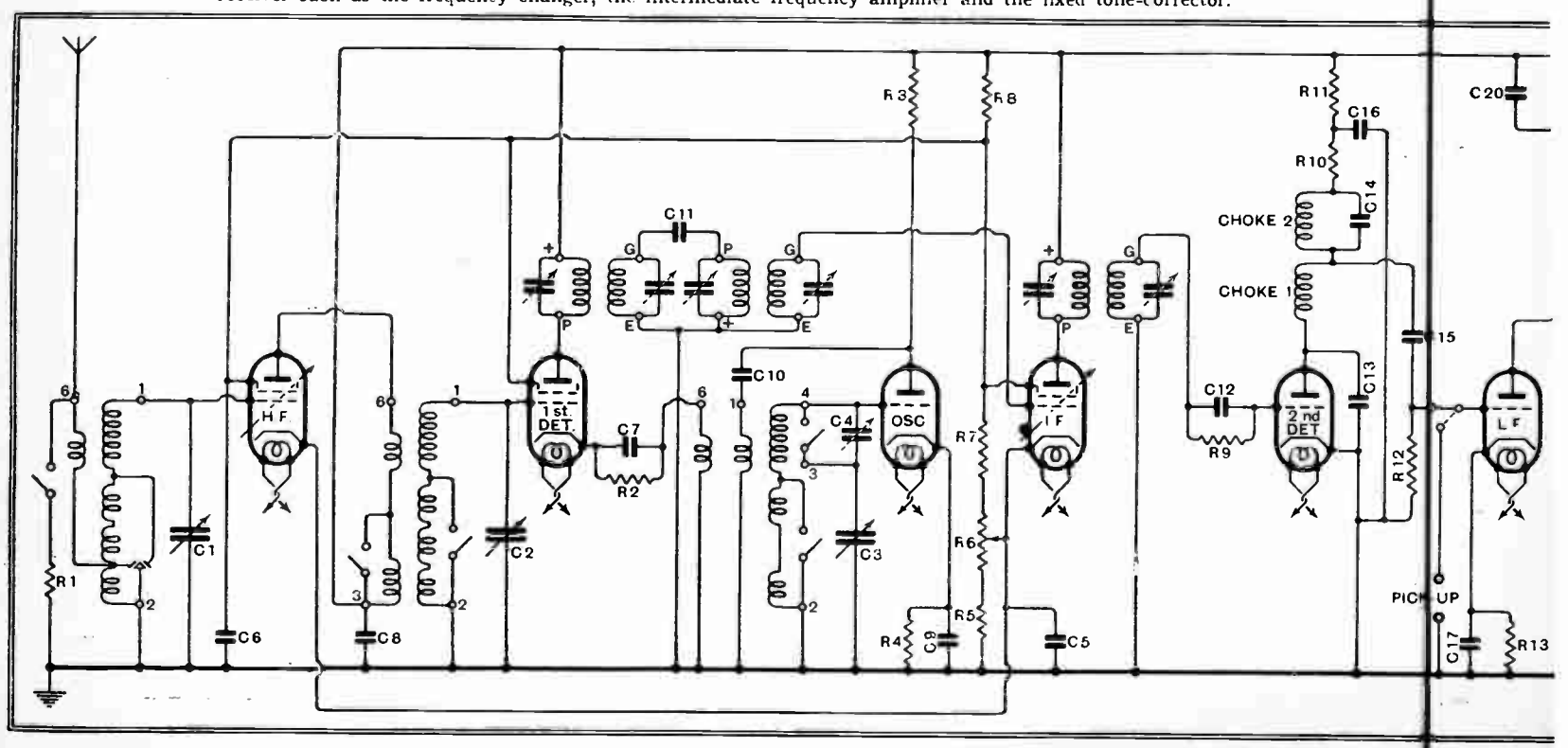
The general outline of the superheterodyne will already be familiar, and it will be remembered that the initial circuits are usually identical with those of a straight set, often even to the inclusion of an H.F. stage. Instead of coupling the detector to the output of the H.F. stage, however, a piece of apparatus known as the frequency changer is incorporated. As its name implies, this changes the frequency, or wavelength, of the incoming signal to some other value. Another amplifier is then used, operating at this different frequency, and only after this is the detector proper included.

The operation will perhaps be best understood by tracing the course of a signal through a set, and in Fig. 1 is shown the circuit diagram of a modern A.C. superheterodyne of the most advanced type.

In this diagram all those details peculiar to the superheterodyne are included, but for simplicity's sake the apparatus required solely for providing the operating current from the mains has been omitted. It should be understood that this latter equipment differs in no

[1] *The Wireless World*. October 7th, 14th, 21st, 28th, November 4th, 18th, 25th and December 16th, 1932.

Fig. 1.—The complete circuit diagram of a modern high-sensitivity superheterodyne. This includes all apparatus peculiar to this type of receiver such as the frequency changer, the intermediate frequency amplifier and the fixed tone-corrector.

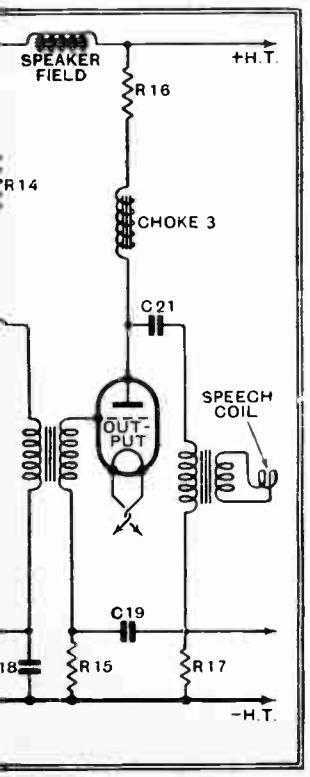


way from the practice employed in straight sets. This circuit is actually that of the Monodial A.C. Super[2]. Throughout this series of articles constant reference will be made to this diagram, and when reading succeeding instalments it should be kept handy for reference, since it will not be repeated.

As a preliminary to a complete discussion of the superheterodyne principles, we shall trace the course of a signal step by step through the receiver, and return later to a more detailed consideration of certain very important points in the correct functioning of the apparatus. At first, consider the operation with all the coil switches closed, for the receiver is then set to work on the medium waveband. The signal from the broadcasting station which we wish to receive sets up a current in the aerial which is very similar, save in magnitude, to that in the transmitting aerial. The signals from all other broadcasting stations also set up currents in the aerial. The total aerial current, therefore, is of an exceedingly complex nature, since it is composed of a multitude of different currents set up by the different stations. The problem of reception thus resolves itself into three things: the selection of the particular current due to the desired station to the exclusion of all other currents; the amplification of this to the required degree; and the carrying out of these processes without adding to, or subtracting from, the original modulation of the desired carrier.

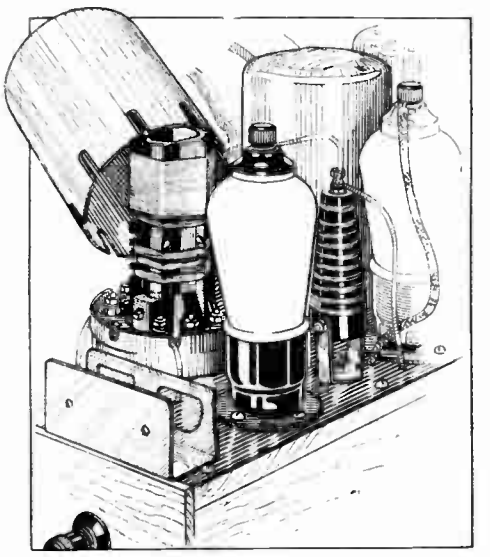
Station Selection

When the switch in series with R1 of Fig. 1 is open, the currents in the aerial flow through the coil between the points 0 and 2 of the aerial coil assembly, and since this coil is in inductive relationship with the tuned secondary (points 1 and 2), there is also a current flow in this secondary circuit.



Now this secondary current is not identical with the original, for the tuned circuit responds more readily to currents of certain frequencies than to others. If the voltage set up in the aerial by a signal were held constant, and the signal frequency gradually varied while the voltage developed across the secondary tuning condenser C1 were measured, it would be found that for one particular frequency the voltage would be a maximum. The results, in fact, could be plotted in the form of a curve such as that shown in Fig. 2, in which it will be seen that the response at one frequency is greater than at any other.

This frequency of maximum response, or resonance, is dependent upon the values assigned to the coil inductance and



The principal components in the signal-frequency stage of a modern superheterodyne.

condenser capacity, and it is inversely proportional to the square root of their product. Since we obtain maximum signal strength when resonance in the tuned circuit coincides with the frequency of the desired station, we naturally choose this point in tuning, and in practice this is carried out almost universally by varying the capacity of the condenser. By tuning the circuit to resonance with the desired signal, however, not only do we obtain the greatest efficiency, but we increase the strength of that station relatively to the strengths of all other stations. If, in the absence of any such circuit, two broadcasting stations gave signals at the receiver of identical strength, their relative strengths at the grid of the first valve when such a circuit is employed can be read off from the resonance curve (Fig. 2) for their particular frequency separation. Thus, if they are separated by 10 kc/s, the unwanted station becomes only 25 per cent. as strong as the wanted signal, while if they are separated by 40 kc/s it is only 6.7 per cent. Away from resonance the response quickly falls off.

The tuned circuit, therefore, is selective, for it tends to select the desired signal to the exclusion of others. It is by no means completely selective, however, for it gives quite an appreciable response to frequencies different from resonance. In practice, the value of the coil inductance is fixed by the band of frequencies, usually 550-1,500 kc/s, which must be covered with a given variable condenser. When this is the case the absolute response of a tuned circuit of this nature at a frequency remote from resonance is substantially a constant factor, for it is not appreciably influenced by the efficiency of the circuit. The response at resonance, however, is determined by the efficiency.

Some losses must occur in every practical circuit, and these are usually considered as taking the form of a resistance connected in series with the tuning coil. The lower the value of this resistance the greater will be the response at resonance, and hence the better the signal strength which we shall obtain from the wanted station. Since the response at a frequency different from resonance is not greatly dependent upon the circuit resistance, however, the wanted signal will not only be increased in absolute strength, but also relatively to the strength of an unwanted station, so that the selectivity becomes greater.

Low coil resistance, high efficiency, and great selectivity thus become almost synonymous terms in a circuit of this nature, and it is obvious that efforts to reduce the resistance to a reasonably low figure will be well repaid. There is one other point, however: the wanted signal does not consist of a single frequency, but rather of a band of frequencies extending some 10,000 cycles on either side of the carrier frequency. For reasons which are too lengthy to go into here, it is usually considered that high quality reproduction is obtained if audible frequencies up to 5,000 cycles are fully reproduced, although there is no doubt that for the best quality higher frequencies must be included. In distant reception this is usually impossible on account of interference, and for the present we may say

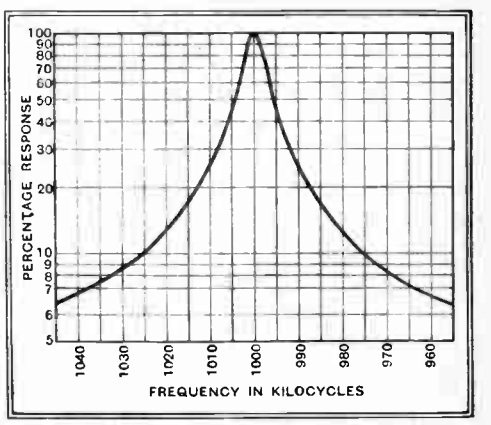


Fig. 2. The resonance curve of a single-tuned circuit of good efficiency is shown for a wavelength of 300 metres, corresponding to a frequency of 1,000 kc/s.

that the wanted carrier has sidebands up to 5 kc/s only.

A modulated carrier, therefore, on 1,000 kc/s would really embrace the band of 1,005 kc/s to 995 kc/s, and a glance at Fig. 3 shows us that the selective action of the tuned circuit acts upon the wanted station. Frequencies remote from the carrier by 5 kc/s are reproduced in this case with a strength only 45 per cent. of that of the carrier, and the practical meaning of this is that an audible note of 5,000 cycles would be reduced to this value after the modulated carrier has passed through the tuned circuit. There is thus distortion, for it will be obvious that low audible frequencies are barely affected.

Fortunately, it is possible to correct for this effect in subsequent circuits of the receiver, but complete correction is hardly

[2] *The Wireless World*, April 13th, 20th and 27th, 1932.

How the Superhet Works—

possible, since the amount of sideband cutting which occurs is not constant at all wavelengths. Thus, if there is 45 per cent. at 300 metres (1,000 kc/s), the reduction at 200 metres may only be to 70 per cent., and at 500 metres it may be as much as to 20 per cent. It so happens, however, that the ear is very tolerant of this form of distortion, and the reduction of an audible frequency by as much as 50 per cent. is often barely detectable. In general, therefore, correction must be for the loss at about the middle of the tuning range; at higher wavelengths the correction will not be sufficient, and the higher audible frequencies will be somewhat reduced; at lower wavelengths the correction will be excessive, and the higher notes will be reproduced at abnormal strength. Provided that the variation of selectivity of the tuned circuit with wavelength is kept moderate, however, the ear cannot detect the imperfections. Since the ear is always the final arbiter, this is all that is necessary.

It will now be apparent that we obtain across C1 of Fig. 1 potential variations which are different from those in the aerial. The potentials due to the wanted station are enhanced relatively to those of the unwanted stations, and the modulation of the desired carrier is somewhat reduced at the higher audible frequencies. The condenser C1 is connected between the grid of the H.F. valve and the earth line, but for this valve to act as an amplifier the potentials must be applied between its grid and cathode. A large-capacity condenser C5, therefore, is connected between the valve cathode and the earth line to complete the connection, since such a condenser offers a very low impedance to high-frequency currents. The voltages developed across C1, therefore, are applied between the grid and cathode of the H.F. valve practically in their entirety.

Avoid Grid Current.

If the tuned circuit is to retain its normal efficiency when connected in circuit, it is obvious that the resistance of the valve grid-cathode path must be infinite, for any resistance in parallel with C1 has the effect of increasing the effective coil resistance. The internal grid-cathode path of the valve has a value approaching infinity only under certain conditions. If the grid is positive with respect to the cathode, the grid-cathode path of the valve is conductive, and the grid A.C. resistance has a value depending partly upon the valve structure and partly upon the potential applied. Under this condition, of course, there is a flow of grid current round the external grid-cathode circuit. This effect may be avoided by so arranging the circuit that the valve grid is always negative with respect to its cathode. In the case of an indirectly heated cathode valve, however, grid current may flow with a negative bias applied to the grid. The region of grid current with a negative bias is usually quite small, and normally it will suffice if the grid potential is always more than one volt negative with respect to the cathode.

In a mains receiver it is usual for negative bias to be applied by biasing the cathode positively with respect to the grid, and in Fig. 1 it will be seen that the H.F. valve cathode is connected to the slider of a potentiometer R6, which is in the H.T. circuit at a point positive with respect to the earth line, and, therefore, the grid. The bias can thus be adjusted at will, and over a large range to suit varying conditions. A fixed resistance R5 is included in order to prevent the bias from ever being too low to avoid grid current flow in the absence of a signal.

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, London, S.E.1, and must be accompanied by the writer's name and address

Short-wave Reception

I AM sure you will be glad to know that the W.W. "Short-wave Two" is most successful here. The ratio of signal strength to background is without equal in my long experience of short-wave work. It excels in "Morse" reception, and is more powerful than a recent and quite good "four-valve set."

J. S. DUNN.

Cape Town.

Automatic Volume Control

HAVING recently built *The Wireless World* A.C. Monodial with A.V.C., I am most surprised at Mr. Haynes' letter in criticism of A.V.C.

The loss of sensitivity is absolutely nil, as the A.V.C. cuts clean out when the signal falls below a strength which nearly overloads the second detector.

On the medium waveband there is no space between stations to get any "mush," while on the long waves the noise suppressor is very effective.

After using a milliammeter for a day or two tuning is quite easy without it, while range and wonderfully silent background accompany almost perfect quality.

I fail to see how A.V.C. can introduce noise, but if used on a noisy, insensitive set it can hardly be expected to remedy these troubles.

If A.V.C. operated on the modulation as Mr. Haynes appears to suggest, we should receive the whole of a musical programme at exactly the same volume, irrespective of the number of instruments performing, bringing up solo passages out of all proportion to the conductor's intentions! How horrible!

G. F. CHAMBERS.

Chesterfield.

I WAS very interested in the letter from F. H. Haynes on automatic volume control, which appeared in your issue of May 5th, and should like to put forward the following points against certain of his statements:

If the receiver is to compensate fully for fading it must be sufficiently sensitive to provide a power output of, say, 1 watt from the weakest parts of the carrier of any station of "entertainment value" at the time. It is admitted that all transmissions of greater field strength will be cut down to this level by the A.V.C., but this can by no means be called a "weak level." If a receiver of this sensitivity was not fitted with A.V.C., the detector and output stages at least would be very much overloaded on any signal of what might be called normal strength.

The statement that a weak signal is represented at the second detector of a superhet as a carrier of low modulation is not correct. The output from the oscillator of a superhet is not, as a general rule, modulated by the incoming signal, but is used to "beat" with it at the prearranged intermediate frequency. Obviously, if the incoming signal is weak the I.F. beat will be weak (cf. oscillation in a straight receiver, producing an audio frequency beat). If Mr. Haynes' statement was correct, then no incoming signal would be represented by an unmodulated carrier at the second detector. This is impossible since, if there is no incoming signal the intermediate beat frequency cannot be produced by the oscillator unless the H.F. stages are in a state of self-oscillation. Thus, A.V.C. arranged to work on the carrier amplitude at the second detector is quite in order. If, as Mr. Haynes seems to suggest, the A.V.C. valve was controlled by the depth of modulation of the carrier imposed on the second detector, all musical passages, not to mention speech, would be smoothed out to the same volume level irrespective of relative loudnesses originally.

The statement that "some measure of A.V.C. is useful in limiting tuning-spread due to detector overloading" seems to be somewhat ambiguous. It is admitted that A.V.C. will obviate detector overloading but it will increase, not limit, the tuning-spread; the selectivity of the receiver will not, however, be in any way affected. As the receiver is detuned from a station, the carrier amplitude on the detector and on the A.V.C. valve is reduced. The bias on the H.F. stages will, therefore, be automatically reduced, increasing the gain, and bringing the volume up to the previous level. This action continues as the station is further detuned, until the whole of the A.V.C. bias on the H.F. stages has been removed, after which the station rapidly disappears. This holds good only if there is no adjacent station working at the time. If a station is working adjacent to the one being received, at a separation of, say, 9 kc/s, then as the set is detuned from one to the other the total power output will remain fairly constant, but will dissolve from one station to the other. With a modern tuning circuit no interference will be experienced from the adjacent station.

On the other hand, a properly arranged Q.A.V.C. system will definitely limit tuning-spread, in some cases to a matter of 1 kc/s above and below the frequency of any station. Even in these cases the quality of reproduction is not impaired by high note cut-off.

The statement that the "set will no longer possess those essentials—range with silent background" implies that the addition of an A.V.C. system to a receiver restricts the

range and introduces background noise. The range of a receiver is exactly the same if fitted with A.V.C or not, since when working all out the H.F. stages are not at all over-biased, but are at their maximum working mutual conductance. Background noise is brought up to its maximum level between stations on a receiver fitted with simple A.V.C., but is reduced immediately a carrier is received. When receiving a station background noise is no more if the set is fitted with A.V.C. than if it is not. If the noise is objected to, it can be overcome by Q.A.V.C.

Finally, a listener's receiver certainly does not require to be working at maximum sensitivity for all stations other than the "local" in this district, where the field strengths from many Continental stations average several times those of the National and Regional transmitters after dark. The greatest advantages of A.V.C. is that the sensitivity of the receiver is automatically varied inversely as the field strengths of the stations received, providing exactly the correct amount of gain is arranged to give an output of comfortable strength in all circumstances.

R. S. HODGSON.

Hull.

Prices

I HAVE read with much interest in *The Wireless World* your editorial comments regarding the prices of radio goods, and I must say that I am in total agreement with what you have said.

The present prices are far too high for the majority of components offered for sale to-day. Granted that the British radio goods are in the front ranks of the industry, but that does not give the manufacturers the right to "stick on the price." While probably many months of experimenting on their part is entailed, it is also up to them to turn out the best possible, but why should the ultimate purchaser be charged up with the "dog work."

Naturally, one does not want the electrical efficiency to suffer if prices are cut, but taking for example one of the numerous nice-looking transformers on the market, do the makers really consider that the pretty bakelite shrouding in any way enhances the efficiency of the component other than in appearance? The shrouding has to be made, and naturally paid for, but it is totally unnecessary. With the present-day cabinet the "innards" are very seldom put on show, so what does appearance matter? Why can't we have the crude article?

Again, the home constructor is at a decided disadvantage compared to the manufacturer in building a compact receiver; the stripped parts are unobtainable, so the home builder has to make his set very much larger than he really need do. It is also the present fashion to cellulose the various parts with a nice grey paint; beyond adding to the price, what's the use of it?

The Wireless World has done a lot for the home constructor. I hope your present "few words" will sink in where needed.

May I add another "grouse," which I am sure *The Wireless World* will agree with—that is, the terrible delays that occur after placing an order. A delivery by return is almost an unheard-of thing; two weeks or more is far more usual. This particularly applies to any new component which is ordered. There seems to be a mistaken policy in the trade that the demand creates the supply; surely it is the supply which creates the demand, with the usual "boosting," of course. It is most disappointing to be held up in the construction of a new set for some unobtainable part which has been advertised perhaps for weeks.

Wishing *The Wireless World* all the best—it certainly is *the* best.

Bournemouth. E. J. B. CURTIS.

FOREIGN BROADCAST GUIDE

RADIO LUXEMBOURG

(Grand Duchy of Luxembourg).

Geographical position: 49 36′ N.; 6 08″ E.

Approximate air line from London: 310 miles.

Wavelength: 1,190.5 m. Frequency: 252 kcs. Power: 150 kw.

Standard time: Greenwich Mean Time (adopts B.S.T.).

Standard Daily Transmissions.

18.00 G.M.T. (or B.S.T.) (week days), 19.00 (Sundays). gramophone records; 19.45, weather, concert; 20.30, English talk (Sun.); 20.40, records; 21.15, news (French), music; 22.00, news (German); 22.10, Variety or dance music.

Concerts destined for foreign listeners are broadcast according to following schedule: Great Britain (Sunday); Italy (Monday); Germany (Wednesday, Thursday); France and Belgium (Tuesday, Saturday); Holland (Friday).

Announcers: Man and woman (announcements are made in German, French and in the Alsatian dialect).

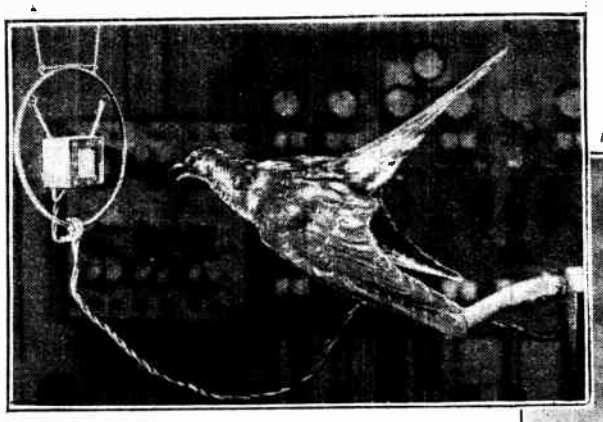
Call: *Hier Versuchsender Luxembourg: Ici poste expérimental Radio Luxembourg: Hai a der Luetzelburger. versuchsender:* occasionally, *Radio Luxembourg calling.*

Opening signal: Siren.

Closes down with good night greetings in various languages followed by Anthem.

ON THE SPOT

Visits to Foreign Broadcast Stations

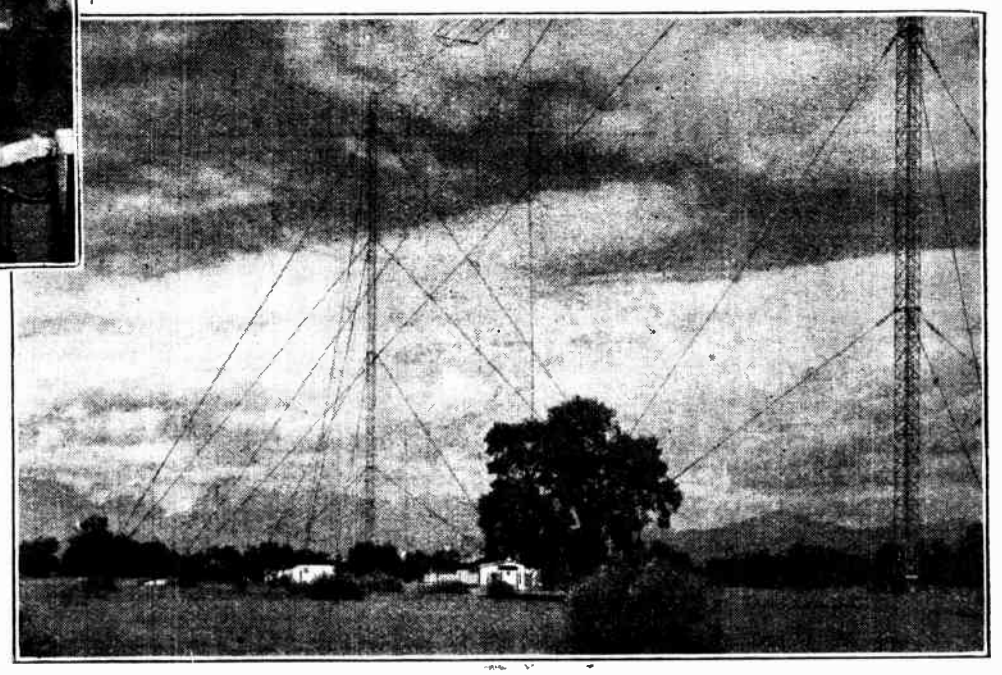


FOR THE BENEFIT OF VISITORS
Ljubljana displays this stuffed cuckoo before a microphone in the control room. Actually the famous call is produced mechanically.

VIII—Ljubljana, 522 kc., 574.7 m., 7 kW.

RADIO LJUBLJANA, famous for its cuckoo call, is situated some miles from the town of that name, at a village called Domzale, in the shadow of the Alps. It is operated by the Roman Catholic authorities, primarily for public education purposes, the Director, Abbé Zor, being a notable figure in religious circles. The Chief Engineer is Professor Ossana, of Ljubljana University, and to him goes the credit for the invention of the cuckoo call. Needless to say, the call is mechanically produced despite rumours that a specially trained bird resides on the premises!

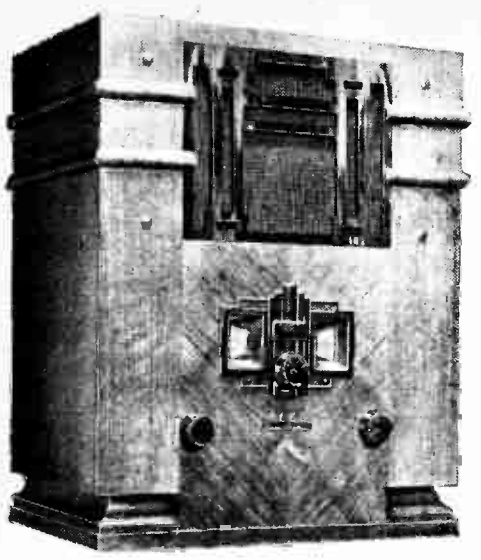
When I visited the station in mid-winter the heating was by means of primitive iron stoves; the whole station, in fact, wore an unpretentious appearance.



The station is beautifully situated near the Austrian Alps at Domzale, some miles from the University town of Ljubljana.

Despite its fame, Ljubljana cannot at the moment be serving more than some 10,000 paying listeners. Nevertheless, the cuckoo call has won for the station enduring fame and the certainty of at least an occasional hearing from everybody in Europe who can manage to tune it in.

WANDERING WAVE.



ALBA Superheterodyne

MODEL 56

A Set Exemplifying the Advantages of a High Intermediate Frequency

FROM the technical point of view the chassis embodied in this receiver is of more than usual interest. Superficially, the circuit, for a superheterodyne, is simple, and the manufacturing costs are correspondingly low, yet the performance, from the point of view of range and selectivity, challenges comparison with sets employing many more stages. Further, the set for its type is singularly free from heterodyne whistles and background noise.

The choice of an intermediate frequency of 473 kilocycles, as compared with the more usual figure of 110 kilocycles, is responsible for the simplification of the circuit in relation to performance. As the intermediate frequency is raised, those stations causing second channel interference on the medium waveband are farther removed from the resonant frequency of the aerial input circuit and the whistles to which they give rise are correspondingly reduced. It is unnecessary, therefore, to legislate for a signal frequency H.F. stage or even a band-pass filter, as a simple tuned circuit gives for all practical purposes complete immunity from second channel interference on the medium waveband. Another advantage of a high intermediate frequency is the ease with which stray H.F. currents can be filtered from the output of the second detector.

The adoption of 473 kilocycles for the I.F. stage is not without its disadvantages from the designer's point of view, but these are well worth the trouble of overcoming when the prize of success is a medium waveband free from second channel whistles. In the first place, the intrinsic selectivity of the I.F. coils is not so high as that of the more conventional 110 kc. amplifier, but any lack of selectivity from this cause is effectively countered in the Alba set by the use of reaction in the I.F. stage. The degree of reaction is under the control of the user, and a small knob is provided at the back of the set for this purpose.

The I.F. stage works on a wavelength of the order of 600 metres, and interference from ships' spark transmitters must be carefully guarded against. Direct pick-up on the coils is avoided by careful screening, and a wave-trap takes care of any residue of off-tune interference coming in through the aerial circuit. The series resonant trap across the long-wave section of the aerial coupling coil is included to suppress certain second channel whistles on long waves due to harmonics of the oscillator.

The oscillator coupling coils are included in the cathode return lead, and both sides of the input I.F. transformer are tuned. With reaction on the output I.F. transformer only the secondary is tuned. A resistance-capacity filter is used to suppress H.F. in the output from the anode bend second detector, which is, in turn, resistance-coupled to the output pentode.

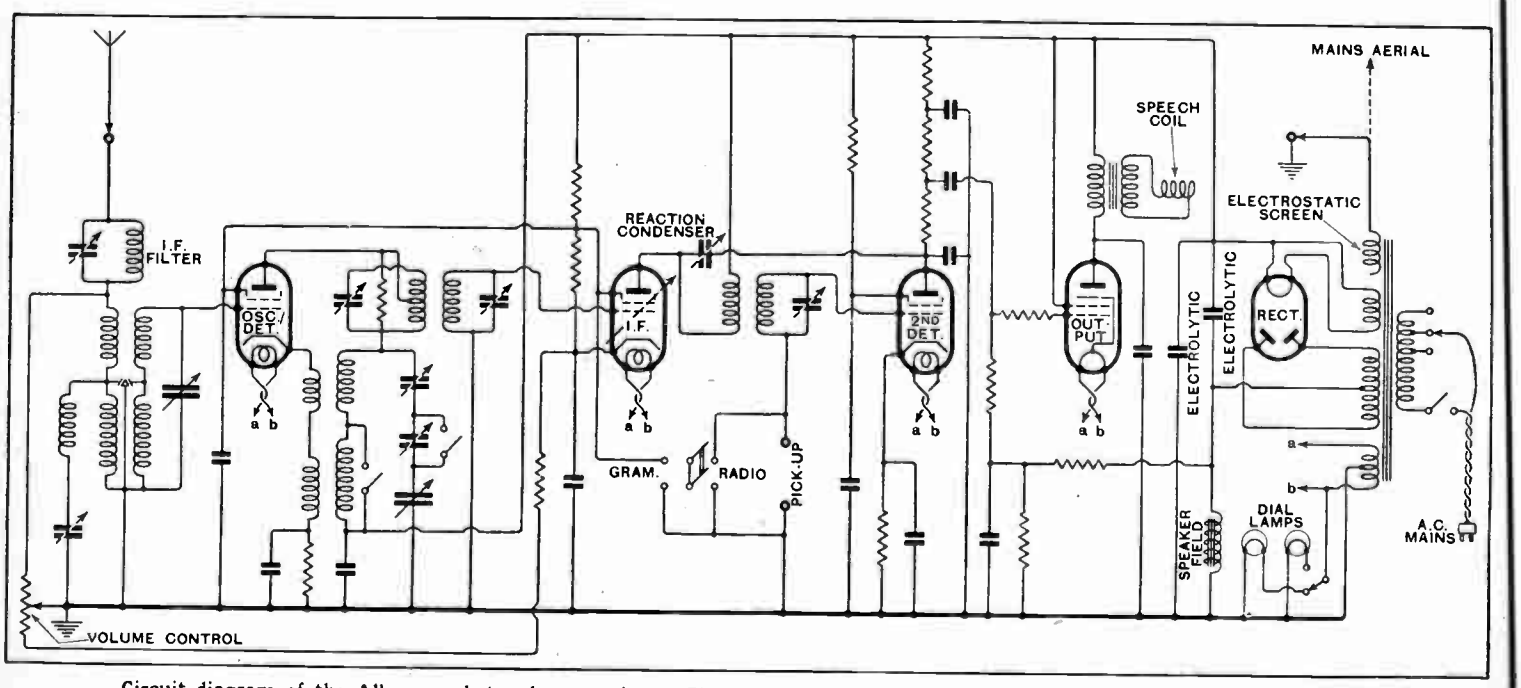
In the mains transformer a single layer of wire (open-circuited) serves the dual purpose of providing a mains aerial, and, when earthed, an efficient electrostatic screen for the primary winding.

The usual three controls of wave-range, tuning, and volume are arranged on the front panel, and a separate snap switch is provided at the back of the chassis to change over to gramophone reproduction. The circular tuning dial carries an up-to-date calibration in stations as well as wavelengths. Long- and medium-wave stations are marked on opposite sides of the dial and viewed through two windows in the escutcheon plate. Contacts on the waverange switch automatically illuminate the appropriate scale.

The performance as regards freedom from second channel whistles is fully in accordance with the theory of the design. A diligent search resulted in the discovery of only two whistles—one on medium wave between Söttens and Midland Regional, and the other on long waves near Zeesen.

FEATURES

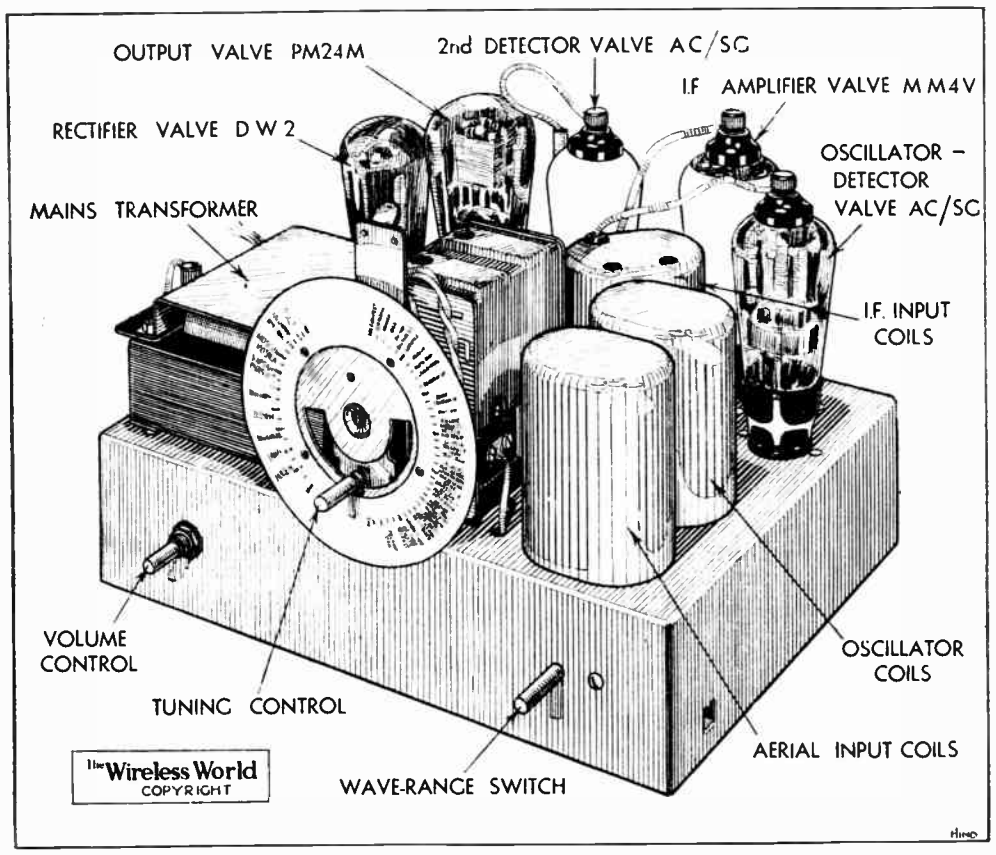
Type: *Table model four-valve superheterodyne with moving-coil loud speaker. Provision for gramophone pick-up.* ***Circuit:*** *S.G. detector-oscillator, variable-mu I.F. with reaction, S.G. second detector, pentode output.* ***Controls:*** *(1) Tuning with dual dial calibrated in stations and wavelengths: (2) Volume; (3) Waverange.* ***Price:*** *16 gns.* ***Makers:*** *A. J. Balcombe Ltd., 52-58, Tabernacle Street, London, E.C.2.*



Circuit diagram of the Alba superheterodyne receiver. The radio volume control adjusts the bias of the I.F. stage and also shunts the aerial input.

Alba Superheterodyne —
Neither of these is sufficiently strong to cause the loss of a station, and in the normal course of tuning would probably be completely overlooked.

has a good minimum. It consists of a potentiometer, which simultaneously reduces the aerial input and increases the bias on the variable-mu I.F. valve. Any evidence of "double-hump" tuning indicates that the volume control is advanced too far, and is not due to maladjustment of the tuned circuits. Overloading the detector causes a diminution of volume.



A compact chassis layout is obtained as the circuit only calls for a two-gang tuning condenser. The subsidiary control knob for I.F. reaction projects through a hole at the back of the metal base.

Selectivity is good having regard to the number of tuned circuits employed, and while four or five channels are lost on either side of the Brookmans Park transmitters in Central London, there is no difficulty in separating distant stations, such as Langenberg and North Regional on adjacent channels.

On long waves the selectivity is perhaps not quite so good as one would expect from performance on medium waves. Eiffel Tower comes in clear of Daventry, but a background from the latter station is heard on Zeesen, and extends as far as Radio Paris, but is then sufficiently weak to be negligible except during intervals in the French programme. This is in Central London, of course, and under more favourable conditions, say, on the South Coast, no interference from Daventry should be experienced on the Continental long-wave stations.

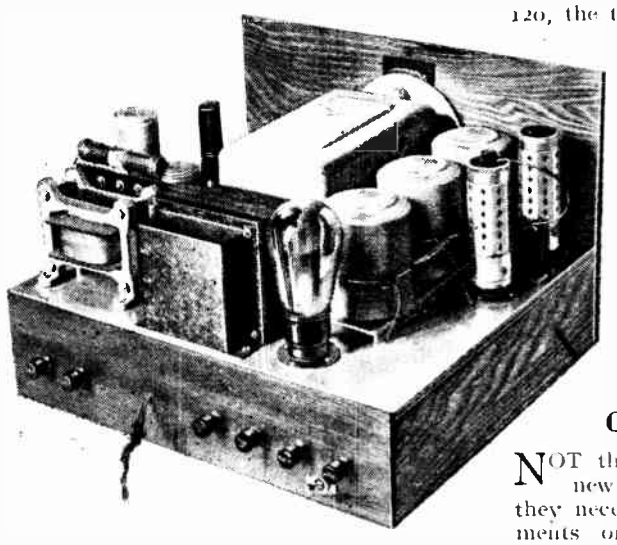
Reaction on I.F. Circuit

The I.F. reaction slightly improves selectivity, but has a greater effect on the sensitivity of the set. If pushed too far quality of reproduction suffers, and the lower notes predominate. However, all the range and sensitivity one could wish for are available with the reaction set at less than half its full range, and the quality is then bright and well balanced. At the same time, the quality is affected slightly by tuning, and a final adjustment of the tuning control may make all the difference between first-rate and merely satisfactory reproduction.

The volume control is well graded, and

For gramophone reproduction an additional volume control, preferably incorporated in the pick-up itself, will be required.

In appearance the Alba cabinet is neat and well finished, while the set as a whole is exceptionally light in weight. A D.C. model and a battery version with Class "B" output are also available.



A "Wireless World" Ferrocart III Receiver fitted with the new Catkin valves. The types shown are the VMS4, MH4 and MPT4.

NEW MAZDA CLASS B" VALVE

A CLASS "B" battery valve of moderate filament and anode consumption has been added to the range of Mazda valves. It is styled the P.D.220 with a filament rated at 2 volts 0.2 amp. and a maximum H.T. voltage of 150, under which conditions, with a suitable driver valve, it is capable of delivering up to about 2½ watts speech. At all anode potentials the valve may be operated with zero bias, but a welcome reduction of quiescent anode current may be obtained by applying a grid potential of less than one volt from a single dry cell which must be discharged whilst the set is in operation.

Choosing the Driver

As the power output of all Class "B" valves is primarily dependent upon the power output of the driver, it is most important that this valve should be chosen with care and that its bias be correctly set.

Two valves are recommended as drivers, the L.2 and P.220. In the case of the first-mentioned valve with an anode voltage of

The P.D.220 Class "B" valve with low anode consumption.

120 the total quiescent feed current of the output valve will be 2 milliamperes, the power output 1 watt, the driver transformer overall ratio 2 to 1, and the anode-to-anode load 17,000 ohms. Using the P.220 valve as a driver and assuming an H.T. voltage of 120, the total quiescent feed current of the output valve will be 2 milliamperes, the power output about 1½ watts, the driver transformer overall ratio 1.5 to 1, and the anode-to-anode load 11,500 ohms.

The P.D.220 valve is undoubtedly of highly efficient design, since to obtain a power output of 2½ watts only 65 milliwatts are required from the driver valve.

CATKIN-CUM-FERROCART

NOT the least important feature of the new all-metal valves is the fact that they necessitate no special circuit arrangements or modifications in existing sets. Catkins are available in the leading types and are interchangeable with ordinary valves in A.C. mains receivers.

READERS' PROBLEMS

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

Free A.V.C. Voltage

WHEN one appears to be well on the way towards getting something for nothing in the radio art, there is generally a "snag" somewhere. We are afraid that a suggestion put forward by a reader with regard to the A.V.C. Unit is no exception to this axiom.

Briefly, it is proposed to construct the unit on the lines described in *The Wireless World* of March 31st, but to obtain H.T.

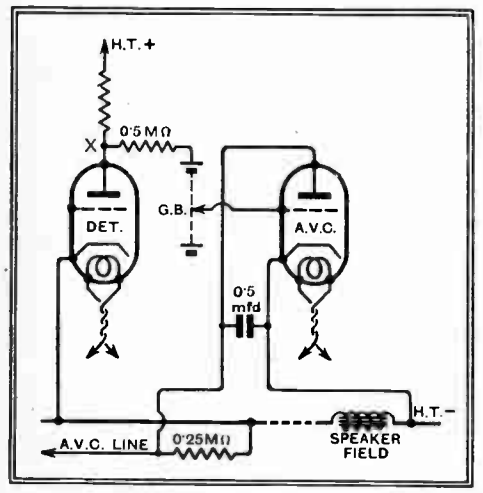


Fig. 1.—Obtaining H.T. voltage for the A.V.C. Unit by inserting the speaker field in the H.T. negative lead.

supply for the controlling valve from the drop in voltage across a high-resistance loud speaker field inserted in the negative H.T. lead of his A.C. receiver. What our querist intends to do is illustrated in a skeleton diagram reproduced in Fig. 1.

This scheme is basically sound, and could be made to work, but our querist has overlooked the fact that "free" H.T. voltage for the A.V.C. valve will be obtained only at the expense of an increased bias voltage for its grid. In fact, the "free" voltage developed across the speaker field will be added to the difference of potential between point X and the A.V.C. cathode, and, in order to obtain the right working conditions, exactly the same amount of extra grid bias voltage will be needed.

Accordingly, there will be no reduction in the total voltage of the batteries required for the unit; the only gain will be that no current whatever will be drawn from these batteries except that required for a potentiometer by which critical adjustment of grid voltage may be made.

The Balancing Battery

ONE or two constructors of the A.V.C. unit (March 31st) have not fully appreciated the point that the G.B. battery required for this device must have a sufficiently high voltage, not only to bias the A.V.C. valve to the point where anode current is entirely stopped, but also to balance out the "standing" H.T. voltage on the detector anode.

So far as grid bias is concerned a mere half a dozen volts or so will generally be sufficient, but to this voltage must almost always be added at least 50 volts—and often much more—which represents the detector anode voltage which has to be balanced out. In addition, it must be remembered that the unit offers the advantage of "delayed A.V.C." By making the A.V.C. grid still more negative, the control does not come into operation until signal strength has risen to a value that may easily be determined by trial. This is another reason for using a bias battery with a fair margin of extra voltage.

Combined G.B.-H.T. Battery

A SPECIAL high-tension battery, fitted with end-cells for grid bias, was specified for use with the Class "B" Ferrocart receiver. A querist now asks whether it would be permissible to use separate batteries for these purposes.

There is not the slightest objection to this course, and no difficulty should be experienced. Instead of running a single wire from the set to the common "H.T.− G.B.+" socket of the battery, two leads must be taken; one will, of course, be connected to the negative socket of the H.T. battery and the other to the positive pole of the separate grid bias battery.

Matched Loud Speaker

SEVERAL querists have asked whether an existing moving-coil loud speaker of the permanent magnet type could be used satisfactorily with the Class "B" Ferrocart receiver.

So far as the loud speaker itself is concerned, requirements are not abnormal, but it must be remembered that the usual type of output transformer, built into the instrument, will not be suitable. A special type of transformer may be substituted, or the existing transformer may be fed through a tapped choke.

A.V.C. Valve Adjustment

A READER who has fitted A.V.C. to his Monodial receiver, in the manner described in recent issues, is not quite satisfied that he is obtaining the original sensitivity on weak signals, and asks whether this is normal. He also enquires as to how the operating conditions of the A.V.C. valve may be checked with the help of a milliammeter.

Normally, sensitivity should not be impaired in any way. To make a test, a milliammeter should be inserted in such a position that a reading may be made of the anode current flowing in one of the controlled valves—say, at point X—in the published circuit diagram of the modified receiver. The aerial should then be disconnected, and, in the absence of a signal, the reading of the meter should be noted. Then, on removing the A.V.C. valve from its socket, this current reading should remain unchanged. If, on the other hand, an increase in current is observed, we have an indication that the A.V.C. valve requires more bias. Extra bias may easily be applied by making a slight increase in the value of R13.

Volts on the Anode

IN a recently published reply it was recommended that measurement of the anode voltage of an output valve should be made directly between anode and cathode. If the meter be connected between anode and earth line (metal chassis), it is probable that the reading may be misleading, as the voltage developed across the bias resistor will be included.

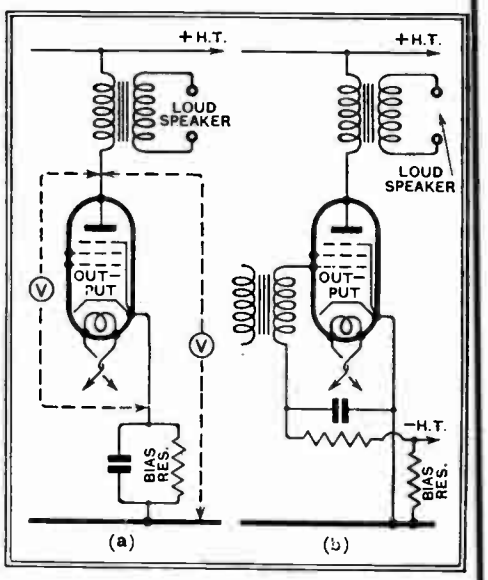


Fig. 2.—When bias voltage is developed across a resistor in the cathode lead, anode voltage must be measured directly from the cathode terminal, and not from the earth line.

A correspondent, who has read this reply, has applied the suggestions made to his own set, and finds that the voltage reading is precisely the same whether the negative terminal of the meter be connected to earth line or cathode. He wonders whether this is an indication that something is wrong with the bias system.

If the valve is self-biased by the flow of its own anode current through a resistor (as in Fig. 2 (a)), it would certainly appear that there is a fault; the bias resistor or its shunt condenser might be short-circuited. If, on the other hand, the valve is biased by the drop in voltage across a resistor in the common negative H.F. lead (Fig. 2 (b)), the effect is quite normal, and no difference in voltage reading is to be expected.

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.

"I was amazed... station after station rolled in..."

The original of this letter may be inspected at our Head Office, Cossor House, Highbury Grove, London, N.5.

Bolton,

Dear Sirs,

I am using a well-known Set which is noted for the way it brings in stations. I recently borrowed a Cossor Metallised Screened Grid Valve to try. I first tried three other makes of S.G. Valves and there was not much difference between them. Then I tried the Cossor. ***I was amazed—station after station rolled in.*** *I set the dials to a certain station, took out the Cossor and tried the other S.G. Valves, result—flat nothing—only a whisper. I put back the Cossor and* ***without touching the dials*** *the Set was roaring the place down. You cannot give a better test than this.*

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Signed .....

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IMPORTANT NOTICE.

Owing to the Whitsun Holidays, the issue of "THE WIRELESS WORLD" for June 9th must be closed for press earlier than usual.

MISCELLANEOUS ADVERTISEMENTS for insertion in that issue can be accepted up to FIRST POST FRIDAY, June 2nd.

RECEIVERS FOR SALE.

BETTER Part Exchange at Appleby's, 109, Edgware Rd., Hyde Park, London, W. [2650

McMICHAEL Latest Battery Shortwave Set, value £15, only used few times, as new; what offer? Bargain! [

"W.W." Monodial Battery Set, with Q.P.P. output and Ediswan P.M. moving coil Q.P.P. speaker, perfect working, bargain; Value about £30; what offer?—Scott Sessions and Co., Muswell Hill, N.10. [2698

MACNAMARA 3-valve All-electric 12 Guinea Model, 3 months old, £7.—Beswick, 6, Kenmere Grove, Manchester 10. [2711

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ZETAVOX 5-valve Table Model, new, perfect; list 19 guineas, accept £9, 10.—16, Wakemans Hill Parade, Colindale, N.W.9. [2740

McMICHAEL D.C.3 Calibrated Scale Magnavox, new condition, perfect, cost £25; accept £12.—Callers only, 12, Clarendon Place, W.11. [2700

QUALITY Amplifier, in steel safety case, with massive output transformer, and all complete, less valves, 6 watts output, undistorted; £6.

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BOTH 200/250 A.C.—Enquiries to R. A. Arnell, 8, Fishponds Rd., S.W.17. Streatham 8209. 10 a.m. to 8 p.m. [2710

MORE Part Exchange Receiver Bargains for Disposal; state approximate requirements for quotation.—Coutts, Wireless Engineers, Horley. [2613

MARCONI A.C.246 3-valve, £4; Atlas A.K.22 combined A.C. eliminator and charger, list £3/17/6, new, £2 10; S.T.300, all parts, Lewcos, etc., half list.—3, Scarsdale Av., Blackpool. [2744

LUMOPHON 7v. Super Hets., M.C., 1933 models, £12 10; Consolette 2 S.G., pentode, M.C., £8 10; A.C. or D.C.; guaranteed one year; nothing like them at double the price; part exchange. Butlin, 143b, Preston Rd., Brighton. [2753

PHILLIPS 3-valve D.C. All Mains Set, absolutely new condition, owner moved to A.C. district, cost £23; first offer of £10 secures; sent on approval for cost of packing and transit.—Budge, Walton Lodge, Parkstone, Dorset (Parkstone 181.) [2703

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McDANIEL.—Any "W.W." specification transformer.

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McDANIEL.—Write your queries, 154, Hainault Rd., Romford. [2751

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SERADEX V.R.328 Charger Charges up to 200 D.T.C.s per week and costs only £3 2/6 complete.

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DETAILS from your Dealer, or direct from makers. Trevor Pepper, 48, Wake Green Rd., Birmingham. [2717

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OUTPUT: 2 watts A.C. (Class B).

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SPEAKER: Fitted with latest "Celestion" P.M. Class "B" Moving Coil Speaker.

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TRICKLE Chargers, 2-6v., incorporating Westinghouse rectifiers, ready for immediate use, ½ amp., 11/9; 1½ amp., 19/11; Tantalum chargers, 7/6; postage 9d.; send for list and guarantee.—Arden Agency, Wollaston, Wellingborough. [2617

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

VORTEXION.—Open type H.T.8 model, 4v. 4a.; 12/6; post 1/-.

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/-.

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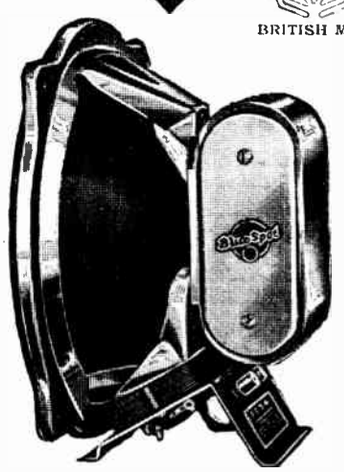

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WALNUT Radiogram Cabinets, with brown felt lined lid by famous gramophone company; cost £8/10 to make; our price 50/-; many others in stock, callers only.

RESISTANCES, Eric, H.M.V., etc., 100 to 50,000 ohms, 3/- doz. Note.—Our selection only. Raymart's famous 2½in. flush milliammeters, 20 m.a. upwards, 5/9.

VARLEY or Pye H.F. Chokes, 1/6; Radiophone screened ditto, 1/9; short wave series gap condensers, 2/6; Colvern Cosmic coils, dual range and shortwave, 2/6 pair.

CONDENSERS, Radiophone screened supethet, 4-gang, 10/-; Polar screened 2-gang, 9/6; Ames semi-screened 3-gang, 10/-; T.C.C., 4+4; 1, 3/9; Wego, 4+4+2+2+2, 6/6.

SEVEN Floors of Bargains at Radio Mart, 44, Holloway Head; and 19, John Bright St., Birmingham. [2723

PEPPER Offers More Stocktaking Bargains, on 3 days' approval, cash or c.o.d.; carriage paid on orders over £2.

VALVES, as new, all tested before despatch: P.M.2, etc., 4/3; P.M.252 etc., 5/3; P.M.1D.G.s, 8/6; P.M.41D.G.s, 8/11; A.C. S.G., P.M.24c, P.M.24b, M.S.4, D.C. S.G., D.C. pens., D. S.b., etc., 8/3.

P.M.1G, P.M.2G, P.M.14, P.M.24, 6/11; P.M.6d, P.M.5d, P.M.5x, P.M.3, P.M.5b, P.M.256, Tungsram P.414, P.415, P.614, P.615, etc., 7/11.

MULLARD P.M.256a, Osram P.625a, P.P.3 425s, A.C.064, A.C.084, A.C.104, 4/11; Cosmos A.C./S, A.C./2, A.C./P, S.P. 41n, S.P. 45n, 4/6 each.

AMSCO 2-gang Condensers, semi-screened, with trimmers, similar to Radiophone brand new; listed 21/-, last few at 3/11.

J.B. R.1s, 4/6, ditto, R.2s, 8/6; Lyons 4-gangs, boxed, 9/6; Ormond ditto, 8/11; all above fully screened; J.B. chassis-mounts, with drum drives, singles 3/11, 3-gangs 8/6; Cyldon Extensors, 3-gangs, 8/11; many unused.

SPECIAL Offer of Brand New Manufacturers' Mains Transformers, primaries tapped 200/230/250, all L.T.s centre tapped, fully guaranteed.

250 0-250v. 60 m.a., 4v. 2a., 4v. 4a.; 8/11; postage 9d.

350 0-350v. 80 m.a., 4v. 2½a., 4v. 2·5a.; 11/9; postage 1/-.

500 0-500v. 120 m.a., 4v. 2½a., 4v. 2a., 4v. 4a.; £1/2/6; carriage 1/6.

240 v. 200 m.a., tapped 200v., for H.T.8 and H.T.9, 4v. 4a.; 12/11; carriage 1/-.

300 v. 550 m.a., for H.T.11 4v. 4a., 4v. 2a.; 22/6; carriage 1/6.

MONODIAL Transformers, Few only, for 2·5-watt chassis, terminal type, £1/1; tapped 18/6; ditto, for A.V.C. 2/6 extra; carriage 1/6.

400 0-400v. 120 m.a., for Monodial or A.C.P.A.; 19/11; carriage 1/6; terminal type, 2/6 extra.

LAST Few, Seradex transformers, shop soiled, H.T.10, with L.T.s, 12/6; ditto, no L.T., 9/11; offers considered for remainder of stocks advertised on page 5, eds. 1 and 3, of issue for 12/5/35.

SERADEX Filter Condensers, tubular type, non-inductive, 400v. D.C. working, 0.005 to 0.1 mfd., 8d.; 0.25 mfd., 9d.; 0.5 mfd., 1/-; 1.0 mfd., 1/3; 2.0 mfd., 1/9.

TYPE B Condensers, 400v. working, 1 mfd., 1/9; 2 mfd., 2/5; 4.0 mfd., 4/5; 4+4 mfd., 7/3; 8+8 mfd., for Westinghouse circuits, 14/6.

SERADEX Range of Resistances Offer the following Exclusive Features:—

FINER Limits of Accuracy, M.150, within 4%, close wound types within 2½%.

RELIABILITY. Our record of no faulties is still unequalled.

PRICE. The only range to offer a 1½ watt resistor at 9d.

SERADEX M.150 Resistors, 1½ watt rating, wire ends, most values, from 100 ohms to 2 megs., 8d. each.

SERADEX Glasswound Resistors, type G.125, 25-1,500 ohms, 9d.; 5,000 ohms, 1/-; 10,000 ohms, 1/3.

SERADEX G.250 2½ watt Resistor, as tested by "Wireless World," and loaded to 6 watts without excessive overheating, 25 to 1,500 ohms, 1/-; 5,000 ohms, 1/3; 10,000 ohms, 1/6.

SERADEX Glasswound Resistors are also Supplied in 5, 8, 15 and 30 watt ratings; lists for clamp.

TRELVOR PEPPER, 44, Wake Green Rd., Moseley, Birmingham 13. [2716

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ROAD MAP For Motorists

20 Coloured SECTIONS

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The maps are specially prepared for "THE AUTOCAR" by John Bartholomew & Son Limited, Edinburgh. Scale: 8 miles to an inch. Main roads shown in red with mileage between towns, altitudes indicated in colours. Each of the 20 sections covers approximately 85 by 65 miles, with key on back to facilitate choice of section required.

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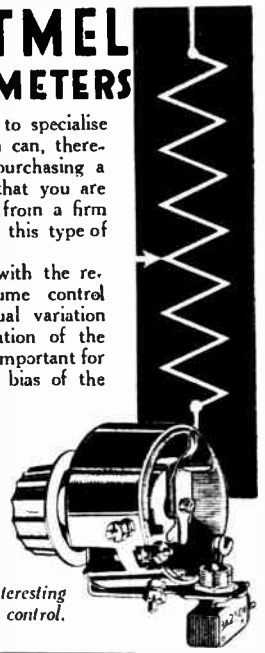
Full particulars of this exceptionally generous offer to the motoring public appear in the current issue of "THE AUTOCAR"

BE SURE TO BUY "THE AUTOCAR"

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 6

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

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POTENTIOMETERS
GIVE THE BEST CONTROL

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

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EVERY TEST WITH ONE INSTRUMENT ONLY

D.C. AND A.C. AMPS VOLTS OHMS

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

Two models: One for D.C. only, **8 Gns.**, and the Universal Avometer, giving both D.C. and A.C. readings (50 cycles), **12 Gns.** Deferred Terms if desired.

Fully descriptive pamphlets free on application.

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BRITISH MADE

THE AUTOMATIC COIL WINDER AND ELECTRICAL EQUIPMENT CO., LTD.,
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Phone: Victoria 3405-7

Components, etc., for Sale.—Contd.

EVERYTHING for Movies and Talkies.—'Phone, write, or, better still, call and inspect immense stock of bargains
ILLISTRA ENTERPRISES, 159, Wardour St., London, W.1. Tel.: 6889 Gerrard. [1621

MAINS RADIO'S Second Great Clearance Week of Set Manufacturers' Surplus, guaranteed as new; carriage paid, or call.

UTILITY 2-gang Condensers, trimmers, shrouded, 6/-; 3-gang, trimmers, shrouded, 7/6; Polar 0.0003 reaction condensers, 1/-; Telsen Radiogrand transformers, 6/-; Benjamin 5-pin chassis v. holders, 1/2 half dozen; 0.25 meg. leaks, 4d., or 1/3 half dozen. All following condensers are 250v. A.C. working: T.C.C. blocks, 4×4 mfd., 3/6; Cossor blocks, 4×2 mfd., 2/6; Helsby blocks, 2×2×1 mfd., 2/3; 2 mfd., 1,250v. test, 1/4; 1 mfd. ditto, 1/-; T.C.C. latest 0.0001 flat type, 4d. each, 1/6 half dozen; T.C.C. 2 mf. 100v. electrolytics, 1/3; valves, as new, L.210's, 3 8; 210H.F.'s, 3/3; P.M.24's, 4/9.—Mains Radio Development Co., 4-6, Muswell Hill Rd., London, N.6. [2720

10/- Each.—A.F.5, O.P.M3c, O.P.M.4c, B.I., Polar Star, 0.0005 3 gang.—S. G. Lewis, 49, Clifton Rd., Liverpool 6. [2730

BRITISH Radiophone Radiopak Super Het 4-gang., 0.0005, fully screened with trimmers; list 37/6, our price 9/11; c.o.d., postage paid.—Kay, 167, City Rd., London, E.C.1. [2542

VARNISHED Insulated Sleeving, all colours.—Send P.O. for 1/- for 24ft. in 3ft. lengths, of any colour; will take all standard wires; separate your circuits.—Small Tools, Ltd., 400b, Caledonian Rd., N.1. [2689

MOVING Coil Milli-Ammeters, 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. [0355

PREMIER SUPPLY STORES Offer the Following Manufacturers' Surplus Brand 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.)

SPECIAL Offer of Mains Transformers, manufactured by Philips, input 100-115 volts or 200-250 volts, output 120-0-120 volts, 40 m.a., 4v 1a., and 4v. 3a., 4/6.

ALL Premier Guaranteed Mains Transformers have engraved terminal strips with terminal connections, input 200-250 volts, 40-100 cycles, output 135v. 60 m.a., for voltage doubling, 8 6; 4v. 3-4a., c.t. L.T., 2/- extras; Westinghouse rectifier for above, giving 180v. at 30 m.a., 8 6.

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

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. (c.t.), and 4v. 2-3a. (c.t.), with screened primary; 15/-.

PREMIER Mains Transformers, output 400-0-400 volts 100 m.a., 4v. 4-5a. (c.t.), and 4v. 2.5 amps. (c.t.), 15/-.

PREMIER Mains Transformers.—4 volts 3 amps., C.T., 7 6; 4 volts 5 amps., c.t., 8/6; 6 volts 2 amps., 7/6; 9 volts 1 amp., 7/6 12 volts 1 amp., 7 6; 14 volts 4 amps., 12 6; 22 volts 1 amp., 10/-.

PREMIER Auto Transformers, 100-110/200-250 volts, or vice versa, 60-watt, 7/9; 100-watt, 10/-; 180-watt, 15/-.

SPECIAL Offer of Manufacturers' Type Mains Transformers, any input, output 250-0-250 volts, 60 m.a., 4v. 1a. (c.t.), and 4v. 3a. (c.t.), 8 6; 175v. 50 m.a., 4v. 4a., 4v. 1a., 5 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., and 4v. 1a. (all c.t.); 17/6.

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

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

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

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/-; larger model, output 200v. at 50 m.a., S.G. and 120v. taps, 25/-.

ACCUMULATOR Chargers, 200-250 volts A.C., all incorporating Westinghouse rectifiers; 2v. at half-amp., 8/6; 2, 4, and 6v. at half-amp., 17/6; 2, 4 and 6 volts at 1 amp., 22 6; 12v. at 1 amp., 27/6; 6v. or 12v. at 2 amps., 35/-; 12v. at 1.5a., 30/-; 6v. at 3a., 39 6; 12v. at 3a., 52 6; three separate 12v. 1a. circuits, 75/-.

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

WESTINGHOUSE Metal Rectifiers: 120v. at 20 m.a., 6/6; 180v. at 30 m.a., 8/6; 250v. at 60 m.a., 10/-; 200v. at 100 m.a., 11/-; 300v. at 60 m.a., 11/-; 8v. at half-amp., 6 6; 6v. at 1a., 9/6; 12v. at 1a., 12/6; 6v. at 2a., 20/-.

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

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

(This advertisement continued on next page.)

PILOT AUTHOR KITS
Exact to Specification

CLASS "B" FERROCART RECEIVER

KIT "A" Author's Kit of FIRST SPECIFIED Components including **Peto-Scott PLYMAX Baseboard, Ready Assembled,** but less Valves, Cabinet and Speaker. CASH or C.O.D. Carriage Paid **£8-10-0** or 12 monthly payments of 15/7.

KIT "B" exactly as Kit "A" but including Valves only. Cash or C.O.D. Carriage paid. **£10-16-3** *Or 12 monthly payments of* 19/10.

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BUILD YOUR CLASS "B" FERROCART into the beautiful PETO-SCOTT WALNUT CABINET described and illustrated in "Wireless World" April 28. Cash or C.O.D. **25/-** Complete with Shelf and Speaker Baffle.

A.V.C. MONODIAL SUPER

KIT "A" Author's Kit of FIRST SPECIFIED Components for Set only including Ready Drilled Polished Oak Panel, **Ready Assembled and Drilled PLYMAX Set Chassis,** screws, wire and sleeving but excluding Eliminator Components, Valves and Cabinet.

Cash or C.O.D. Carriage Paid **£11 . 10 . 6**

or Deposit £1-10-6 and 11 monthly payments of £1

A.C. SHORT WAVE CONVERTER

KIT "A" Author's Kit of FIRST SPECIFIED Components including **Peto-Scott Ready Drilled Plywood Panel and PLYMAX Baseboard, Ready Assembled,** but less Valves. CASH or C.O.D. Carriage Paid **£8.11.6** or 12 monthly payments of 15/9.

1 Peto-Scott Ready Drilled PLYMAX Baseboard **10 0**

Prices of all "Wireless World" Finished Instruments Broadcast Tested available on application.

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The humble Terminal seldom receives the attention it merits. It is an important point of CONTACT—and CONTACT in any receiver, transmitter or mains unit should be PERFECT and above suspicion.

Take care in your choice of terminals—specify CLIX and obtain thoughtfully designed and soundly made components.

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- **Extremely robust.**
- **Hexagonal Shoulder greatly facilitates mounting.**
- **Insulated and non-removable head**
- **Provision for solderlessconnection if desired.**
- **Clear markings, easily read.**

Type B **4d.**
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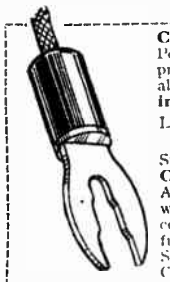

CLIX SPADE TERMINALS Positive metal-to-metal wiring is fully protected from creeping acid by a specially designed collar making **corrosion impossible.** Contact is perfect.

Large size: Nickel-plated or lead-coated, **2d.**
Small size: Nickel-plated - - **1½d.**

CLIX "MASTER" PLUG Also has positive METAL-to-METAL wiring. Widely variable and non-collapsible prongs give firm grip and full contact with ANY battery socket. Specially curved ends for easy insertion. Clearly engraved. PRICE **1½d.**

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(Incorporated)

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The Associateship and Associate Membership Examinations of the Institute of Wireless Technology will take place on the 29th and 30th of June, 1933, in Edinburgh, London, Sheffield and South Africa, and at other centres if necessary. Candidates taking either examination next year should obtain a copy of the revised regulations operating from the 1st of January, 1934.

Applications on Form E must be sent to the Secretary at 72 Oxford Street, London, W.1.

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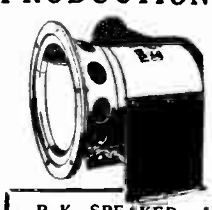

Specification:—6 in. diameter cone Moving Coil Loudspeaker giving full bass response and handling the output from the heaviest power valve. Far superior to many small modern moving coil speakers. Weight 30 lbs. Field winding to suit 6, 100, or 200 volts D.C. Send cash with order or C.O.D.

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Originally listed at £6. 6. 0
Now offered for
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are simple and economical to install and avoid unsightly poles. Write for leaflet to:—

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CITY & GENERAL, Mail Order Department, 199, DEANSGATE, MANCHESTER.

Components, etc., for Sale.—Contd.

(This advertisement continued from previous page.)

ROLA 6,500 ohms, type F6. moving coil speakers; 17/6.

AMPLION Moving Coil Speakers, type E.M.644, dual fields, 2,500 and 5,000 ohms (100/250v.), with output transformer, 12/6; ditto, 200/250v. A.C., 22/6.

AMSCO 3-gang 0.0005 Condenser, with trimmers (listed 30/-), our price 7/6; Polar 0.0005 and 0.00035 bakelite dielectric condensers, with knob, 1/-.

POLAR 3-gang Variable Condensers, tub type, fully screened, split end vanes, and disc drive 0.0005, 10/-; Ormond all brass 2-gang condensers, semi-shielded, 0.0005, 3/6.

WESTERN Electric Condensers, 250 volts working, 1 mfd. 6d., 2 mfd, 1/-.

T.C.C. Condensers, 750v. working, 2 mfd. 4/-, 4 mfd. 6/-; 400v. D.C. working (300v. A.C. working), 4 mfd., 4/-.

T.C.C. Condensers, 250v. working, 4+4+1 mfd., 5/-; 300v. working 4+4+2+2+2 mfd., 7/-; 375v. working, 6+4+2+2+2 mfd., 10/-; 300v. working, 4+4+2+1 mfd., 6/-.

400 Volts Working, 3 separate 4 mfd. condensers, 8/6; Western Electric 400v. working, 0.01+0.01 mfd., 1/-.

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

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

HEAVY Duty Variable Resistances, slider type, wound on porcelain, 2,000 ohms quarter-amp. and 500 ohms half-amp.; 5/- each.

FOR Callers Only. The following valves, guaranteed as new, P.T.625, M.P. Pen., D.C.S.G., V.D.S., V.M.S., S.4V.A., A.C.S.G., A.C.S.G.V.M., V.M.S.G., 41M.S.G., V.M.S.4, M.S.4B., P5, 904V, M.S.G.L.A., M.S.G.H.A., M.H.L.4, M.L.4, M.H.4, U14, S4V.B., D.W.3, P.T.4, D.S., D.S.B., M.S.4, 41M.L.S., M.V.S.G., A.C.H.L., at half list price.

THE Last Few Western Electric 4211-D Valves, 10v. 3a. filament, 750-1,000 volt plate, 50-65 m.a., impedance 3,500 ohms, amplification factor 12; cost £5, to clear at 15/-.

500 Volt 125 Milliamp Full Wave Rectifying Valves, 4v. 2a. filament; 7/6.

PHILIPS 328 Valves for L.T. charging, 5/6; 329 Barreter lamp, 2/-.

ALL the Following Lines, 6d. each or 5/- per doz. assorted: Shielded S.G. or Pentode leads, Polymet 0.01 condensers, 2ft. lengths of screened wire, 5-pin valve holders, Crabtree 5-amp. sunk switches T.C.C. 0.1 mfd. condensers, 0.5 condensers.

ALL Orders to The 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. [2759

KREXO, the new plug-in low frequency stabiliser, is constructed in accordance with modern radio practice, and will definitely improve any battery receiver; send for one now; price 2/-, post free. Krexo Radio, 20, Union Street, Jersey, C.I. [2701

HAND Telephones, 4/6; pedestal telephones, 7/6; bell ringing magnetos, 4/-; twin gong 'phone bells, 3/-; large ditto, 5/-; microphones, 1/-, 2/6, and 4/6; microphone transformers, 2/6; earphones, 9d.; automatic switching dials, 2/-. Below.

2-VALVE Transmitting Sets, with valves, C.W., 15/-; T.V.T. high tension units, to suit, 7/6; Morse wireless transmitting sets, 12/6; 2-valve receiving sets, 7/6; mine exploding hand generator, 25/-.

VACUUM Cleaners, small hand model, Star-rite, complete with handle, bag, switch, and long cord and plug, for A.C. or D.C. 220-volts, 12/6 each, post free; also Vacuum cleaner hair driers, with bag, heating element, plug and cord, etc., small plate missing, nothing important, for 110 or 220v. A.C. or D.C., as new, 10/- each, post free.—Below.

SPARK Coil, 10in., complete with hammer break and condenser, good condition, £3 10; ditto, 10in. coil, sound windings and condenser, wants adjusting, £2 10; 1in. spark coil, complete, 6/6, post free; 1½in. spark coil, complete, 10/-, post free; large X-ray tubes, 10/-, post free. Below.

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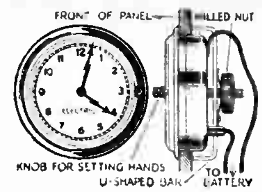

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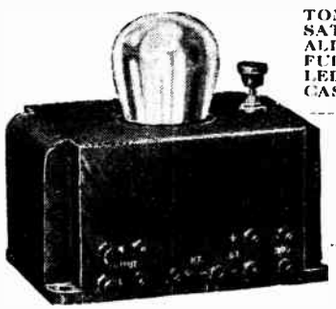

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WEDNESDAY

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PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Running commentary on the Derby. "The Wild Duck," a play by Ibsen.
LONDON REGIONAL	Dvorak programme, orchestral concert.
MIDLAND REGIONAL	"In reply to your request," orchestral programme.
NORTH REGIONAL	Organ recital from the College of Technology, Manchester.
WEST REGIONAL	Orchestral concert from the National Museum of Wales.
SCOTTISH REGIONAL	"Homeward Bound," an Oceanic divertissement.
BELFAST	Opening of the New Law Courts for Northern Ireland by the Duke of Abercorn.

ABROAD

BELGRADE	8.0 p.m. Beethoven's Pianoforte Concerto No. 3 in C Minor (Op. 37).
BERLIN (Witzleben)	8.10 p.m. Brahms' German Requiem (Op. 45).
BERO-MUNSTER	8.35 p.m. Act 2 of "The Mastersingers" (Wagner) from the Municipal Theatre, Zurich.
HAMBURG	10.5 p.m. Haydn's Symphony in D Minor.
LEIPZIG	8.45 p.m. The Symphony Orchestra.
MUNICH	8.0 p.m. The Philharmonic Orchestra.
OSLO	8.1 p.m. Orchestral Concert.
STUTTGART	9.25 p.m. Brahms' String Quintet. No. 1, in F (Op. 88).
VIENNA	7.0 p.m. Concert of Millöcker's Music.

ATHLONE

725 kc/s, 413 metres, 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Music. **2.45** (approx.), Relay of the Running Commentary on the Derby. **6.0,** Programme for Children. **6.45,** News. **7.0,** Gaelic Talk. **7.15,** German Lesson. **7.30,** Time Signal. **7.31,** Band Concert. **8.30,** Tenor Solos by Peter Dunn. **8.45,** Violin Recital by Nora Richardson. **9.5,** Literary and Musical Programme. **9.35,** Programme to be announced. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 800 kc s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Talk. **8.30,** Exchange. **9.0,** Gramophone Music and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Orchestral Concert, conducted by J. Pla. **11.0,** Talk on Astronomy. **11.15,** Duets from Opera by Josefina Blanch (Soprano) and Miguel Mulleras (Tenor). In the interval at **12 Midnight,** News. After the Programme, Gramophone Music. **1.0 a.m. (Thursday),** Close Down.

BARI

1,112 kc s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Notes, Tourist Talk and Dopolavoro Announcements. **8.30,** Giornale Radio and Press Review. **8.30,** Time Signal and Announcements. **8.35,** Concert of Chamber Music. Soloists: Milena Barberio (Soprano), Ila Lombardo d'Angelo (Pianoforte), Nicola delle Foglie ('Cello), and Luigi de Grandi (Violin). Selection from Figaro (Mozart); Soprano Solo: La strada bianca (Pratella); Pianoforte Solo: Sicilienne (Ignoto); Third Movement from the Suite La figlia di Jorio (Franchetti); Soprano Solos: (a) Il viandante (Casavola), (b) Che speri, bambola? (Guarino); 'Cello Solos: (a) Intermezzo from Goyescas (Granados), (b) Scherzo (Cahnbley); Pianoforte Solos: (a) Berceuse (Tchérepnin), (b) Badinage (Tchérepnin); Seventeenth Century Suite, Al liston (Schinelli); Soprano Solo: Confidenze (Corsini); Pianoforte Solos (Debussy): (a) La fille aux cheveux de lin, (b) Clair de lune; Soprano Solo with Violin Obbligato: A lei (Mulè); Pianoforte Solo; Sonatina (Ravel). In the interval, Talk; The Royal Harems of Persia. **10.30,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Concert by the Station Orchestra. **8.0,** Pianoforte Concerto No. 3 in C Minor, Op. 37 (Beethoven). **8.45,** See **Prague. 10.0,** News.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—2.0 p.m., Gramophone Concert of Music of the Time of Frederick the Great. **2.45,** Talk for Young People. **3.10,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Günter Eich reads from his own works. **4.0,** See **Hamburg. 5.0,** Recital on the Wurlitzer Organ relayed from the Ufa Palast of the Zoo. Arabian Gold (F. W. Rust); Liebeswalzer (Brahms); Aus friderizianischer Zeit (E. Christoph); Variations on Kuckuck, Kuckuck, ruft's aus dem Wald (Reutter); Serenata (Toselli); Selection from La Bohème (Puccini). **5.30,** Friedrich Kayssler, from the Works of Gorch Fock, who fell in the Battle of Jutland. **6.0,** A Poem. **6.5,** Liszt Pianoforte Recital, An der Tellskapelle; Am Wallensee; An einer Quelle; Heimweh; Die Glocken von Genf. **6.35,** Talk on Wireless Technics. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations relayed from Hamburg. **8.0,** An Epigram. **8.5** (approx.), Concert by a German Marine Band, on the anniversary of Jutland Day; Admiral Stosch-Marsch (Latann); March Potpourri, Die Wache zieht auf (Kochmann); Intermezzo, Einzug der Frühlingsblumen (Kockert); Der Gott, der Eisen wachsen liess (Brase); Potpourri of German Songs, Aus deutschen Gauen (Christern); March Markische Heide (Lincke); March, Heil Deutschland (Hanfstaengl); Helmsman's Song and Sailors' Chorus from The Flying Dutchman (Wagner); Valk aus Gewehr (Pardun); Horst-Wessel-Lied. **9.0,** Concert by the Station Orchestra, conducted by Edwin Lindner and Hans Udo Müller; Soloist, Gerhard Hüsch (Songs); Ballet Music from Don Juan (Glück); Songs (a) Angelin vargo e canore (Gassmann); (b) Amarilli mia bella (Caccini); (c) Par dicesti (Lotti); (d) Monologue from Lucile (Grétry); (e) Two Arias from Julius Caesar (Handel); Serenade for String Orchestra op. 21 (Robert Fuchs). **10.0,** News. **10.45,** Weather Report for Shipping. **11.0,** Concert from Heilsberg. **12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN. 715 kc/s, 419.5 metres; 1.5 kW.— **6.10 p.m.,** Concert relayed from the Café Corso. **6.40,** The Witzleben Station informs its Listeners. . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Hamburg. 8.5,** The Watch Word. **8.10,** Berlin Art Week—The German Requiem Op. 45 (Brahms), relayed from the Philharmonic; The Berlin Philharmonic Orchestra, conducted by Bruno Kittel; The Bruno Kittel Choir; Adelheid Arnhold (Soprano), and Fred Drissen (Baritone). **9.30,** Talk, The German Section of the International Exhibition in Chicago. **10.0,** Weather, News and Sports Notes. **10.25** (approx.), Radio Report on the Football Match, Berlin v. Paris, on Gramophone Records. **10.30** (approx.), Concert by the Station Orchestra, conducted by Dr. Rudolf von Schmidt-eck; Waltz, Rotballtänze (Lanner); Serenade No. 4 for Strings and Two Horns (R. Fuchs); On hearing the First Cuckoo in Spring (Delius); Irrlichter und Kobolde (Hofmann); Two Pieces for Strings, Two Oboes and Two Horns (Nicodé); (a) Ein Märchen, (b) Auf dem Lande; Frühlingsstimmer-Walzer (Joh. Strauss). **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; 11 kW.—**5.45 p.m.,** Hungarian Programme: Three Plays. **6.45,** Talk for Housewives. **6.50,** See **Prague. 7.15,** 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.—1.15 p.m.,** Opera Music on Gramophone Records. **2.15,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.35,** Educational Talk. **4.0,** Violin Recital of Music by Max Reger; Suite in A Minor; Wiegenlied; Romance in G. **4.30,** Review of Books on Johannes Brahms. **4.50,** Talk: Practical Weather Rules for Sport and Hiking. **5.10,** Agricultural Prices. **5.12,** Song Recital by Elsbeth Berndt: Wie sollt' ich's lassen (Handel); Du armes kleines Bächlein (Hasse); Frühlingsglaube (Schubert); Stille Tränen (Schumann); Geisternähe (Schumann); Im Herbst (Franz); Die Mainacht (Brahms); Dein blaues Auge (Brahms); Morgen (R. Strauss); Märchen (M. v. Schillings). **5.40,** Talk on Birds' Nests. **6.0,** Zither Recital by Ernst Rommel. **6.20,** May Service relayed from St. Anthony's Church. **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Hamburg. 8.0** (from **Gleiwitz**). Music from the Time of Frederick the Great—Concert by the String Orchestra, conducted by Franz Kauf; Soloists, Anni Bernert (Soprano) and Liesbeth Bernert (Pianoforte): Sonata in D Minor (Fasch); Two Pieces for Pianoforte; Rigaudon (J. Ch. Bach); Solfeggietto (Ph. E. Bach); Singt dem göttlichen Propheten (Graun); Toccatina for Pianoforte (Ph. E. Bach); Aria from Il re pastore (Mozart). **8.50,** News. **9.0,** Recital of Sea Shanties by a Nazi Choir with Humorous Sailors' Yarns, by Willy Koch. **10.0,** Time and News. **10.20,** Talk. **10.40,** See **Heilsberg. 12 Midnight,** Close Down.

BRNO

878 kc s, 342 metres; 35 kW.—**7.15 p.m.,** Gramophone Music. **7.25,** Brno—Literary and Musical Programme. **8.15,** Recital of Songs by Rachmaninov, Tchaikovsky, Gliere, Chopin, and Tchernievsky. **8.35,** Concert by the Station Orchestra conducted by Bakala; Soloist: F. Kudlacek (Violin): Concert Overture (Schor); Concert Fantasia for Orchestra (Anatol Provaznik); Ballad (Hrazdira). **9.20,** Military Programme of Literature and Music. **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, conducted by A. Felleman, relayed from the Grand Hotel, Antwerp. **1.0 p.m.,** Journal Parlé. **1.10,** Gramophone Concert. **5.3,** Dance Music relayed from the St. Sauveur Palais de Danse. **6.0,** Talk. **6.15,** Song Recital by Frédéric Anspach; Nocturne (Franck); La Procession (Franck); Sur une Tombe (Lekeu); Rondo (Lekeu); Oraison (Mawet); Soleils couchants (Mawet); Des Femmes en Pleurant (Busine); Guitar (Busine); Villanelle (Jongen); Bal de fleurs (Jongen). **6.45,** At the Antiquary's—Sketch (Lauville). **7.0,** Ballad, Op. 24 (Grieg), on Gramophone Records. **7.15,** Talk: The Belgian Painter, Emile Wauters. **7.30,** Medical Talk. **8.0,** Concert by the Radio Orchestra, conducted by C. Walpot; Soloists: Germaine Marville (Songs) and Rosasco (Humorous Items); March, sambre et Meuse (Planquette); Overture, The Thieving Magpie (Rossini); Scene and Waltz from Gretna Green (Guiraud); Songs; Selection from Dedé (Christiné); Humorous Items. **8.45,** Reading of Poems (Paul Claudel). **9.0,** Concert (contd.): Suite, A Mediterranean Cruise (Jahowicz); Idylle passionnelle (Razigade); Songs; Potpourri, Extravaganza (Morena); Humorous Items; Selection from On with the Show (Nicholls). **10.0** Le Journal Parlé. **10.10,** Dance Music relayed from the St. Sauveur Palais de Danses.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW.—Programme in Flemish. **12 Noon,** Basque Music on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert, conducted by Felleman, relayed from the Grand Hotel, Antwerp. **5.0,** Concert by the Radio Orchestra, conducted by Charles Walpot; March of the Marionettes (Hollebroeck); Invitation to the Waltz (Weber); Overture, The Bohemian Girl (Balfe); Romance for Violin (De Taeye); Selection from Lilac Time (Schubert-Berte); Spanish Dances (Moszkowsky); Three Oriental Miniatures (Fischer); Selection from The Sleeping Beauty (Tchaikovsky). **6.0,** Gramophone Records: Bourrée Fantasque (Chabrier); Pax Vobiscum (Johnson). **6.15,** Talk. **6.30,** Gramophone Concert. **7.0,** Talk on Tinel's Oratorio, Franciscus, with Pianoforte Illustrations. **7.30,** Le Journal Parlé. **8.0,** Franciscus—Oratorio (Edgard Tinel). Words by Lodewyk De Koninck; The Symphony Orchestra, the Station Choir, and Soloists; Conductor, Meulemans. In the interval at **8.45** (approx.), Recitations. **10.15,** Le Journal Parlé. **10.25,** Gramophone Concert: Selection from Monsieu (Beyaltz); Tarantella and Napolitana (Popezki); Hearts and Flowers (Czibulka); Selection from (a) Rip van Winckle (Planquette), and (b) Phi-Phi (Christiné); Tatjana (Lindsay); Selection from La Belle Hélène (Offenbach).

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** The Station Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Violin Solos by Nina Alexandresco; Sonata No. 1 (Schumann); Romance (G. Hüe); Cortège (Lilly Boulanger). **8.30,** Talk. **8.45,** 'Cello Recital by S. Seidmann: Kolnidrei (Bruch); Romance (Rubinstein); Bagatelle (Tanéief); Tarantelle (Spuie). **9.15,** Flute Solos. **9.45,** Radio Journal.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **8.20 p.m. to 12 Midnight.—4.0 p.m.,** Concert by the Serge Smirnov Balalaika Orchestra. **5.0,** Reading. **5.30,** Hungarian Folk Song Recital by Maria Sandor, accompanied by the Bela Racz Cigány Band. **6.30,** Italian Lesson. **7.0,** Exchange Quotations. **7.10,** 'Cello Recital by Eugen Kerpely. **7.50,** Talk: Shakespeare's Influence on Hungarian Literature. **8.20,** An Interview with the President of the International Journalists' Association on the Occasion of the Association's Meeting in Budapest. **8.35,** Haydn—Radio Play (Bares). **10.35,** News Bulletin. **10.40** (approx.), Concert by the Alexander Bura Cigány Band, relayed from the Hotel Dunapalota. **11.15,** Dance Music from the Luna Park. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc s, 1,153 metres;** 7.5 kW. **—12 Noon,** Town Hall Chimes. **12.1 to 2.0 p.m.,** Concert from the Wivex Restaurant. **3.0,** Gramophone Records of Classical and Light Music. **3.30,** Instrumental Concert: Spanish March (O. Gyldmark); Waltz, Tales from the Vienna Woods (Joh. Strauss); Entr'acte from Dalibor (Smetana); Selection from Gianni Schicchi (Puccini); Waltz from Die Kaiserin (Fall); Talk for Women; French Comedy Overture (Kéler-Béla); Valse triste (Sibelius); Selection from Sunny (Kern); Berceuse (Järnefelt); Der Rosehochzeitszug (Jessel); Minuet (Gudrun Hermansen); Scandinavian Cradle Song (Gudrun Hermansen); March, Old Comrades (Teike). **5.35,** Exchange and Market Prices. **5.50,** Talk in English: Charlotte Brontë. **6.20,** French Lesson. **6.50,** Weather and News. **7.15,** Time Signal. **7.30,** Review of Politics for the Month of May. **8.0,** Town Hall Chimes. **8.2,** Orchestral Concert, conducted by Launy Gröndahl: Three Pieces (Fahrbach): (a) March, Standartenträger, (b) Waltz, Land meiner Tränme, (c) Kneip Polka; Two Pieces (Gung'l): (a) Waltz, Hesperusklänge, (b) Czardas; Two Pieces (Fahrbach): (a) Polka-Mazurka, (b) Mazurka, Du meine Welt; Waltz, Amorettentänze (Gung'l); Landstorm Galop (Fahrbach). **8.50,** Talk on Unemployment. **9.20,** Recital of Songs of Jutland. **9.40,** Reading (Alfred Kjerulf). **10.0,** News. **10.15,** Scandinavian Rhapsodies and Folk Dances—Concert by the Radio Orchestra, conducted by Launy Gröndahl: Two Norwegian Dances (Grieg): (a) No. 3 in G, (b) No. 4 in D; Two Icelandic Dances (Jon Leifs); Norwegian Rhapsody (Halvorsen); Danish Folk Dances, arranged for Chamber Orchestra (Launy Gröndahl); Swedish Rhapsody, Midsommarvaka (Hugo Alfven). **11.0,** Dance Music from the Lodberg Restaurant. In an interval at **12 Midnight,** Town Hall Chimes. **12.30 a.m. (Thurscday),** Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk. **7.15,** Miscellaneous Items and News. **7.30,** See **Warsaw. 10.25,** Gramophone Music. **10.35,** Talk in Esperanto: Polish Spas. **10.55,** See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

SUN. MON. & TUES. PROGRAMMES

MAY 31st **WEDNESDAY** *continued*

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C., T. St. A. Ronald and B. McNabb announcing. **5.30,** Concert by a Tango Band for Portsmouth and Southsea Listeners: Todavia; Adios Juventud; Corazon; Violin Solo: Fandango; Maman, yo quiero un novio; Madrid; Violin Solo: Caprice Basque; Tesoro mio; Two Songs: (a) Tu sais, (b) Déja; Plegaria; La Paloma **6.15,** Orchestral and Vocal Concert for Isle of Wight Listeners: Gipsy Moon (Borganov); Serenade (Heykens); Three Songs: (a) To Mary, (b) Maire, my Girl, (c) Beauty's Eyes; Waltz, Gold and Silver (Lehár); The Woman in the Shoe, from What Price Melody; Three Songs: (a) Heather Moon, (b) Passing by, (c) On a Dreamy Summer Night; Memories of Paris (Morettii); Valencia (Padilla). **7.0,** Programme in French. **10.0** till Close Down, Programme in English by the I.B.C. **10.0,** Dance Music by the Æolians: Deep Night (Vallee); Jericho (Myers); Underneath the Russian Moon (Kendis); Sleepy Valley (Sterling); Granny's Photo Album (Greer); Loving them all (Coningsby); Speak to me of Love (Lemoir); I got Rhythm (Gershwin); Lover come back to me (Romberg); Rum Tum Rhythm (Aitch); Toymaker's Dream (Golden); Sing, Brothers (Tombridge); Trees (Rasbach); With Summer coming on (Turk); Sleep on (Korngold). **11.0,** Military Band Concert: Selection from Rigoletto (Verdi); Rider of the Flag; Post Horn Gallop (Köenig); Golden Jubilee March; The Bullfighters' March (Kottaun); Brighton Camp (Traditional); General Mulcahy (Brase). **11.30,** Song Recital: Wine, Women and Song (Joh Strauss); The Lass with the Delicate Air; One Morning very early; Modern Conception of Russian Melodies (di Filippi); The Last Rose of Summer (Moore); When the House is asleep; Little Brown Owl; Mignonette (Friml). **12 Midnight,** Club Concert for Saffron Walden Listeners: Brabazon; My Old Dutch; Beware of the Maidens; Because (d'Hardelot); Bravest of the Brave; Our little Nipper; Selection from Wild Violets (Stolz); After the Ball; Two little Girls in Blue; By the Blue Hawaiian Waters; Cuban Love Song; Song, Nelly Grey; I know of Two Bright Eyes; Entry of the Gladiators. **1.0 a.m. (Thursday),** Pianoforte Recital, with Songs: Piano Medley (Ray); Magic Notes (Steininger); Monte Carlo Medley (Robin); Two Songs: (a) For You, (b) Many Happy Returns of the Day; Duet, When the Circus comes to Town (de Rance); Whoopee Medley; Potpourri of Popular Tunes (Ray). **1.30,** Vocal Duets: Paradise; In an Old-World Garden; Keeping out of Mischief; Orchestra: Song of the West; Liza Lee; Now I'm in Love; My Baby just cares for me. **2.0,** Dance Music by the Æolians: White Lightning; Sweetheart; Wild Waves; Deep Forest; Jungle Nights in Harlem; Rosa Mia; Swance Shuffle; Let me explain; The London Fire Brigade; Wanderer; A Bedtime Story; Open up dem Pearly Gates; Nightfall; Sailin' on the Robert E. Lee. **2.57,** I.B.C. Good-night Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,159 kc/s, 259.3 metres; 17 kW.: and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** Concert by the Station Orchestra, conducted by Reinhold Merten: Two Piedmontese Dances (Sinigaglia); Selection from The Queen of Spades (Tchaikovsky); Tarantella from Venezia e Napoli (Liszt); Norwegian Dances, Op. 35 (Grieg); Suite from Der Rosenkavalier (R. Strauss); Ballet Music from Ritter Pasman (J. Strauss); Waltz, Wiener Bonbons (J. Strauss). **5.45,** Economic Notes. **6.0,** Reading (Alf. Teichs). **6.25,** Topical Talk. **6.45,** Notes of the Day. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0,** see **Munich.** **9.0,** A Humorous Interlude. **9.25** (approx.), See **Stuttgart.** **10.0,** A German Almanac. **10.15,** Time and News. **10.45,** See **Munich.** **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

Call ha (in Morse), 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.** (from **Hanover**), Orchestral Concert, conducted by Richard Grille: Overture: Oberon (Weber); Selection from Undine (Lortzing); Procession to the Minster from Lohengrin (Wagner); Bridal Chorus from Lohengrin (Wagner); Lagoon Waltz from A Night in Venice (Strauss). **5.0,** Educational Discussion. **5.30,** Hamburg, Bremen and Lübeck Report on Events in the Senates and House of Burgesses of the Hanseatic Free Cities. **6.0,** Programme of North German Folk Songs, with Commentary by H. Dieckelmann. The Station Male Voice Quartet and Soloists. **6.40,** Frankfurt Exchange. **6.50,** Weather Report. **7.0,** Transmission for all German Stations: The Battle of the Skagerrak—Radio Sequence (Wulf Bley and Fritz Busch). **8.0** (from **Kiel**), Concert of German Music by the "Grüss Gott" Double Quartet. Ernst Berse ('Cello) and Hans Döring (Pianoforte). Songs: (a) Kamerad komm (Klughardt), (b) Sturmbeschwörung (Börner); Canzonetta, Op. 88, for 'Cello and Pianoforte (Fleischmann); Folk Song, Es war auf Jütlands Auen Schleswig-Holstein (Bellmann). **8.30,** The Sanctity of Labour—Musical and Literary Programme in Honour of German Manual and Intellectual Workers. **9.30** (from **Kiel**), The Zoological Gardens—Song Sequence for Solo Voices, Choir and Small Orchestra (Erwin Zillinger), relayed from the Municipal Theatre at Schleswig. Conductor: The Composer. **10.5,** Symphony in D Minor (Haydn), by the Station Orchestra, conducted by Dr. Sandberger, with Introductory Talk. **10.45,** News. **11.5,** Topical Talk. **11.15,** Dance Music by the Hoffmann Band from the Farm.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**1.5 p.m.,** Gramophone Concert of Light Music. In the interval at **1.20,** News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Exchange and Market Prices. **3.20** Talk for the Housewife. **3.30,** Programme for Children. **4.0,** Talk for Parents. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le Caïd (Thomas); Melody (Hermann Löhr); Waltz Intermezzo (Ralf); In a Fairy Realm (Ketelbey); Torero-Walzer (Translateur); Selection from Gandeamus (Blumperdinck). **5.30** Talk: To the Memory of Fritz Mollien. **5.50,** Bridge Lesson. **6.15,** Market Prices. **6.25** (from **Danzig**), Concert by the Koenenkamp Vocal Quartet: Two Melodies (Haydn): (a) Alles hat seine Zeit (b) Die Harmonie in der Ehe; Three Songs, Op. 92 (Brahms): (a) Abendlied, (b) Spätherbst, (c) Warum; Four Nocturnes, Op. 22 (Heinrich von Herzogenberg): (a) Wär's dunkel, ich läge im Walde, (b) Nacht ist es stilles, Meer (c) Zwei Musikanten zieh'n daher, (d) Wie schön hier zu verträumen die Nacht. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0** News. **8.10,** Dance Music by the Small Station Orchestra, conducted by Eugen Wilcken, and Paul Glatzel and his Band. **9.45** (from **Danzig**), Max Halbe reads from his own Works. **10.15,** News. **10.25** (approx.), Concert of Classical Operetta Music by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Der Bettelstudent (Millöcker); Waltz from Das Spitzentuch der Königin (Joh. Strauss); Potpourri of Suppé's Operettas (Suppé-Rhode); Selection from Don Cesar (Dellinger); Im Chambre séparée—Intermezzo from Der Opernball (Heuberger); Melody from The Bird Fancier (Zeller); Selection from Der Obersteiger (Zeller); Selection from Frühlingsluft (Jos. Strauss); Overture, Die Landstreicher (Ziehrer). **12 Midnight** (approx.), Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m.** till Close Down, Programme of the Workers' Radio Society (V.A.R.A.). **11.40,** Concert by the Small Station Orchestra, conducted by H. de Groot. **12.10 p.m.,** Gramophone Music. **12.20,** Organ Recital by J. Jong. **12.50,** Gramophone Music. **12.55,** Orchestral Concert (contd.). **1.25,** Interval. **1.40,** Talk for Women. **2.40,** Programme for Children. **5.10,** Concert by De Fluitblazers. In the intervals at **5.30** and **6.0,** Gramophone Music. **6.40,** Talk. **7.0,** Song and Pianoforte Recital. **7.40,** Talk. **8.0,** Concert by a Women's Choir: Relie Rimathé (Songs), P.v.d. Hurk (Flute), and G. Enderlé (Pianoforte): Sonata for Flute and Pianoforte (Schulhoff); Czech Songs; Soprano Song (Janacek). **8.40,** Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: Adagio and Rondo (Mozart); Children's Corner (Debussy); Ballet Music from Coppélia (Delibes); Overture, Hamlet (Bach); Suite, Language of Flowers (Cowen); Czech Polka (Balling); Il Bacio (Arditi); Czardas from Der Geist des Wojwoden (Grossman). In the intervals at **9.5,** Gramophone Music; and at **9.40,** News. **10.40,** Gramophone Music. **10.45,** Orchestral Concert: Overture, La Belle Hélène (Offenbach); Adagietto from L'Arlesienne (Bizet); La Kermesse (Jacôme); Boston (Nick); The Grasshopper's Dance (Bucalossi); Du wirst der Kaiser meiner Seele sein (Stolz); Intermezzo from The Arabian Nights (Joh. Strauss); Internationale (de Geyter). **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.). **12.10 p.m.,** Concert by the Van der Horst Trio. **1.40,** Agricultural Talk. **2.25,** Programme to be announced. **2.40,** Reading. **3.10,** Concert. **4.40,** Programme for Children. **5.40,** Violin and 'Cello Duets. **6.10,** Talk arranged by the Department of Buildings and Roads. **6.40,** Police Notes. **6.55,** News. **7.10,** Potpourri of Moody and Sankey Hymns. **7.25,** Talk by Heer Stapelkamp. **7.40,** Concert by the Resonant String Orchestra, conducted by A. van Harskamp: Overture, Joseph (Méhul); Chamber Sonata in E Minor (Vivaldi, arr. Braun-Burmester); Sinfonietta (Mozart, arr. Braun-Burmester); Male Voice Choir: Sehnsucht (Schmoeck-Eichendorff), on Gramophone Records; Five German Dances (Schubert); Die Mühle im Wahltal, Op. 227 (Necke). **8.40,** Talk: Dogma and Enthusiasm. **9.10,** Organ Recital. **10.10,** News. **10.20,** Gramophone Concert of Popular and Sacred Music.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** News Bulletin. **8.15,** English Lesson. **9.0,** Musical Programme with Commentary. **9.45,** News Bulletin. **12 Midnight to 1.0 a.m. (Thursday),** Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** Songs and Orchestral Music: Was that the Human thing to do? (Fain); I'm a Specialist (Sale); Just Friends (Kenner); Taught me how to play the Second Fiddle (Dahl); Orchestra, Speak to me of Love (Lemoir); Trees (Rasbach); The Song of Songs (Moya); Orchestra, Granny's Photo Album (Greer). **12.30 a.m.,** Dance Music: Can't we meet again? Dip your Brush in the Sunshine; Kazoo; Let a little Pleasure interfere with Business; Washboards get together; My Darling; Sweetheart; One little Word led to another. **12.57,** I.B.C. Goodnight Melody. **1.0 a.m.** (approx.), Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.**—**6.15 p.m.,** Esthonian Lesson. **6.40,** Concert by the Sirpalcet Choir. **7.5,** Talk. **7.20,** Talk: A Visit to the Police Station. **7.50,** Dance Music by the Rapido Orchestra. **8.10,** Humorous Talk. **8.20,** Dance Music. **8.45,** News in Finnish. **9.0,** News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Eysoldt; Soloist: Gertrud Freimuth (Contralto). In the interval at **2.0** (approx.), News. **2.30,** Sponsored Programme with Gramophone Music. **3.0** to **3.30,** Interval. **3.30,** Economic Notes and Time. **3.50,** Programme for Children. **4.30,** Choral and Orchestral Concert: Overture, Euryanthe (Weber); Wanderer-Suite (Kaltmann); German Folk Songs: (a) Wach auf, du Handwerksgesell, (b) Nach Süden nun sich lenken, (c) Mir ist ein feins brauns Maidelein, (d) Der Jäger längs dem Weiher ging (arr. Gernsheim), (e) Zwischen Berg und tiefem Tal (arr. Othegraven); Selection from Der Waffenschmied (Lortzing); German Folk Songs: (a) Regiment sein Strassen zieht, (b) Drei Lilien, (c) Es reiten itzt die ungrischen Husaren, (d) Ein Schifflein sah ich fahren; Strauss Operetta Potpourri (Schlögel). **5.50,** Talk for Women. **6.15,** Müller's Garden, Lehmann's House—A Radio Play (Theo Rausch). **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0,** News. **8.5,** Political Talk. **8.15,** In Memory of the Battle of Skager Rack. Part I.—Two who were there. Part II.—Address and Reading of Garch Fock. **9.0,** Organ Recital by Jakobus Menzen, relayed from the Concert Hall, Düsseldorf: Prelude and Fugue in C Minor (Bach); Choral Prelude, Liebster Jesu, wir sind hier (Bach); Choral Prelude Schmücke dich, o liebe Seele (Brahms); String Quintet in G Minor, Op. 111 (Brahms); Organ Concerto in A (Handel). **10.15,** News and Sports Report. **10.45,** see **Munich.** **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres, 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12.5 p.m.,** Concert by the Halle Concert Orchestra, conducted by Fritz Zschiesing: Nepomuk Suite, Op. 49 (Möllendorf); March, Junges Blut, frischer Mut (Vardner); Intermezzo and Waltz Song from Das süsse Mädel (H. Reinhardt); Fan Polonaise (Ziehrer); Three Bavarian Dances (Pachernegg); March from Jung Heidelberg (Millöcker); Overture, Gigri (Lincke); Modern Viennese Folk Music (Komzak); Catalonian Rhapsody (Allout); Selection from the Oriental Suite (Popy). In the interval at **1.0,** News. **2.0,** News Bulletin. **3.0,** Pianoforte Recital by Irene Fretsch: Toccata in E Minor (Bach); Minuet in C (Haydn); Romance in A Flat (Mozart); German Dance No. 1 (Beethoven). **3.35,** Exchange and Market Prices. **4.0,** Programme for Young People. **5.50,** Exchange, Weather, and Time. **6.0,** Book Review. **6.20,** Talk: The Middle Classes in Industry and Society. **6.45,** Programme Announcements. **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0,** Talk and Readings on the Battle of Jutland (31st May, 1916) by Manfred von Killinger. **8.45,** Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloist, Friedbert Sammler (Harpsichord): Overture, Egmont (Beethoven); Concerto grosso in B Flat, No. 1 (Handel); Three Movements from the Serenade in D, Op. 11 (Brahms); Divertimento in D, No. 18, for Oboe, Two Horns, and String Orchestra (Mozart). **10.15,** News Bulletin. **10.30** (approx.), Concert from **Heilsberg.** **12 midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**5.0 to 5.30 p.m.,** Programme in English by the I.B.C. F. Miklavcic announcing. International Broadcasting Club Concert: Accordion Band: (a) Flower of Spain, (b) Ziganette; Monologue, In charge of a Bookstall; Trios: (a) Come along with me, (b) Coming round the Mountain; Orchestral Selection from The Count of Luxemburg (Lehar). **5.30,** Readings. **6.0,** Gramophone Records. **6.30,** Talk: Modern Heroes. **7.0,** Russian Lesson. **7.30,** Literary Talk. **8.0,** Talk on Politics. **8.30,** Brahms Concert, with Introductory Talk. **9.30,** News and Gramophone Records.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Popular Music. In the interval at **11.45,** Radio Chronicle. **12.45 a.m. (Thursday),** Talk. **12.40,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, Talks for Women and Dance Music. **9.25,** News and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Dramatic Programme. **12.45 a.m. (Thursday),** News. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**5.10 p.m.,** The Forest Talk—Opera for Children (Novotny). **6.5,** Agricultural Report. **6.10,** Gramophone Music. **6.15,** See **Prague.** **6.25,** Music for Chromatic Accordion. **6.55,** See **Prague.** **10.30** (approx.), Close Down.

MOSCOW

TRADES UNION, 230 kc/s, 1,304 metres; 100 kW.—**2.45 p.m.,** Weather. **3.0,** Extracts from Figaro—Opera (Mozart). **3.30,** Red Army Programme. **4.0,** Talk on Harvesting. **4.30,** Programme for Children. **6.30,** Concert. **9.0,** News. **9.30,** Programme Announcements. **9.55,** Time Signal. **10.5,** Press Review.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsburg** and **Kaiserslautern, 536 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.**—**4.55 p.m.,** Concert, conducted by Erich Klosz. Overture, Aetéon (Auber); Andante, Dance and Rondo (Weber); Selection from La Gioconda (Ponchielli); Finale from Ariele (E. Bach); Selection from The Gipsy Baron (Joh. Strauss-Weninger); Two Old Folk Melodies (Macho); Liebesspiele (Rust); Serenade (Drdla). **6.5,** Talk: The Early History of Bavarian Towns. **6.25,** Talk: The National Socialist Economic Policy. **6.45,** Time, Weather and Agricultural Report. **7.0,** Transmission for all German Stations, relayed from **Hamburg.** **8.0,** Concert by the Munich Philharmonic Orchestra, conducted by Adolf Mennerich, relayed from **Bad Kissingen.** Huldigungsmarsch (Wagner); Festival Overture (Lassen); Symphonic Poem, Les Préludes (Liszt); Wiegenlied (Schubert); Ständchen (Schubert); Selection from A Masked Ball (Verdi); Waltz, The Blue Danube (Joh. Strauss). **9.0,** The Starvard Verdict—Radio Play (Rossdopf). **10.20,** Time and News. **10.45,** Serenade conducted by Erich Kloss. **12 Midnight,** Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2**

metres; and **Rjukan, 671 kc/s, 447.1 metres.**—**5.0 p.m.**, Gramophone Music. **6.0**, French Lesson. **6.30**, Programme for Young Girls. **7.0**, News Bulletin. **7.30**, Talk: Social Problems. **8.0**, Time Signal. **8.1**, Concert by the Station Orchestra, conducted by Hugo Kramm: Overture, The Flying Dutchman (Wagner); Symphonic Poem, The Moldau (Smetana); Andalusian Romance (Sarasate); Norwegian Rhapsody No. 2 (Svendsen); Dance of the Hours, from La Gioconda (Ponchielli); Italian Caprice (Tchaikovsky). **9.0**, Stein Balstad reads from his own Works. **9.30**, Weather and News. **10.0**, Topical Talk. **10.15**, Light Music. **10.45**, Gramophone Dance Music. **12 Midnight** (approx.), Close Down.

DSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW. **8.0 p.m.**, Dopolavoro Announcements, Tourist Talk, Agricultural Notes and Giornale Radio. **8.20**, Gramophone Music. In the interval at **8.30**, Time Signal and Announcements. **8.35** (approx.), Concert. Soloists: G. Gagliano ('Cello) and M. Piamante (Flute). Overture, Ruy Blas (Mendelssohn); 'Cello Solos: (a) Aria Porpora, (b) Minuet (Haydn); Scianne de farfalle (Zandonai); Flute Solo: Sonata No. 4 (Bach); 'Cello Solos: (a) Suite Carnavalesque (Popper), (b) Malaguena (Albeniz); Berceuse (Pick-Mangiagalli), Scherzo (Sinigaglia); Flute Solos: (a) Piccola Italia (Scouzo), (b) Dance of the Marionettes (Köhler); Overture, Euryanthe (Weber). In the interval, Talk, **10.0** (approx.), Song Recital. **10.55** (approx.), Close Down.

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.**, Programme of Music by Mlle Madeleine Boutron. **7.0 p.m.**, Le Journal Parlé. **7.45**, Programme for Children. **8.15** Le Journal Parlé (contd.). **8.30**, Orchestral Concert, conducted by M. Henri Tomasi, with the Bainas Vocal Sextet. Soloists: Mlle. Pifteau and Mlle. Waters.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW. **6.45 p.m.**, Le Journal Parlé. **7.0**, Gramophone Music. **8.0**, Talk on Economics. **8.15**, Interval. **8.30**, The Duel—Play (Henri Lavedan). **10.30**, Dance Music from the Lido. **11.0**, News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 mstres; 75 kW. **6.45 a.m.**, Physical Culture. **7.30**, Weather and Physical Culture (contd.). **7.45**, Light Music on Gramophone Records. **8.0**, Press Review and Weather. **12 Noon**, Educational Talk. **12.15 p.m.**, Selection from Cercorico Operetta (Gamne), by the Radio Paris Orchestra. **12.30**, Organ Recital from the Gaumont Palace: Hungarian Dance No. 5 (Brahms); Echo de la Vallée (Rinaldo-Rinaldi); Selection from I Pagliacci (Leoncavallo); The Broken Melody (Lou Klein); Madame, ne me regardez pas comme ça (Stepe). **1.0**, Exchange, News, and Weather. **1.5**, Concert by the Radio Paris Orchestra: Mam'zelle Boy Scout (Goudier); Selection from Bow Bells (Sullivan-Jones); Selection from La Princesse de Trébizonde (Offenbach); Selection from The Duchess of Chicago (Kálmán); Melody (Messager). In the interval at **1.30**, Exchange. **2.0**, Exchange. **6.10**, Agricultural Report. **6.40**, German Lesson. **7.0**, Medical Talk. **7.20**, Concert: Sur la route (Gabriel-Marie); Echos d'Espagne (Huguet); Serenade (d'Indy); Colombine (Infante); Overture, Cavalleria rusticana (Mascagni); Tarantella (Martucci); Berceuse (Gaubert); Fanfare and March (Gabetti). **7.50**, Commercial Prices and News. **8.20**, Literary Review. **8.30**, News. **8.40**, Fashion Review. **8.45**, Dramatic Programme—Four Sketches: (a) Le Serment d'Horace (Henri Murger), (b) Une Drôle de Visite (Leneka), (c) On recherche pour héritage (Glück), (d) L'Heureux gagnant (Glück). In the interval at **9.15**, News.

PITTSBURGH

(KDKA), 980 kc/s, 306 metrss; 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—**7.30 p.m.**, KDKA Home Forum. **7.45**, Sponsored Programme. **8.0**, Betty and Bob, from **New York.** **8.15**, Radio Troubadours, from **New York.** **8.45**, Programme to be announced. **8.58**, Baseball Scores. **9.0**, Mid-Week Musicale, from **New York.** **9.30**, Market Reports. **9.45**, Dance Masters, from **New York.** **10.0**, Baseball Scores. **10.5**, Bass Solos by Fred Webber. **10.15**, Dick Daring, from **New York.** **10.30**, The Singing Lady. **10.45**, Little Orphan Annie, from **New York.** **11.0**, Pabais D'Or Orchestra, from **New York.** **11.15**, Time Signal. **11.16**, Weather Report. **11.17**, Sport Review. **11.22**, Press News-Reeler. **11.29**, Temperature Report. **11.30**, Riggs and Moke. **11.45 to 1.30 a.m. (Thursday)**, **New York** Relay. **11.45**, To-day's News, by Lowell Thomas. **12 Midnight**, Amos 'n' Andy. **12.15 a.m.**, Al Mitchell's Orchestra, with Everett Marshall, Baritone. **12.30**, String Symphony. **1.0**, Crime Clues. **1.30**, Programme to be announced. **1.45 to 3.15**, **New York** Relay. **1.45**, Phil Cook and the Ingram Shavers. **2.0**, Adventures of Sherlock Holmes. **2.30**, International Tidbits. **3.0**, Time Signal and the Revellers' Quartet.

PORSGRUND.—See **Oslo.**

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.**, Concert by the Station Orchestra, conducted by Otakar Parik. Overture (Vlach-Vrtlicky); Suite for Grand Orchestra (Masek); Waltz, Thalin (Kaan). **5.0**, Talk. **5.10**, See **Moravská-Ostrava.** **6.5**, Talk for Bee-Keepers. **6.15**, Talk for Workers. **6.25**, News in German. **6.30**, German Transmission: Programme for Workers and Talk. **6.50**, News Bulletin. **7.0**, Talk. **7.15**, Talk on the following Transmission. **7.30**, A Dream Betrothal—Opera in Two Acts (Krasa), relayed from the German Theatre. In the interval at **9.0**, Time Signal. **10.0**, Time Signal. **10.1**, News Bulletin. **10.15**, Announcements in French for Foreign Listeners. **10.30** (approx.), 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 **Lausanne**), Talk: X-Rays and their Industrial Uses. **7.30** (from **Lausanne**), Talk: Milk. **8.0** (from **Lausanne**), 'Cello Recital by M. d'Archambaud: Sonata (Haydn); Adagio (Bach); Le Papillon (d'Hervelois); Prayer (Bloch); Neapolitan Serenade (Sgambati); Dance of the Elves (Popper). **8.30**, See **Paris (Eiffel Tower).** **10.35**, News and Weather. **10.45** (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.**—**1.10 to 2.15 p.m.**, Orchestral Concert of Light Music. In the interval from **1.30 to 1.45**, Giornale Radio and Exchange. **4.45**, Children's Radio Review. **5.10**, Announcements. **5.15**, Announcements. **5.30 to 6.15**, Orchestral Concert: Barcellonita (D'Anzi); Visione di Lili (Ricciardi); Scherzo (Giannini); Rapsodia lombarda (Cerri); Valzer capriccioso (Floridia); Mignardises (Pick-Mangiagalli); Serenadilla (Albeniz); Rumba d'amore (Tagliaferri). **6.40 (Naples)**, Shipping and Sports Notes. **6.50**, Announcements. **6.57**, Report of the International Institute of Agriculture (in Italian and English). **7.10**, Tourist Report. **7.20**, Announcements in Various Languages. **7.40**, Giornale Radio. **8.0**, Time, Announcements, and Gramophone Music. **8.15**, Medical Talk. **8.30**, Giornale Radio and Sports Notes. **8.45**, Concert by the Rome Quartet: Soloist, Maria Senes (Soprano): Quartet in D Minor, Death and the Maiden (Schubert); Four Spanish Songs: (a) Eres tu (Otero), (b) Te quiero (Serrano), (c) Serenade (Albeniz), (d) La paloma (Yradier); Romance and Saltarello, Op. 16 (Grieg). **10.0** (approx.), I carabinieri Comedy in One Act (Lucio d'Ambra). **10.30** (approx.), Gramophone Music. **10.55**, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

(WGY), 790 kc/s, 379.5 meires; 50 kW. Relayed at intervals by **W2XAF on 31.48 metres** and by **W2XAD on 19.56 metres.**—**8.0 to 9.0 p.m., New York** Relay. **8.0**, Pop Concert. **8.30**, Texas Cowgirl. **8.45**, Charis Musical Review. **9.0** (approx.) **to 11.45**, Interval. **11.45**, Stock Reports. **12 Midnight to 1.30 a.m. (Thursday), New York** Relay. **12.0**, Fannie Brice and George Olsen's Orchestra. **12.30**, Woodbury Programme. **1.0**, Band of Famous Brands. **1.15**, Rocking Chair Memories. **1.30**, Variety Programme. **2.0**, Corn Cob Pipe Club of Virginia, from **New York.** **2.30**, Dance Hits of Yesteryear, from **New York**, followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres**; and **Berne, 1,220 kc/s, 245.9 metres.**—**11.59 a.m.**, Time Signal from Neuchâtel Observatory, and News. **12 Noon** (from **Berne**), Gramophone Music. **12.30 p.m.**, News. **12.40** (from **Berne**), Gramophone Music (contd.). **1.25** (from **Berne**), Exchange, Time, and Weather. **1.30** (approx.) **to 5.0**, Interval. **5.0** (from **Berne**), Programme for Children. **5.30** (from **Berne**), Gramophone Music. **6.30** (from **Zürich**), Talk. **7.0** (from **Zurich**), Time, Weather, and Market Prices. **7.5** (from **Zürich**), Concert by the Station Orchestra. **7.30** (from **Zürich**), English Lesson. **8.0** (from **Zürich**), Concert of Russian Music. **8.20**, Introductory Talk to the following Transmission. **8.35** (approx.) (from **Zürich**), Act II of The Mastersingers—Opera (Wagner), relayed from the Municipal Theatre. In the interval at **9.35** (approx.), Weather and News.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Goteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres**; and **Sundsvall, 554 kc/s, 542 metres.**—**5.5 p.m.**, The Practical Corner. **5.20**, Concert of Light Music. **6.15**, Concert of Gramophone Music. **7.15**, Weather and News. **7.30** (from **Göteborg**), Microphone Report. **8.15**, Vocal and Instrumental Concert. Anita Harrison (Pianoforte), Karl Hellgren (Songs) and Carl Christiansen ('Cello). Sonata No. 3 in D, Op. 10, for Pianoforte (Beethoven); Ich grolle nicht (Schumann); Wenn ich in deine Augen seh' (Schumann); Sonata in G for 'Cello and Pianoforte (Sammartini); All my Love (Pannocka); The House of my Dreams (Pannocka); Early Spring (Chiari); Autumn (Chiari); Serenade for 'Cello and Pianoforte (Granados). **9.15**, Talk. **9.45**, Weather and News. **10.0**, Modern Dance Music. **11.0** (approx.), Close Down.

STRASBOURG

859 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.**, Gramophone Music. **12.45 p.m.**, News. **1.0**, Time. **1.1**, Exchange Quotations. **1.5**, Gramophone Music. **2.0 to 4.0**, Interval. **4.0**, Organ Recital, relayed from **Radio Coloniale (Paris), 15,243 kc/s (19.68 metres).** **5.0**, Dance Music by the Orchestra, conducted by M. Roskam. **6.0**, Concert of Variety Music, relayed from **Lille, 1,130 kc/s (265.4 metres).** **7.0**, Legal Talk in French. **7.15**, Talk in German on Electricity. **7.30**, Time Signal and News. **7.45**, See **Paris (Eiffel Tower).** **8.15**, Press Review in German, Lottery Results, and News. **8.30**, Gramophone Music. **8.45**, Symphony Concert by the Municipal Orchestra, conducted by H. E. G. Munch, relayed from the Orangerie: Pastoral Symphony No. 6 in F, Op. 68 (Beethoven); Symphony No. 8 in F, Op. 93 (Beethoven); Leonora Overture No. 3, Op. 72a (Beethoven). In the Interval at **9.30** (approx.), Press Review in French. **10.30**, Orchestral Concert, conducted by M. Jemine, relayed from the Grand Kléber Inn. **11.30** (approx.), Close Down.

STUTTGART

MUHLACKER, 532 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—**1.30 p.m.**, Folk Songs and Songs of the Highroad on Gramophone Records. **2.0 to 2.15**, Programme arranged by the Post Office, with Gramophone Music. **3.0**, Programme for Children. **4.0**, Talk: Evangelical Women Workers come to Stuttgart. **4.10**, Song Recital by Hedwig Picard (Soprano): An den Mai (Heinrich Rücklos); Auf einer Wanderung Heinrich Rücklos); Aines Lied (Heinrich Rücklos); Gebet (Heinrich Rücklos); Reiselied (Schoeck); Ich möchte still am Wege stehn (Joseph Haas); Regenwetterlied (Joseph Haas); Tanzlied (Martin Frey). **4.30**, See **Frankfurt.** **5.45**, Time and News. **6.0**, Talk: National or International Films? **6.25**, Talk: Rays. **6.50**, Time and News. **7.0**, Transmission for all German Stations relayed from **Hamburg.** **8.0**, See **Munich.** **9.0**, The Ladies introduce themselves—a Monologue (Jochen Klepper). **9.25**, String Quintet No. 1 in F, Op. 88 (Brahms). **10.0**, Time and News, followed by Gramophone Music. **10.45**, See **Munich.** **12 Midnight** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to Fire. **6.0 p.m.**, News. **6.15**, Music by an Argentine Orchestra. **6.30**, Military Music. **6.50**, Popular Music. In the interval, Talk. **7.15**, Racing Results, Market Prices, and News. **7.25**, Local News Bulletin. **7.30**, Opera Music: Airs from (a) The Magic Flute (Mozart), (b) Sigurd (Reyer), (c) L'Attaque du Moulin (Bruneau). **7.45**, Music by a Viennese Orchestra. **8.15**, Sound Film Music. **8.30**, Accordion Music. **8.45**, Popular Melodies. **9.0**, Concert, conducted by M. Cantenys. In the interval, Light Music. **10.15**, North African News. **10.30**, Concert for Listeners in Morocco: Selection from Faust (Gounod); Air from La Basoche (Messager); March from Aïda (Verdi); Melody (Erwin); Waltz, Quand l'amour meurt (Crémieux); Espagnolos (Marceau). **11.0**, Orchestral Music. **11.15**, Opera Music: Airs from (a) Hamlet (Thomas), (b) Marouf (Rabaud), (c) Carmen (Bizet), (d) Résurrection (Alfano). **11.30 to 12 Midnight**, Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30**, Dance Music: Me; It always starts to rain; Springtime reminds me of you; Ali Baba's Camel; I found you; Got a Date with an Angel; Dancing with Tears in my Eyes; When the Guards are on Parade. **11.57**, I.B.C. Goodnight Melody. **12 Midnight**, News, Weather, and Announcements. **12.5 a.m.**, Operetta Music. **12.15**, Dance Music. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 p.m.**, Vocal and Instrumental Concert. Arnaldo Benvenuti (Pianoforte), Giovanni Anadi (Bass), and Dalila Fortuni (Mezzo-Soprano). Pianoforte Solos: (a) Sonata in D (Scarlatti), (b) Etude, Op. 25, No. 12 (Chopin); Bass Solos: (a) In questa tomba oscura (Beethoven), (b) Song (Tchaikovsky), (c) The Prisoners (Gretchaninov); Mezzo-Soprano Solos: (a) Aria (Brahms), (b) Prayer to Saint Sergio (Donati), (c) Der Jagers Abschied (Schumann); Pianoforte Solos: (a) Dance (Pick-Mangiagalli), (b) Allegro barbaro (Bartok); Bass Solo, Aria from Don Carlos (Verdi); Mezzo-Soprano Solos: (a) Aria from Samson and Delilah (Saint-Saëns); Habanera from Carmen (Bizet); Pianoforte Solo, Fireworks (Debussy). **6.0 to 6.35**, Interval. **6.35 to 10.0**, See **Turin.** **10.0**, Orchestral Concert arranged by the Dopolavoro Society, conducted by Franco Gulli: Concerto grosso (Corelli); Elegy (Tchaikovsky); Passo del gnomi (Repini); Valse triste (Sibelius); Scherzo (Jenkinson). **10.30**, Concert by the Pieris Dopolavoro Choir, conducted by Angelo Capello: Giovinezza (Blanc); I banditi (Merlato); Dammi la man (Seghizzi); Les ciampanis (Zardini); Don di viole (Marzuttini); Dardis' co biele (Pian); La Marinella (Sinico).

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.**—**5.0 to 6.0 p.m.**, Soprano and Tenor Song Recital. **6.35**, Giornale Radio, Agricultural Report and Dopolavoro Announcements. **7.0**, Time and Tourist Talk. **7.10**, Gramophone Records: Ideale (Tosti); O sole mio (Di Capua); La mia canzone (Tosti); Lasciati amar (Leoncavallo). **7.20**, Giornale Radio. **7.45**, Gramophone Music. **8.0**, Announcements, Giornale Radio and Weather. **8.15**, Medical Talk. **8.30**, Comedy in Three Acts, followed by Variety Music. **11.0**, Giornale Radio. **11.5 (Florence only)**, Dance Music from the Chez moi Rajola.

VATICAN CITY

15,120 kc/s, 19.84 metres (Morning) and **5,969 kc/s, 50.25 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; 15 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.**—**5.0 p.m.**, Concert of Music by Friedrich Bayer. Soloist: Rudolf Lustig (Tenor). Songs: (a) Erinnerung, (b) Lied Quartet in B Flat for Oboe, Horn, 'Cello and Pianoforte. **5.45**, Health Talk—Smoking. **6.10**, Talk for Workers. **6.35**, Talk: The Turks in Austria. **7.0**, Concert of Music by Millöcker by the Josef Holzer Orchestra. Soloists: Lilly Claus (Soprano), Franz Zwonik (Tenor) and Dario Medina (Tenor). Overture, Gasparone; Drinking Song from Das verwunschene Schloss; March, In Reih' und Glied from Der Probekuss; Dream Waltz from Der Feldprediger; Polka, Klopf an, from Die Sieben Schwaben; Gilda-Walzer from Der Vizeadmiral; Duet, Ich setz den Fall from Der Bettelstudent; Ländler for Two Violins, with Orchestral Accompaniment, Heimliche Liebe; Tarantella from Gasparone; Polka mazurka, Willst du mein Liebster sein? from Der arme Jonathan; Song from Das Sonntagskind; Trumpet Solo: Spatzenlied from Cousin Bobby; Overture, Der Bettelstudent; Cellar Waltz from Apajune, der Wassermann; Gavotte from The Dubarry; Schiffsjungenmarsch from Der Vizeadmiral; Duet from Der arme Jonathan; Waltz from The Dubarry; Ballad from Apajune, der Wassermann; Overture, Das verwunschene Schloss; Trio, O du himmelblauer See from Das verwunschene Schloss; Students' Polka from Jung Heidelberg; Quodlibet, Was die Menschen Liebe heissen, from Nordlicht; Gallop, Rasch wie der Blitz, from Der arme Jonathan. In an interval at **7.40**, Time, Weather and Programme Announcements. **8.45**, Topical Talk. **9.0**, An Interview with Auguste Wilbrandt-Baudius, on his Ninetieth Birthday. **9.15**, Readings from Bruder Wanderer (Wolfram Brockmeier). **10.0**, News, Weather and Announcements. **10.15**, Dance Music by the David Mathé Band, relayed from Hübner's Kursalon.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**11.57 a.m.**, Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **12.5 p.m.**, Programme Announcements. **12.10**, Gramophone Records. **1.20**, Weather. **1.25 to 3.10**, Interval. **3.10**, Announcements. **3.15**, Economic Notes. **3.30**, Boys Scouts' Report. **3.35**, Programme for Children. **4.40**, Gramophone Records. **4.50**, Talk: How to train Dogs. **5.0**, Gramophone Records. **5.40**, Social Report. **5.55**, Programme Announcements. **6.0**, Light Music. In the Interval, News. **7.0**, Miscellaneous Items. **7.20**, Answers to Agricultural Correspondence. **7.30**, Talk: Slovak Literature. **7.45**, Radio Journal. **8.0**, Talk on Brahms. **8.15**, Concert of Brahms' Chamber Music by the Polish Quartet; Soloists: Lipowska (Songs) and Dubiska (Violin): Movement from a Violin Sonata; Songs; Quartet in C Minor for Strings, Op. 51. **9.15**, Sports Notes. **9.20**, Radio Journal. **9.25**, Choral Concert. **10.10**, Topical Talk. **10.25**, Gramophone Records. **10.35**, Talk in Esperanto, relayed from **Cracow, 959 kc/s (312.8 metres).** **10.55**, Aviation Weather Report and Police Notes. **11.0**, Dance Music.

ZURICH.—See **Schweizerischer Landessender.**

THURSDAY
JUNE THE FIRST

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	The White Coons' Concert Party.
LONDON REGIONAL	Act III of "Don Carlos," from the Royal Opera House, Covent Garden.
MIDLAND REGIONAL	Concert by Winning Choirs, from Corporation Street Schools, Stafford.
NORTH REGIONAL	Relay from the Argyle Theatre, Birkenhead.
BELFAST	The Music of Edward German, orchestral concert.

ABROAD

BERO-MUNSTER	8.0 p.m. Beethoven Concert, from the Musiksaal, Basle (relayed also by **Radio Paris**).
COPENHAGEN	8.10 p.m. Danish Music from the State Broadcasting Building.
HILVERSUM	8.40 p.m. Beethoven's Ninth Symphony, from Amsterdam.
LEIPZIG	7.0 p.m. Concert of Romantic Music, by the Symphony Orchestra (relayed by other German stations).
MUNICH	9.0 p.m. Opera: "I Pagliacci" (Leoncavallo), from the National Theatre.
PRAGUE	8.35 p.m. Orchestral Concert, conducted by Nikolaj Malko.
STRASBOURG	8.45 p.m. The Municipal Orchestra, conducted by M. E. G. Munch.
TOULOUSE	8.45 p.m. Extracts from Opera: "The Valkyries" (Wagner).
TURIN	8.30 p.m. Opera: "Othello." by Verdi.
WARSAW	8.0 p.m. Light Music by the Station Orchestra, conducted by Nawrot.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Music. **6.0,** Programme for Children. **6.40,** News and Dublin Cattle Market Report. **7.0,** French Lesson. **7.15,** Recitations by Cathleen Murphy. **7.30,** Time Signal. **7.31,** Uilleann Pipe Solos by Leo Rowsome. **7.45,** Mezzo-Soprano Solos by Elizabeth Downey. **8.0,** Pianoforte Recital by Dina Copeman. **8.20,** Concert by the Station Orchestra. **8.40,** Tenor Solos by Lionel Boardman. **8.55,** The Station Orchestra. **9.15,** Variety Programme. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Talk on Hygiene. **9.0,** Gramophone Music and News. **10.0,** Chimes from the Cathedral, Weather Forecast, Exchange Quotations, and Market Prices. **10.5,** Concert by the Station Orchestra. **10.30,** Flamenco Songs, with Guitar accompaniment. **11.0,** La Chica del Gato—Play in Three Acts (Arniches). 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 Press Review. **8.30,** Time Signal and Announcements. **8.35** (approx.), Military Band Concert: March (De Nardis); Overture, Norma (Bellini); Selection from Norma (Bellini); Symphonic Intermezzo (Cecherini); Selection from Marcella (Giordano); Andante and Minuet from the Quartet in D for Strings (Mozart); Suite from Sigurd Jorsalfar (Grieg). In the Interval, Art Notes. **10.30,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

BEOGRAD, 697 kc/s, 430.4 metres; 2.8 kW.—**6.25 p.m.,** Time and Programme Announcements. **6.30,** Dialogue in French. **7.0,** Recital of Folk Songs. **7.30,** Talk. **8.0,** See **Schweizerischer Landessender. 10.0,** News, followed by Cigány Music from the Petrosacka Zadruga Restaurant.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW.—**2.0 p.m.,** Czar and Carpenter—Opéra-Comique (Lortzing), in an abridged form on Gramophone Records. **2.45,** Programme for Children. **3.10,** Talk for Girls. **3.30,** Exchange and Weather. **3.45,** Reading (Amil Strauss). **4.0,** See **Heilsberg. 5.0,** Talks for Women. **5.25,** Topical Talk. **5.35,** Contemporary Music—Suite, Aus Litanen (Max Lauischkus) for Flute, Oboe, Clarinet, Bassoon and Horn: Von Land und Leuten; Abendstimmung; Litauisches Volkslied; Dorfserenade; Kirmes. **6.0,** A Poem. **6.5,** Waltzes sung by Isa Berger: Frühlingsstimmen (Joh. Strauss); Tales from the Vienna Woods (Joh. Strauss); Dorfschwalben aus Oesterreich (Joh. Strauss). **6.30,** Agricultural Talk. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations relayed from **Leipzig. 8.0,** An Epigram, followed by Programme in Commemoration of Paul Ernst. **9.10** (approx.), See **Stuttgart. 10.0,** News. **10.45,** Weather Report for Shipping. **11.0,** Serenade from **Langenberg. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.30 p.m.,** Concert by Alois Pachernegg and his Orchestra: Overture, Edelweiss (Komzak); Waltz, Rudolfs-Klänge (Joh. Strauss); Old Styrian Suite (Pachernegg): (a) Peasant March, (b) Aria, (c) Waltz, (d) Ländler, (e) G-trampfter; Scandinavian Caprice (Donisch); Russian Dance No. 4 (Bullerian); Habanera (Chabrier); Overture, Mamsell Umütz (Leuschner). **5.25,** People one meets on a Journey—The Porter, the Hotel Proprietor, the Hotel Porter, the Chamber Maid, the Waiter, and the Pension Landlady. **5.55,** Waltzes, Op. 39, for Pianoforte (Brahms), by Prudentia Olbrich and Heinrich Steiner. **6.15,** Reading. **6.30,** Talk on Pomerania. **6.40,** The Witzleben Station informs its Listeners . . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.5,** The Watchword. **8.10,** Orchestral Concert: Aquarellen-Walzer (Joh. Strauss); Im wogenden Aehrenfelde (Bransmann); Potpourri, Wien bei Nacht (Komzak); Hungarian Music (Pataky); Overture, Prince Methuselah (Joh. Strauss). **8.45,** Drei Kaiserjäger—Folk Play (Angermayer). **10.0,** Weather, News, and Sports Notes. **10.30,** The Scandal Monger—a Wireless Cabaret. **11.0,** Dance Music, relayed from the Café Moka Efti. **12. Midnight,** 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,** Bull-Fighting Notes. **7.55,** Lottery and Charade Results. **8.0,** Talk on Wines. **8.15,** News. **8.30,** Madame Beliard—Play in Three Acts (Vildrac).

BRATISLAVA

1,076 kc/s, 279 metres; 14 kW.—**7.0 p.m.,** See **Prague. 7.10,** A One-Act Comedy (Svoboda). **7.55,** Choral Concert, conducted by B. Jelinek. **8.35,** See **Prague. 11.0** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—12 Noon,** Concert by the Small Silesian Philharmonic Orchestra, conducted by Hermann Behr. In the interval at **1.0 p.m.,** Time and News. **2.15,** Programme arranged by the Post Office with Gramophone Records. **3.10,** Agricultural Prices. **3.40,** Talk on Spas Göbersdorf. **3.50,** Book Review. **4.10,** Recital by Alfred Stöckel (Tenor) and Franz Bolion (Pianoforte). **5.0,** Programme for Children. **5.30,** Agricultural Prices. **5.32,** Concert by the Station Orchestra, conducted by Bruno Janz: March, Zur Frühjahrsparade (Schicke); Ständchen (Schicke); Suite Goliardica (Amadei); Waltz, Am schönen Rhein gedenk' ich dein (Kéler-Béla); Potpourri, Auf der Wanderschaft (Mannfred). **6.15,** A Discussion on Hand-Weaving in Silesia. **6.35,** Programme to be announced. **6.50,** Weather for Farmers, and News. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** A Radio Play about Ulrich von Hutten (Otto Brües). **9.0,** Announcements. **9.10,** Organ Recital by Johannes Piersig, relayed from St. Catherine's Church. The Chamber Orchestra, conducted by Franz Marszalek. Concerto in D Minor (Handel); Concerto in A Minor (Bach); Concerto in A (Handel). **10.0,** Time and News. **10.25,** Talk: From the Diary of an Announcer. **10.45,** Wireless Notes. **10.55,** Close Down.

BRNO

878 kc/s, 342 metres; 35 kW.—**4.10 p.m.,** Orchestral Concert, conducted by Bakala. **5.10,** Talk for Young People. **5.20,** See **Prague. 5.50,** Talk on Agricultural Reform. **6.0,** Literary Talk. **6.15,** See **Prague. 6.25,** German Transmission. News, followed by Programme for Young People. **7.0,** See **Prague. 7.40,** A Comedy in Two Acts (Peterka). **8.20,** Recital of Folk Songs. **8.35,** See **Prague. 11.0** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Concert of Light Music by the Small Station Orchestra, conducted by P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert: Overture, The Crown Diamonds (Auber); Selection from Evergreen (Hart and Rodgers); Organ Solo: Rhapsody in Blue (Gershwin-Maclean); Chanson triste (Tchaikovsky-Stewart); Dance of the Merry-makers (German); Two Items from Le cirque Bilhoquet (Bontempo); In a Chinese Temple Garden (Ketelbey); With a Song in my Heart (Rodgers-Coates). **5.0,** Concert by the Station Orchestra, conducted by Charles Walpot. Overture, Les Hirondelles (Hirschmann); Waltz from Die geschiedene Frau (Fall); La chère maison (Daleroze); Le coeur de ma mie (Daleroze); Canadian Suite (Ippolitov-Ivanov). **5.30,** Programme for Children. **6.0,** Talk: Art in the Home. **6.15,** Gramophone Concert: Overture, Abu Hassan (Weber); Der Wanderer (Schubert); Finale of The Clock Symphony (Haydn); Le nuit ensorcelée (Chopin-Aubert); Canzonetta (Mendelssohn); Overture, Flotte Bursche (Suppé); Allegretto from the Quartet in E Flat, Op. 30 (Tchaikovsky); Ballad, Op. 19 (Fauré). **7.15,** Talk for Workers. **7.30,** Sports Talk. **8.0,** Concert by the Station Symphony Orchestra, conducted by Jean Kumps. Soloist: M. Wollsclen (Violin): Overture, Mignon (Thomas); Two Pieces (De Greef): (a) Meurtri est mon coeur, (b) Le due d'Alba; Violin Solos: (a) Il trillo del diavolo (Tartini), (b) Reverie (Vieuxtemps), (c) First Part from the Concerto in G (Mozart); Dances from Prince Igor (Borodin). **8.45,** Talk. **9.0,** Concert by a Workers' Orchestra, relayed from **Molenbeek.** Rayon de soleil (Gounod); Five Variations on a Theme from The Song of Songs (Moya-Alexys); Last Serenade (van de Walla); Selection from La Traviata (Verdi); Luna Walzer (Lincke). **10.0,** Le Journal Parlé. **10.10,** Gramophone Concert: Part I: Old and New Dance Music. Part II: Modern French Symphony Music.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish.—**12 Noon,** Gramophone Concert, with Songs by Mlle. Vera Morgan. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by Paul Leemans; Soloists: Mlle. Vera Morgan (Songs) and M. Wigy (Violin): Strauss Potpourri (Weber); Serenade from Milenka (Jan Blockx); Songs: (a) Mainacht (Brahms), (b) Aria from Der Freischütz (Weber); Scene and Waltz from Gretna Green (Guiraud); Violin Solo: Minuet (Mozart); Ballet Music from Hérodiade (Massenet). **5.0,** Mozart Concert by the Station Symphony Orchestra, conducted by Jean Kumps: Overture, Figaro; Eine kleine Nachtmusik; Air from Il Re Pastore; German Dances. **5.45,** Programme for Children. **6.30,** Concert by the Small Station Orchestra, conducted by Paul Leemans: Overture, Les Saltimbanques (Ganne); Rhapsody in Blue (Gershwin); Gramophone Records: Potpourri of Songs by Emile Bullebroeck; Roses from the South (Strauss). **7.10,** News. **7.25,** Book and Film Review. **7.30,** Talk for Housewives. **8.0,** Concert by the Station Symphony Orchestra, conducted by Charles Walpot, and a Choir, conducted by M. Jersoons: Overture, Le Roi d'Ys (Lalo); Five O'clock Tea with Stolz (Dostal); Songs by the Choir; Selection from The Gipsy Princess (Kálmán); Flower Waltz from The Nutcracker Suite (Tchaikovsky). **8.45,** Religious Address. **9.0,** Concert (contd.): 1812 Overture (Tchaikovsky); Norwegian Rhapsody (Svendsen); Songs by the Choir; Scenes napolitaines (Massenet); K.R.V.C. Song (Meulemans). **9.55,** Evening Prayer. **10.0,** Le Journal Parlé. **10.10,** Operetta Music and Sound Film Music on Gramophone Records.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Roumanian Music by the Dinico Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Song Recital by G. Stefanovici. **8.20,** Symphony Concert by the Station Orchestra, conducted by C. C. Nottara. Soloist: G. Draghici ('Cello). The Hebrides Overture (Mendelssohn); Symphony No. 1 in E flat (Haydn); 'Cello Sonata No. 4 in B flat (Vivaldi-Cindy); Poem for 'Cello (Nottara); Lyric Suite (Dvorak). In an interval at **9.0,** Talk. **9.45,** Radio Journal. **10.0,** Talk in German on Roumania.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.25 p.m.** to **12 Midnight.—5.30 p.m.,** Pianoforte, Violin, and 'Cello Recital. **6.20,** Song Recital. **7.15,** Market Prices. **7.30,** Music Academy Examination relayed from the Opera House. **10.30,** News Bulletin. **10.40** (approx.), Dance Music from the Hotel Bellevue. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12.5 p.m.,** String Ensemble Concert, relayed from the Hotel d'Angleterre. **2.0 to 3.0,** Interval. **3.0,** Dance Music by the Sabbar Band. In the interval at **3.45** (approx.), Reading. **5.0,** Programme for Boys. **5.35,** Exchange and Fish Market Prices. **5.50,** Reading. **6.20,** English Lesson. **6.50,** Weather Forecast. **7.0,** News Bulletin. **7.15,** Time Signal. **7.30,** Talk. **8.0,** Chimes from the Town Hall. **8.5,** Reading. **8.10,** Concert of Danish Music relayed from the State Broadcasting Building: The Radio Symphony Orchestra conducted by Launy Grøndahl and Emil Reesen; Soloists, Tenna Frederiksen Kraft, Sylvia Schierbeck, and Holger Byrding (Songs): Overture, Little Christie (J. P. E. Hartmann); Duet from King and Marshal (Heise); Selection from Artemis (Glass); First Movement from the Symphony, Espansiva (Nielsen); Overture, Easter Eve (Riisager); Ten Minutes Interval; Overture, Aladdin (Hornemann); Symphonic Poem, Op. 16, for Soprano and Orchestra, Avalon (Grau); Two Dances from The Emperor's New Clothes (Hoffding); Prelude to Act II of Saul and David (Nielsen); Dance from Maskarade (Nielsen); Song from Maskarade (Nielsen); Negro's Dance from Aladdin (Hornemann). **10.0,** News. **10.15,** Copenhagen in Poetry and Song—Literary and Musical Programme. **11.0,** Dance Music relayed from the Arena Etablissement. In the 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.—**7.0 p.m.,** The Letter Box. **7.15,** Miscellaneous Items and News. **7.30,** See **Warsaw. 11.0,** Concert of Light Music from the Pavilion Restaurant. **12 Midnight,** Fanfare from the Tower of St. Mary's Church.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the B.B.C. Announcers: T. St. A. Ronald and B. McNabb. **5.30,** Concert for Worthing and Littlehampton Listeners: Under Heaven's Blue (Payan); Minstrel Memories; Trio: (a) Dreaming (Hannagan), (b) To-night (Kennedy); By the Sleepy Lagoon (Coates); Christy Minstrel Days; Song: Hello Sunshine (Murray); Trio: (a) So ashamed (Davies), (b) Me minus you (Webster); Serenade (Pierné); The Mill in the Forest (Eilenberg). **6.15,** Song Recital for Brighton and Hove Listeners: Orchestra: Vienna, Vienna (Foss); Serenade (Toselli); Nocturne d'amour (Drigo); Pianoforte Selection from The Desert Song (Romberg); Lady Divine (Kountz); The Song of Songs (Moya-Lucas); You were meant for me (Brown); Pianoforte Selection from The Cat and the Fiddle (Kern); Kashmiri Love Song (Woodforde-Finden); Temple Bells (Woodforde-Finden); Orchestra: Stephanie Gavotte (Czibulka). **7.0,** Programme in French. **10.0,** Dance Music by the Ibcolians: Just another Dream of you (Burke); All of

me (Simons); Steamboat Bill (Leighton); Just Friends (Lewis); In my Bell Bottom Trousers (Hulbert); Smile, darn ya, Smile (O'Flynn); The Oi Song (Carlton); Sing a little Jingle (Warren); The Sun has got his Hat on (Butler); There I go dreaming again (Henderson); Wherever you are (Kahn-Noble); You can make my Life a Bed of Roses (Henderson); Where are you? (Crosby); Happy-go-lucky you (Murray); Masquerade (Webster). **11.0,** Organ and Song Recital: A Palace of Dreams (Waller); Songs: (a) Poor Man's Garden (Russell), (b) Tired Hands (Sanderson); Indian Love Lyrics (Woodforde-Finden); Songs: (a) Love's Old Sweet Song (Molloy), (b) The Hills of Home (Fox); Bird Songs at Eventide (Coates). **11.30,** Gramophone Records of Sir Harry Lauder's Songs: I'd love to be a Sailor; Bella, the Belle o' Dunoon; She's the Lass for me; Saturday Night; Back to the Shore where the Heather grows; Tobermory; I think I'll get wed in the Summer; Bonnie Mary of Argyll. **12 Midnight,** Club Concert for Ilford and Romford Listeners: Selection from Love me to-night; Beware of the Maidens (Craske); Good Old-Fashioned Chorus (Amos); Selection of Maurice Chevalier's Songs; I've finished with Lily for ever; First you say Yes; Selection from the Crooner; 'E dunno where 'e are; Mrs. Carter; Waltz from Der Rosenkavalier (R. Strauss); Goodbye (Tosti); O dry those Tears (del Riego); La Grive (Cole). **1.0 a.m. (Friday),** Xylophone Solos: Orchestra: Sobre las Olas (Rosas); Light Cavalry Overture (Suppé); The Dripping Well; Orchestra: Memories of 1930 (Beckert); Danse d'Hesom; Aeroplane Polka; Orchestra: Waltz, Gold and Silver (Lehár). **1.30,** Songs: Camille (Carlton); They cut down the old Pine Tree (Raskin); There's Something about you that's different (May); Orchestra: The Ragpickers' Party; Just plain Folk (Gilbert); Wrapped in a Red, Red Rose (Dowling); The Heart of the Sunset (Nicholls). **2.0 a.m.,** Dance Music by the Hecolians: Me minus you; Brother, can you spare a Dime?; Same old Moon; I'll never have to dream again; Can't we meet again?; So ashamed; Here's hoping; Southern Serenade; The Wise old Owl said Hoo; What more can I ask?; Love Tales; It's no use, I'm in Love; Brighter than the Sun; The Village Band. **2.57,** I.B.C. Goodnight Melody. **3.0** (approx.), Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259.3 metres; 17 kW.: **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,167 kc/s, 259.3 metres.—4.30 p.m.,** See **Munich.** **5.45,** Economic Notes. **6.0,** Topical Talk. **6.25,** Talk: Georg Sebastian Faber's New Book: Der Erzkönig. **6.45,** Notes of the Day. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** Variety Programme. **8.15,** Light Music on Gramophone Records. **8.35,** Talk: The Magna Charta of Labour. **9.10,** See **Stuttgart.** **10.15,** 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

Call ha (in Morse), **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.—6.25 p.m.,** Talk: How a Film Scenario is Written. **6.45,** Frankfurt Exchange. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0** (from **Bremen**), Concert by a Nazi Orchestra, conducted by D. Eutelmann: March, Königgrätzer (Piefke); Jubel-Ouvertüre (E. Bach); Waltz from The Gipsy Baron (Strauss); March, Der alte Fritz (v. Blou); Glowworm Idyll (Lincke); Potpourri, Alte deutsche Treue (Frantzen); Two Alsatian Peasant Dances (Merkling); March, Wir präsentieren (Ailhout). **9.0** (from **Bremen**), When the Cock crows—North German Peasant Comedy (August Hinrichs). **10.15,** News. **10.35,** Topical Talk. **10.45,** Concert of Dance Music by the Station Orchestra. Soloists: Gerhard Gregor and Gerhard Maasz (Two Pianofortes).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—1.5 p.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Marsch der schönen Frauen (Clemus); Overture, Lestocq (Auber); Suite, In the Sunny South (Sommer); Waltz, Madelaine (Waldteufel); Dance of the Merry Mascots (Ketelbey); Ballet Scene (Armandola); Selection from Die Fledermaus (Joh. Strauss). In the interval at **1.20, News. 2.30,** Programme arranged by the Post Office, with Gramophone Music. **3.0,** Market Prices. **3.30** (from **Danzig**), Programme for Young People. **4.0,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Alceste (Gluck); Invitation to the Dance (Weber); Overture, Il Seraglio (Mozart); Largo (Handel); Minuet (Haydn); Ballet Music from Prometheus (Beethoven); Overture, Alphonse and Estrella (Schubert). In the interval at **5.0,** Recitation in East Prussian Dialect. **5.45,** Radio Report from the Rossitten Bird Sanctuary. **6.15,** Market Prices. **6.25,** Agricultural Talk. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** News. **8.10,** Orchestral Concert from **Berlin (Witzleben).** **8.45,** A Play, relayed from **Berlin (Witzleben).** **10.15,** News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 pm.**). Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).—**11.40 a.m.,** Concert by the Wireless Orchestra, conducted by Nico Treep: Overture, La Princesse jaune (Saint-Saëns); Chinese Rhapsody (Gabriel-Mario); My Old Kentucky Home (arr. Busch); Selection from The Merry Wives of Windsor (Nicolai); Clair de lune (Ketelbey); Tango (Albeniz); Gramophone Music: Waltz from Faust (Gounod); Selection from Countess Maritza (Kálmán); In the Shadows (Finck); Poppies (Moret); Gramophone Music; Waltz, Gold and Silver (Lehár); In the Streets of Hong-Kong (Humphries); Rhapsody-Rag (Lenzberg); Two Songs (Tosti): (a) Good-bye, (b) Serenade; March, Heil Europa (Blou). **1.55 to 2.10,** Interval. **2.10,** Gramophone Music. **2.40,** Talk on Fashions. **3.25,** Gramophone Music. **3.40,** Talk. **4.10,** Song Recital by M. Bracony (Tenor). **4.40,** Programme for Children. **5.10,** Popular Music by Kovacs Lajos and his Dance Orchestra. **6.10,** Sports Talk. **6.40,** Kovacs Lajos and his Orchestra (contd.). **7.10,** Talk on Holidays: Central Switzerland. **7.40,** Time and News. **7.45,** Gramophone Music. **8.40,** The Ninth Symphony (Beethoven), relayed from the Concertgebouw, Amsterdam. The Concertgebouw Orchestra conducted by Dr. Willem Mengelberg. **9.55,** Gramophone Music. **10.10,** Concert by the Wireless Orchestra, conducted by Nico Treep: Melody (Kálmán); Valse des blondes (Ganne); Overture, Poet and Peasant (Suppé); Nachtigall im Fliederbusch (Krome); Paso doble, Madrid (Speyer). **10.40,** General News. **10.50,** Concert (contd.): Selection from White Horse Inn (Stolz-Benatzky); March, Wien bleibt Wien (Schrammel). **11.10,** Gramophone Music. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. Programme of the Christian Radio Society (N.C.R.V.) **1.40 p.m.,** Handicrafts Lesson. **2.40,** Talk for Women. **3.10,** Programme to be announced. **3.40,** Religious Programme: Songs and Addresses. **4.40,** Song Recital by Helene Ludolph (Soprano). In the interval, Organ Solo—The Little Shepherd (Debussy) on Gramophone Records. **5.25,** Handwork Lesson for Young People. **5.55,** Talk: Dutch Monuments. **6.25,** Dressmaking Lesson. **6.40,** Police Notes. **6.55,** News. **7.10,** Topical Talk. **7.40** Programme arranged by the Temperance Movement. **8.40,** Concert by the Arnhem Orchestra, conducted by H. J. Manks. Soloist: Miep Vroemen (Soprano). Norwegian Artists' Carnival (Svendsen); Overture, Roy Blas (Mendelssohn); Aria for Soprano with Trumpet accompaniment, from Samson (Handel); Selection from Samson and Delilah (Saint-Saëns). **10.40,** Gramophone Concert of Variety Music. **11.10** (approx.), Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report and Racing Results. **8.15,** Fashion Review. **8.30,** Radio Concert. **9.0,** News. **9.15,** Radio Concert. **12 Midnight** till Close Down, Programme in English by the I.B.C. H. K. Hitchcock announcing. **12 Midnight,** Organ Recital: Popular Scottish Medley: La Serenata (Braga); As your Hair grows whiter (Daviro); In a Chinese Temple Garden (Ketelbey); Pianoforte and Organ Duet, Clockwork (Mayeul); A Perfect Day (Jacobs-Bond); Mother Machree (Olcott); Love's Old Sweet Song (Molloy). **12.30 a.m. (Friday),** Vocal and Orchestral Concert. A New Love is Old (Harbach and Kern): Like a Breath of Springtime (Burke); Try and forget (Kern); Just you, just me (Greer); Stardust (Carmichael); My Song (Henderson); They didn't believe me (Kern); The Thrill is gone (Brown and Henderson). **12.57** I.B.C. Good-night Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

THURSDAY JUNE 1st *continued*

KATOWICE

734 kc/s, 408 metres; 16 kW.—**7.15 p.m.,** Announcements and Gramophone Music. **7.25,** Boy Scouts' Report. **7.30** till Close Down, See **Warsaw.**

KAUNAS

155 kc/s, 1,935 metres; 7 kW. **8.0 p.m.,** Time and News Bulletin. **8.40,** Variety Programme. **9.0,** Hygiene Report. **9.20,** Concert. **9.50,** Sports Notes. **10.0,** Talk in Esperanto. **10.20,** Concert. **11.0** (approx.), Close Down.

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres, 40 kW.; and **Helsinki, 815 kc/s, 368.1 metres.—6.15 p.m.,** Concert by the Station Orchestra, conducted by Erkki Linko: Overture, Maritana (Wallace); Waltz, The Wedding of the Winds (Hall); Norwegian Rhapsody (Svendsen); Serenade (May); Florentine March (Fucik). **7.0,** Talk. **7.25,** Humorous Talk. **7.50,** Song Recital by R. Ryynänen. **8.15,** Concert by the Station Orchestra: Air from The Bayadere (Kálmán); Dreams of Yesterday (Humphries); Pomona Waltz (Waldteufel). **8.45,** News in Finnish and Swedish. **9.15,** Music from the Kappeli Restaurant. **10.0** (approx.), Close Down.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Eysoldt: Overture, Die Opernprobe (Lortzing); Suite, Auf der Wanderschaft (Klugardt); Spielzeug und Waldnixen (Ertl); Selection from Die Königskinder (Humperdinck); Berceuse (Järnefeldt); Elégie (Massenet); Polka, Künstlergruss (Joh. Strauss); Polka, 1-Tipferl (Jos. Strauss); Potpourri of Viennese Operetta Music, Songs and Dances, Viribus unitis (Richter). In the interval at **2.0,** News. **2.30,** Sponsored Programme with Gramophone Records. **3.0,** Programme for Children. **3.30,** Economic Notes and Time. **4.0,** Talk on the Teaching of Geography. **4.30,** Mozart Concert: Dorothee Cormann (Violin), Gerda van Essen (Viola), Erika Schütte (Pianoforte), Anny Czwoydzinski-Otten (Soprano) and Dr. Willi Czwoydzinski (Accompaniment); Rondo in A Minor for Pianoforte; Sonata in G for Violin and Pianoforte, Soprano Solos: (a) Der Sylphe des Friedens, (b) Das Veilchen, (c) An Chloe; Duet in B Flat for Violin and Viola; Soprano Solos: (a) Sei du mein Trost, (b) Wohl tauscht ihr Vöglein, (c) Sehnsucht nach dem Frühling; Trio in E Flat, Op. 14, No. 2, for Violin, Viola, and Pianoforte. **5.50,** Talk on Animals: Dangerous Immigrants in Germany. **6.10,** Programme for Young People. **6.20,** French Conversation. **6.45,** Weather, Time, Economic Notes, and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** News. **8.10,** Political Talk. **8.30 to 10.0,** Variety Programme. **8.30,** Humorous Scenes and Tales about Ne'er-do-wells. **9.35,** Max and Moritz — Symphonic Burlesque (Mraeck). **10.0,** News and Sports Report. **10.25,** Political Talk. **10.40,** Serenade, conducted by Eysoldt. **12 Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—1.15 p.m.,** Instrument Concert on Gramophone Records. **2.0,** News. **2.10,** Film Review. **3.0,** Puzzles for the Ear. **3.35,** Economic Notes. **4.0,** Concert by the Station Orchestra, conducted by Hilmar Weber. Part I: Old Dances: Gavotte in D (Bach); Gratulations-Menuett (Beethoven); Polonaise in D (Wagner); Waltz, Wo die Zitronen blühn (Joh. Strauss); Quadrille from Das Sonntagskind (Millöcker); Frauenherz-Mazurka (Jos. Strauss); Ist das nicht chic? (Heuberger); Polka, München-Wine, ein Sinn! (Komzak); Waltz (Waldteufel); Gallop, Rutscherpeter (Ziehrer). Part II: Short Stories from Vogtland. Part III: Operetta Music: Selection from Paganini (Lehar); Waltz from Die Tanzgräfin (Stolz); Batavia Foxtrot, from The Cousin from Nowhere. **5.50,** Economic Notes, Weather, and Time. **6.0,** Talk on Musical Policy. **6.30,** Report on the Meeting of the German Bunsen Society. **7.0,** Transmission for all German Stations: Concert of Romantic Music by the Leipzig Symphony Orchestra. Conductor: Theodor Blumer. Soloists: Anneliese Rauch (Soprano) and Franz Hammerla (Clarinet). Overture, Fierrabras (Schubert); Concertino Op. 26 for Clarinet and Orchestra (Weber); Songs (Brahms): (a) An eine Aeolsharfe, (b) An die Nachtigall, (c) In Waldeseinsamkeit, (d) An den Mond; Three Fantasiestücke for Pianoforte, Op. 28 (Schumann); Overture, Jessonda (Spohr). **8.0,** Schill—Radio Play (Jochen Günther). **9.0,** Concert by the Chartofilax-Estudiantina Mandoline Orchestra and the Striesen Glee Society. **10.5,** News. **10.10** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** Programme for Women. **7.30,** Answers to Correspondents. **8.0,** Song Recital by Mme. Thierry-Kavcnik. **8.45,** Vocal Quintet Concert. **9.30,** Guitar Concert. **10.0,** News. **10.15,** Quintet Concert.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** History Talk. **7.15,** Miscellaneous Items. **7.30,** See **Warsaw.** **10.15,** Gramophone Music with Commentary. **10.55,** See **Warsaw.** **12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Instrumental and Vocal Concert. After the Concert, News.

MADRID

ARANJUEZ (EAQ), 9,860 kc/s, 30.43 metres; 20 kW.—**11.30 p.m.,** Programme relayed from **Madrid, EAJ7.** **1.0 a.m. (Friday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, and Programme for Children. **9.15,** News and Political Review. **9.30 to 10.0,** Interval. **10.0,** Linguaphone English Lesson. **10.30,** Chimes, Time Signal and Political Review. **10.45** (approx.), Song Recital by Marius Gonzalez and Augusto Ordonez (Baritone). **12.45 a.m. (Friday),** News. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.30 p.m.,** German Transmission: Two Talks: (a) Through Italy, (b) Walter von der Vogelweide. **7.0,** See **Prague.** **7.40,** Concert by the Station Orchestra, conducted by V. Musil. **8.20,** See **Prague.** **11.0,** 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 conducted by Erich Kloss: Overture, The Merry Wives of Windsor (Nicolai); Scene from Das Nachtlager in Granada (Kreutzer); Suite, Brahmsiana (Fritz); Norwegian Bridal Procession (Grieg); Air from The Queen of Spades (Tchaikovsky); Suite, Pictures from an Exhibition (Mussorgsky); Dance Melody (Meyer-Helmund); Gallop (Langey). **5.45,** Agricultural Talk. **6.5,** Chamber Music Concert by a Fiddle Trio. Soloist: Ernst Konrad Haase (Baritone). Introductory Talk by Dr. Ludwig Gerheuser. **6.45,** Time, Weather and Agricultural Notes. **7.0,** Transmission for all German Stations, relayed from **Leipzig.** **8.0,** Bunte Stunde by the Reithmeier Orchestra and Soloists. Conductor: Heinrich Cassimir. **8.50,** Introductory Talk to the following Transmission. **9.0,** I Pagliacci—Opera in Two Acts (Leoncavallo), relayed from the National Theatre. **10.20,** Time and News.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Song Recital by Einar Eligen (Baritone). **5.30,** Discussion between a Policeman and a Chauffeur on Traffic Regulations. **6.0,** German Lesson. **6.30,** Divine Service. **7.0,** Announcements, Weather and News. **7.30,** Talk: Traffic Control on the Roads around Oslo. **8.0,** Time Signal. **8.1,** Agricultural Talk. **8.30,** Pianoforte Recital by Waldemar Alme. **9.0,** Recitations by Lars Tvinde. **9.30,** Sponsored Programme. **9.30,** Agricultural Notes. **9.40,** Weather and News. **10.0,** Topical Talk. **10.15,** Concert by the Toneveld Choir, relayed from **Aalsund, 671 kc/s, 447.1 metres.**

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Agricultural Talk and Giornale Radio. **8.20,** Gramophone Music. In the interval at **8.30,** Time Signal and Announcements. **8.45,** Concert of Popular Music. **9.30,** La Compagnia si Scioglie—Comedy in Two Acts (Armo). **10.0** (approx.), Concert (contd.). **10.55,** News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals).—**6.45 p.m.,** Theatre Talk. **7.0,** Le Journal Parlé. **8.30,** Gramophone Concert: Part I, Thomas and Hérold Music; Part II, Popular Melodies. **10.0** (approx.), Close Down.

JUNE 1st **THURSDAY** *continued*

PARIS

POSTE PARISIEN, 914 kc s, 328.2 metres; 60 kW.—**6.45 p.m.,** Journal Parlé. **7.0,** Programme for Children. **7.30,** Gramophone Music. **8.0,** Agricultural Talk. **8.5,** Talk on the Artisan. **8.15,** Interval. **8.30,** Orchestral Concert; Soloists: M. Passani (Pianoforte) and Raoul Vidas (Violin).

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.). **7.45,** Gramophone Music. **8.0,** Press Review and Weather. **12 Noon,** Protestant Address. **12.30 p.m.,** Orchestral Concert. Part I.—In Italy: Three Pieces (Gabriel-Marie): (a) Le départ, (b) Naples au matin, (c) Naples au soir; I tuoi occhi (Bonincontro); Goodbye (Tosti). Part II.—In Spain: Two Melodies (Laparra); España (Albeniz). Part III.—In Russia: Dumka (Wecksler); Melody (Wecksler); Elegy (Rachmaninov); Melody (Akimenko). Part IV.—In the East: El Nomad (Bigot), Egyptian Piece (Naggiar); Libyan March (Naggiar). Programme of Operetta and Sound Film Music: Selection from The Geisha (Jones); Two Sound Film Melodies (Heymann); March, The Three Musketeers (Jean Lenoir). In the interval at **1.30,** Exchange. **2.0,** Exchange. **3.45,** Exchange and Market Prices. **6.10,** Agricultural Talk. **6.30,** Gramophone Music. **6.45,** Legal Talk. **7.0,** Talk: French Poetry Since 1870. **7.29,** Orchestral Music: Rêverie (Luigini); Suite funambulesque (Messager); Second Suite from La Nursery (Inghelbrecht). **7.45,** Press Review. **8.0,** Beethoven Festival Concert, relayed from the Casino, Basle. In the interval at **8.30,** News and Weather; and at **9.15,** Press Review. **10.30,** Gramophone Music: Ballet Music from Maroufle (Rabaud); La Valse (Ravel).

PITTSBURGH

WESTINGHOUSE ELECTRIC (KDKA), 980 kc s, 306 metres; 50 kW. Relayed by **W8XK on 48.86 metres and 25.27 metres.—7.30 p.m.,** KDKA Home Forum. **7.55,** Care of the Garden, by Alfred C. Hottes. **8.0,** Betty and Bob, from **New York.** **8.15,** Radio Troubadours, from **New York.** **8.45,** State Federation of Pennsylvania Women. **8.58,** Baseball Scores. **9.0,** Thursday Special, from **New York.** **9.30,** Market Reports. **9.45,** Programme to be announced. **10.0,** Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from **New York.** **10.30,** The Singing Lady, from **New York.** **10.45,** Little Orphan Annie. **11.0,** Hotel Park Central Orchestra, from **New York.** **11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Sport Review. **11.22,** Press News-Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45 to 1.45 a.m. (Friday); New York** Relay. **11.45,** To-day's News, by Lowell Thomas. **12 Midnight,** Amos 'n' Andy. **12.15 a.m.,** Variety Programme. **12.30,** Concert Footlights. **12.45,** Merle Thorpe Talks. **1.0,** Captain Diomond's Adventures. **1.30,** Thrillers. **1.45,** Programme to be announced. **2.0 to 3.30, New York** Relay. **2.0,** Death Valley Days. **2.30,** Wayne King's Orchestra, with Lady Esther. **3.0,** Time Signal and Musical Varieties.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** Gramophone Music. **6.15,** Talk. **6.30,** Agricultural Talk. **6.45,** News. **7.10,** Agricultural Letter Box. **7.28,** Time Signal. **7.30,** See **Warsaw.** **8.0,** Soloist Concert, relayed from Poznan University Hall. In the interval, Sports Notes and News from **Warsaw.** **9.30,** See **Warsaw.** **10.15,** Talk. **10.30,** Time Signal, Sports and Police Notes. **10.45** (approx.). Close Down.

PRAGUE

614 kc s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno.** **5.10,** Talk on Economics. **5.20,** Talk on Social Questions. **5.30,** Gramophone Music. **5.40,** Literary Talk: Books for Children. **5.50,** Gramophone Music. **6.5,** Talk for Gardeners. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Book Review, Agricultural Report and Talk on Fire Insurance. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** English Lesson. **7.25,** Wireless Talk. **7.40,** See **Brno.** **8.20,** Talk: America as seen by a Czech. **8.35,** Concert by the Station Orchestra, conducted by Nikolaj Malko. Soloist: Gabriela Christmannova-Eschova (Songs). In the interval at **9.0,** Time Signal. **10.0,** Time Signal. **10.1,** News Bulletin. **10.15,** Gramophone Music. **11.0,** (approx.), Close Down.

RABAT

721.1 kc/s, 416 metres; 6 kW.—**1.30 to 3.0 p.m.,** Concert of Popular Music. **4.30,** Talk for Children. **5.0 to 6.0,** Gramophone Music. **8.0,** Arab Programme: News and Gramophone Music. **8.45,** News. **9.0,** Concert. Overture, Giralda (Adam); Selection from La Belle Hélène (Offenbach); Song, Melancholy (Lucchesi); Violin Solo; Reverie (d'Ambrosio); Song (Richman and Meskill); Guitarre (Bizet-Mouton). **9.45,** Talk. **10.0,** Concert of Classical Music, conducted by M. Giardino. Overture, Benvenuto Cellini (Berlioz); Song from The Damnation of Faust (Berlioz); The Surprise Symphony (Haydn); Forest Murmurs, from Siegfried (Wagner). **11.0,** Gramophone Music or Relay.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.—7.0 p.m.** (from **Geneva**). Mountaineering Programme—Stories and Suggestions for Climbing. **7.30** (from **Geneva**), Weather and News. **8.0,** Concert by a Children's Choir, for the Anniversary of the Entry of Geneva into the Swiss Confederation. In an interval at **8.15,** Address. **8.45** (from **Geneva**), Talk: The Creation of the Post Office and the First Geneva Stamps. **9.5,** Selection from La Fête de Juin (Jaques-Dalcroze), by the Sta ion Orchestra. **9.50,** News and Weather. **10.0** (from **Lausanne**), Songs on Gramophone Records. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (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 Bulletin. **10.30,** Talk. **11.0,** Concert by the Station Trio, followed by Songs and Popular Music on Gramophone Records.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.30 p.m.,** English Lesson. **7.0,** Weather. **7.5,** Concert or Operetta Music. Soloist: Irma Kalnins (Soprano). Overture, Im Reiche des Indra (Lincke); Selection from First Love (Gilbert); Songs and Airs from Operetta; Waltz from The Merry Peasant (Fall); Potpourri (Lehár). **8.0,** News. **8.15,** Pianoforte Recital: Etude (Stravinsky); Airs (Prokovjev); (a) Prelude, (b) Two Pieces from Contes de la vieille grand'mère, Op. 31, (c) Gavotte from the Symphonic classique, (d) March from The Loves of the Three Oranges; Airs (Bartok): (a) Three Miniatures, Op. 10, (b) Allegro barbaro, (c) Air; Cappriccio in F Minor (Delmanyi). **8.45,** Concert of Light Music. In an interval at **9.0,** Weather and News. **9.20,** Relay of Foreign Stations. **10.30** (approx.), Close Down.

RJUKAN.—See **Oslo.**

ROME

CALL 1RO, 680 kc s, 441 metres; 50 kW. Relayed by **Naples, 931 kc s, 319 metres;** and **2RO, 11,810 kc s, 25.4 metres.—1.10 to 2.15 p.m.,** Concert from **Turin.** In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **4.45,** Programme for Children. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30 to 6.30,** Song and Violin Recital. **6.40** (Naples), Shipping and Sports Notes. **6.50,** Agricultural and Dopolavoro Notes. **7.10,** Tourist Report. **7.20,** Announcements in various languages. **7.40,** Giornale Radio. **8.0,** Time and Announcements. **8.15,** Song Recital by Giselda de Bonitatibus (Soprano); La rondinella (Lattuada); Liu's Aria from Turandot (Puccini); Grandinas (Barrera and Calleja); Seguidilla murciana (Falla). **8.30,** Giornale Radio and Sports Notes. **8.35** (approx.), Opera from **Turin,** Giornale Radio after the Opera

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.—11.45 p.m.,** Stock Reports. **12 Midnight to 2.0 a.m. (Friday), New York** Relay. **12 Midnight,** Sponsored Programme. **1.0,** Capt. Henry's Show Boat. **2.0,** Variety Programme, from **New York,** followed by Programme Résumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather Report. **12 Noon** (from **Basle**), Extracts from A Midsummer Night's Dream (Mendelssohn). **12.30 p.m.,** News. **12.40** (from **Basle**), Scandinavian Music on Gramophone Records. **1.25** (from **Zürich**), Exchange, Time and Weather. **1.30** (approx.) **to 5.0,** Interval. **5.0** (from **Zürich**), Concert by the Small Station Orchestra. **6.0** (from **Zürich**), Gramophone Music. **6.30** (from **Basle**), Talk on Birds' Nests. **7.0** (from **Basle**), Time, Weather and Programme for Workers. **7.10** (from **Basle**), Light Music on Gramophone Records. **7.45** (from **Basle**), Introductory Talk to the following Transmission. **8.0** (from **Basle**), Beethoven Concert, relayed from the Musiksaal. In the interval at **9.30** (approx.), Weather and News. **10.20** (approx.), Close Down.

SEVILLE

EAJ7, 815 kc s, 368.1 metres; 1.5 kW.—**9.30 to 10.0 a.m.,** News Bulletin. **3.0 to 4.0 p.m.,** Concert. Part I.—The Station Orchestra: Foxtrot, Rio Rosa (Jardi); Two Waltzes (Beethoven): Overture, William Tell (Rossini); selection from El salto del Pasiego (Caballero). Part II: Flamenco Songs. **10.0 to 12 Midnight,** Concert. Part I—Orchestral Music: Andalusian Airs (arr. Tressa); Habanera, La Paloma (Yradier); Ballet Music from Sylvia (Delibes); Mazurka from El ultimo romántico (Soutullo—Vert); Una noche en Calatayud (Luna). Part II—Songs and Dance Music. Part III—Flamenco Songs. In the interval, News, Exchange and Weather **12 Midnight** (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; Horby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Religious Address. **5.30,** Programme for Children. **5.45,** Concert of Gramophone Music. **6.45,** English Lesson, relayed from **Jönköping, 1,490 kc/s, 201.3 metres. 7.15,** Weather and News. **7.30,** Trifles a Play (Susan Glaspell). **8.15** (from **Göteborg**), Choral Concert. **8.45,** Talk, relayed from **Malmö, 1,301 kc/s, 231 metres. 9.15,** Musical Programme. **9.45,** Weather and News. **10.0** Concert of Light Music. **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time Signal. **1.1,** Exchange Quotations. **1.5,** Orchestral Concert, conducted by M. de Villers: Overture, Mozart (Hahn); Suite, Bal à la cour (Thomé); Selection from Hansel and Gretel (Humperdinck); Violin Solo: M. Grégoire, Tambourin chinois (Kreisler); Symphonic Fragments from Aphrodite (Février). **2.0,** Children's Programme. **3.0 to 4.15,** Interval. **4.15,** Elocution Lesson. **4.30,** Programme for Children, relayed from **Bordeaux Lafayette. 6.0,** Talk in German: French Civilisation. **6.15,** Programme for Women. **6.30,** Orchestral Concert, conducted by M. Roskam. **7.30,** Time Signal and News. **7.45,** Sound Film Successes, on Gramophone Records. **8.15,** Press Review in German, Lottery Results, and News. **8.30,** Gramophone Music. **8.45,** Concert by the Municipal Orchestra, conducted by M. E. G. Munch, relayed from the Orangerie: Overture, Martha (Flotow); Le Pas de fleurs, from Naila (Delibes); Waltz from Le Pas des Fleurs (Delibes); Scènes pittoresques (Massenet); Orchestral Suite, Scènes pittoresques (Massenet); Overture, Mignon (Thomas); Violin Solos: M. Drillon: (a) Serenade, Op. 15, No. 1 (Moszkowsky), (b) Meditation from Thäis (Massenet); Ballet Music from Undine (Lortzing); Marche Militaire, Op. 51, No. 1 (Schubert-Guirand). In the Interval, Press Review in French.

STUTTGART

MUHLACKER, 832 kc/s, 360.6 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.—1.30 p.m.,** Songs by Franz Völker, on Gramophone Records. **2.0,** Concert, arranged by the Post Office. **2.30,** Spanish Lesson. **3.0,** Elementary English Lesson. **3.30,** Programme for Young People. **4.30** See **Munich. 5.45,** Time and News. **6.0,** Talk: What is happening in China? **6.25,** Talk: The Family its Evolution, Composition and Purpose. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Leipzig. 8.0,** Das Rosenband—Verse and Music of the Rococo Period, with Commentary. **9.10,** A Ball in 1900—Old Dance Music by the Württemberg Symphony Orchestra, conducted by Gustav Görlich. **10.10,** Time and News. **10.30,** Contemporary German Song-Writers: Recital by Margarete Wetter (Soprano). Four Songs (Richard Trunk): (a) Frühlingssonne, (b) Stilles lied I and 2, (c) Pan, (d) Das Heimd; Two Songs (Jos. Haas): (a) Stilles kleines Kämmerlein, (b) Warte, wenn wieder das Veilchen blüht; Three Songs (Hans Pfitzner): (a) Liebeslied, (b) Die Einsame, (c) Greisel; Three Songs (R. Strauss): (a) Schlechtes Wetter, (b) Blauer Sommer, (c) Herr Lenz. **11.0** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to Fire. **6.30 p.m.,** Programme for Children. **7.0,** Programme by an Argentine Orchestra. **7.15,** Horse Racing Results, Market Prices and News. **7.25,** Local News. **7.30,** Opera Music. Selection from (a) L'Africaine (Meyerbeer), (b) Boris Godunov (Mussorgsky), and (c) The Damnation of Faust (Berlioz). **7.45,** Music by a Viennese Orchestra. **8.15,** Light Music. **8.45,** Extracts from Die Walküre Opera (Wagner). **9.30,** Military Music. **9.45,** Operetta Airs. **10.0,** Opera Music. **10.15,** North African News. **10.30,** Concert for Listeners in Morocco. **11.0,** Dance Music. **11.15,** Chansonnettes. **11.30 to 12 Midnight,** Programme in English by the I.B.C. W. Brown Constable announcing. **11.30,** Military Band Concert. March, Blaze Away; Selection from Sun Toy; Fantasia—The Battle of Waterloo; Descriptive Piece; A Voyage in a Troopship; Serenade; Marche lorraine. **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News, Weather and Announcements. **12.5 a.m. (Friday),** Popular Choruses. **12.15,** Accordion Music. **12.30** (approx.), Close Down

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW. **5.0 to 6.0 p.m.,** See **Turin. 6.0 to 6.35,** Interval. **6.35** 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, 593 kc/s, 500.8 metres.—5.0 to 6.0 p.m.,** Variety Concert. **6.35,** Giornale Radio, Agricultural Report, Dopolavoro Announcements. **7.0,** Time, Tourist Talk and Gramophone Records. **7.20,** Giornale Radio. **7.45,** Gramophone Records. **8.0,** Announcements, Giornale Radio and Weather. **8.10,** Gramophone Records: Florentine March (Fucik); Mona Lisa (Sullivan); In Santa Lucia (Stransky); Donde estas corazon? (Serrano); Rosaie (Cherubini-Bixio). **8.20,** Talk on the following Transmission. **8.30,** Othello, Opera in Four Acts (Verdi). In the intervals, Music Review and Literary Talk. After the Opera, Giornale Radio.

VATICAN CITY

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

VIENNA

581 kc s, 517 metres; 15 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.—4.55 p.m.,** Concert by the Vienna Women's Symphony Orchestra, conducted by Julius Lehnert. Soloist: Maria Rodasi (Violin). Symphony in D (Wagenseil); Prelude to Le Déluge (Saint-Saëns); Violin Solo: Jota (Falla); Variations on a Theme of Tchaikovsky (Arensky); Molly on the Shore (Grainger); Mock Morris (Grainger). **5.45,** Talk: The Exhibition of Austrian Photography in the Austrian Museum. **6.0,** Talk by the President of the International Board of Trade. **6.25,** Theatre Review. **6.35,** Talk: Christianity in the Portuguese East Indies. **7.0,** Talk: Experiences of an Architect in the Tyrol, Berlin, the Rhineland, Anatolia and Bagdad. **7.30,** Time, Weather and Programme Announcements. **7.40,** Recital on Two Pianofortes by Maryan Rawiez and Walter Landauer. Wiener Meister Potpourri I (Rawiez-Landauer); Mean to Me (Turk-Fred Ahlert); Waltz Fantasia from Die Fledermaus (Joh. Strauss); Wiener Meister-potpourri II (Rawiez-Landauer); Liebesleid and Liebesfreud (Kreisler); Jazz Potpourri (Rawiez-Landauer). **8.30, See Turin.** In an interval, News, Weather and Announcements.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—**1.57 a.m.,** Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Gramophone Concert. In the Interval at **3.35,** Talk. **4.25,** French Lesson. **4.40,** Talk: Jean Ladislas Davic, Scholar and Teacher. **5.0,** Gramophone Records. **5.40,** Topical Talk. **5.55,** Programme Announcements. **6.0,** Light Music and Dance Music. In the Interval, News. **7.0,** Miscellaneous Items. **7.20,** Agricultural Notes. **7.30,** Literary Talk. **7.45,** Radio Journal. **8.0,** Concert by the Station Orchestra, conducted by Nawrot; Soloist: S. Miller (Soprano): Mazurka (Wieniawsky); Ukranian Dance (Noskowski); Valse-Berceuse (de Micheli); Parana Dogale (Mariotti); Songs: (a) Love Song (Tirindelli), (b) Baccio vero (Ghigi), (c) la libaro (Lacome); Waltz from Der liebe Augustin (Fall); Melody (Rubinstein); Ce n'était qu'une fois (Kowalska); Spanish Waltz (Rosen); Intermezzo (Leopold); Romance (Renié); Songs: (a) May Song (Gall), (b) Waltz Song (Gall), (c) Do you remember? (Berlin); A Comedy Overture (Keler-Bela); Boston Waltz (Maklakiewicz); Carnival Polka (Buenlossi); Mazurka (Namyslowski). In the Interval, Sports Notes and Radio Journal. **9.30,** Dramatic Programme. **10.15,** Dance Music. **10.55,** Aviation Weather Report and Police Notes. **11.0,** Dance Music.

WILNO

533 kc/s, 563 metres; 16 kW.—**5.55 p.m.,** Programme Announcements. **6.0,** Dance Music on Gramophone Records. **6.40,** Lithuanian News. **6.45,** Miscellaneous Items. **7.0,** Topical Talk. **7.10,** Answers to Correspondents. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

ZAGREB

977 kc s, 307 metres; 0.75 kW.—**7.0 p.m.,** Announcements. **8.0,** See **Ljubljana. 10.0,** News and Weather. **10.10,** Dance Music by the Bingo Boys Orchestra, relayed from the Esplanade Hotel. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

FRIDAY

JUNE THE SECOND

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Act I of "Othello," from the Royal Opera House, Covent Garden. Light symphony concert.
LONDON REGIONAL	"The Wild Duck," a play by Ibsen.
MIDLAND REGIONAL	Band programme.
NORTH REGIONAL	Orchestral concert.
SCOTTISH REGIONAL	"Scotland Calling," an all-Scottish entertainment of music, song and humour.
BELFAST	Military Band Concert.

ABROAD

BARI	8.35 p.m. Concert of Opera Music.
BERO-MUNSTER	8.0 p.m. Beethoven Concert from the Musiksaal, Basle.
BRESLAU	8.0 p.m. The Silesian Philharmonic Orchestra.
BRUSSELS (No. 2)	9.30 p.m. Concert, conducted by K. Candael, from Antwerp.
EIFFEL TOWER	8.30 p.m. Comedy: "Le Malade Imaginaire," by Molière; 9.15 p.m., Symphony Concert.
HEILSBERG	6.25 p.m. Pianoforte Quartet, No. 13, in C Minor, by R. Strauss.
STOCKHOLM	10.0 p.m. Recital of German Music of the Romantic Period.
STUTTGART	9.35 p.m. Schumann Pianoforte Recital.
VIENNA	8.45 p.m. Wagner's Early Opera Music, by the Vienna Symphony Orchestra and the State Opera Choir.

ATHLONE

725 kc/s, 413 metres; 60 kW.; and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report, and Gramophone Music. **6.0,** Programme for Children. **6.45,** News Bulletin. **7.0,** Talk on Gardening. **7.15,** Literary Talk. **7.30,** Time Signal. **7.31,** Concert by the Station Orchestra. **8.0,** Tenor Solos by R. McCullagh. **8.15,** The Station Orchestra. **8.30,** Soprano Solos by M. French. **8.40,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report, and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW.—**7.0 p.m.,** Trio Concert. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations. **9.0,** Gramophone Music and News. **10.0,** Chimes from the Cathedral and Weather Forecast. **10.5,** Sponsored Programme. Exchange Quotations, and Market Prices. **10.10,** Gramophone Music. **11.0,** Concert of Music by Joaquin Zamacois by the Station Orchestra and Mercedes Plantada (Songs). In the interval at **12 Midnight,** News Bulletin. **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 Dopolavora Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time Signal and Announcements. **8.35** (approx.), Concert of Opera Music. Soloists: M. de Santis Bruno (Soprano) and Franco Signorile (Tenor). Overture, Luisa Miller (Verdi). Soprano Solo from Le Rondine (Puccini). Tenor Aria from Mignon (Thomas). Selection from L'Amico Fritz (Mascagni). Soprano Aria from Rigoletto (Verdi); Tenor Aria from Manon Lescaut (Puccini). Selection from L'Amore dei tre re (Montemezzi); Overture, Le Preziose ridicole (Lattuada). Soprano Solo from Louise (Charpentier). Tenor Solo: Sicilienne from Cavelleria rusticana (Mascagni). Intermezzo from Manuel Menendez (Filiasi); Duet from Act II of Rigoletto (Verdi); Selection from The Wily Widow (Wolf-Ferrari). In the interval: Theatre Notes. **10.30,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Gramophone Records. **7.20,** Talk. **8.0,** Gramophone Records. **8.30,** Concert by the Station String Quartet. **9.0,** Variety Programme. **10.30,** News, followed by Cigány Music from the Rudnicanin Restaurant.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc s, 1,635 metres; 60 kW.—**2.0 p.m.,** Gramophone Records of the Squire String Octet. **3.0,** Talk for Girls. **3.30,** Weather and Exchange. **3.45,** Reading (Wilhelm Schmidtbonn). **4.0,** See **Leipzig. 5.0,** Talk: The Vocational Training Movement under the National Socialists administration. **5.25,** Dialogue on the Whitsun Demonstrations of Young Hitlerites. **5.35,** Richard Wetz Song Recital by Fred Drissen: Au die Nacht; Kophtisches Lied; Menschenbeifall; Habe nichts; Spruch; Volkslied; Hyali; Herbst; Herbstabend Liebesnot; Der Beichtiger. **6.0,** A Poem. **6.5** (approx.), String Quartet in A Minor (Richard Wetz), by the Hennig Quartet. **6.30,** Talk: The Newspaper Campaign against the New German Administration. **6.50,** Weather and Announcements. **7.0,** Transmission for All German Stations, relayed from **Frankfurt. 8.0,** An Epigram. **8.2** (approx.), Concert from **Leipzig. 9.30,** Dance Music. **10.15,** News. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Frankfurt. 12 Midnight** (approx.), Close Down.

BERLIN

WITZLEBEN, 715 kc s, 419.5 metres; 1.5 kW.—**6.40 p.m.,** The Witzleben Station informs its Listeners . . . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.5,** Announcements. **8.10,** Der Freikorporal—Opera (Vollerthun) Concert Version, with the Composer conducting. **9.10,** The Country beyond the Frontier. A Journey through Lost German Territory. **10.0,** Weather, News, and Sports Notes. **10.15,** Orchestral Concert, conducted by Albrecht Nehring, relayed from Stettin: March, Zum Städtel hinaus (Meissner); Traumwalzer from Der Feldprediger (Millöcker); Overture, William Tell (Rossini); Spanish Fantasia. A Festival in Aranjuez (Demerssoman); Puppenwalzer from Die Puppenfee (Bayer); Selection from The Maid of the Black Forest (Jessel). **12 Midnight,** Close Down.

BERNE.—See **Schweizerischer Landessender.**

BERGMUNSTER. — See **Schweizerischer Landessender.**

BODEN.—See **Stockholm.**

BODO.—See **Oslo.**

BORDEAUX-LAFAYETTE

986 kc/s, 304 metres; 13 kW.—**6.15 p.m.,** Radio Journal. **7.30,** News. **7.40,** Talk for Schools. **7.55,** Lottery Results. **8.0,** Spanish Lesson. **8.15,** News. **8.30,** Concert by the A.R.C.A. Symphony Orchestra and Soloists.

BRATISLAVA

1,076 kc s, 279 metres; 14 kW. **7.0 p.m.,** See **Prague. 7.25,** Concert by the Station Orchestra, conducted by L. Raiter: Overture, Egmont (Beethoven); The London Symphony (Haydn); Suite from A Midsummer Night's Dream (Mendelssohn). **8.15,** See **Prague. 10.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—12 Noon,** Concert, relayed from the Old Town Hall, Bremen. **1.0 p.m.,** Time, Weather and News. **1.15,** Gramophone Concert: Selection from The Mastersingers (Wagner); Air from Der Pfeifertag (Schillings); Cradle Song, Schlaf Herzenssöhnchen, Op. 13, No. 2 (Weber-Heimer); Bavarian Folk Song, Op. 326, No. 37, 's Zuschaun (Bohm); Rendezvous der Puppen (Geldhardt); Kleiner Narr (Fisher); Tarantella from Venezia e Napoli (Liszt); Waltz, Frühlingsstimmen (Joh. Strauss); Military March, Op. 37, No. 1 (R. Strauss); War March, Op. 37, No. 2 (R. Strauss). **2.15,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.30,** Programme for Children. **4.0,** See **Leipzig. 5.0,** Talk: The Secret Rulers of France. **5.20,** Agricultural Prices. **5.25** (approx.), Talk: The Meaning of Rhythm, with Musical Illustrations. **5.40,** Programme to be announced. **6.0,** Mandoline and Zither Concert of Folk Music. **6.30,** Talk: Napoleon overruns Europe. **6.50,** Weather for Farmers and News. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Concert by the Silesian Philharmonic Orchestra, conducted by Franz von Hoesslin: Symphony in D without the Minuet (Mozart); Fugue for String Orchestra (Kaminski); Symphony No. 6—the Pastoral (Beethoven). In an interval at **8.45,** Florian Seidl reads his Story, Heilige Heimat. **10.0,** Time, Weather and News. **10.30,** Talk: Springtime in the Iser Gebirge. **10.50,** Concert from **Stettin** (See **Berlin, Witzleben**). **12 Midnight** (approx.), Close Down.

BRNO

878 kc s, 342 metres; 35 kW. **4.10 p.m.,** Concert of Offenbach Music by the Station Orchestra, conducted by Janota: Overture, Orpheus in the Underworld; Selection from The Tales of Hoffmann; Selection from La Vie Parisienne; Melodies from The Goldsmith of Toledo. **4.55,** Theatre Review. **5.5,** See **Prague. 6.5,** Talk on Creative Art. **6.15,** Talk for Workers. **6.25,** German Transmission: News, Sports Notes, and Talk on Oxford, England's Oldest Centre of Culture. **7.0,** See **Prague. 7.10,** Talk: The Construction of Matter. **7.25,** See **Moravská-Ostrava. 8.15,** See **Prague. 10.15** (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 P. Leemans. **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert of Opera Music. **2.0,** Broadcast for Schools. **5.0,** Concert by the Small Station Orchestra, conducted by P. Leemans. Overture, Der Schauspieldirektor (Mozart); L'aven dans le soir (Paray); Fantasia on Limousin Airs (Rouchard); Pianoforte Solo: Spanish Caprice (Moszkovsky); Selection from Thaïs (Massenet); 'Cello Solo: Neapolitan Serenade (Sgambati); Gipsy Dance from The Fair Maid of Perth (Bizet); Ballet de cour (Pierné). **6.0,** Talk. **6.15,** Gramophone Concert: Symphony No. 31 (Mozart); Three Songs from Die schöne Müllerin (Schubert). **6.45,** Beethoven Pianoforte Recital by Oscar Delvigne: Andante in F, Sonata appassionata, Op. 57. **7.15,** Talk on Modern Youth. **7.30,** Legal Talk and Literary Review. **8.0,** Concert by the Station Symphony Orchestra, conducted by Meulemans. Soloists: Mme. Van Dromme (Songs) and M. Clabeck (Trumpet). Overture, Gwendoline (Chabrier); Symphonic Piece for Trumpet (Barbier). Songs (Mussorgsky): (a) Trepák, (b) The Field Marshal; Chasse fantastique (Guirand). **8.45,** Talk. **9.0,** Concert (contd.): Selection from Le Barufle Chiozzottoe (Sinigaglia); Orchestral Suite (Kalkman); Three Songs; Invitation to the Waltz (Weber); Conte d'avril (Widor); Military March from the Algerian Suite (Saint-Saëns). **10.0,** Le Journal Parlé. **10.10,** The Listeners' Quarter-of-an-Hour. **10.25,** Gramophone Concert.

BRUSSELS (No. 2)

N.I.R., 887 kc/s, 338.2 metres; 15 kW. Programme in Flemish. **12 Noon,** Gramophone Concert of Light Music. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans. **2.0,** Broadcast for Schools. **5.0,** Concert by the Station Symphony Orchestra, conducted by Arthur Meulemans: Symphony No. 7 in C (Haydn); Ballad, Soir d'été sur la bruyère (Benoit); Waltz Suite (Gilson); Adoration (la Gye); Petite Suite de Concert (Coleridge Taylor). **6.0,** Gramophone Music. **6.15,** Talk on Automobile Engineering. **6.30,** Concert by the Station Orchestra, conducted by P. Leemans. **7.15,** Reading from Wireless in Denmark (Nielsen). **7.30,** Wireless Notes. **8.0,** Gramophone Records: Overture, Bronwen (Holbrooke); Variations on a Theme of Corelli (Tartini-Kreisler); Fire Dance (Falla); Badinerie (Canus); Overture, Semiramis (Rossini). **8.30,** Radio Play. **9.25,** Etude No. 27, arranged for a Quartet (Chopin), on Gramophone Records. **9.30,** Concert conducted by Karel Candael, relayed from **Antwerp:** Humoresque (Grieg); Petit triptyque (Maes); Stenka Rasin (Jarov); Signal (Candael). **10.0,** Le Journal Parlé. **10.10,** Concert by the Minstrel Club Orchestra, conducted by M. De Vandel.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Concert by the Station Orchestra. Soloist: D. Teodoru (Violin). Overture, The Merry Wives of Windsor (Nicolai); Divertissement from Les Erinnyes (Massenet); Selection from La Belle Hélène (Offenbach); Grieg Potpourri (Urbach); Waltz, The Blue Danube (Joh. Strauss); Spanish Rhapsody (Chabrier); Symphonic Poem, Les Préludes (Liszt); Canzonetta from the Concerto for Violin (Tchaikovsky); Turkish March (Mozart). In an interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Opera Music on Gramophone Records. In the intervals, Radio Journal.

BUDAPEST

545 kc s, 550.5 metres; 18.5 kW. Also relayed on **840 metres** from **7.10 p.m. to 12 Midnight.—4.0 p.m.,** Concert by the Nandor Medgyessy Cigány Band. **5.0,** Talk. **5.30,** Concert by the Budapest Concert Orchestra. **6.30,** Shorthand Lesson. **7.0,** Market Prices. **7.10,** Gramophone Music. **8.10,** Political Review. **10.30,** News Bulletin. **10.40** (approx.), Concert by the Bela Bodries Cigány Band from the Café Patria. **12 Midnight** (approx.), Close Down.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc s, 281 metres; 0.75 kW.; **and Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12.5 p.m.,** Concert relayed from the Bellevue Strandhotel. **2.0 to 3.30,** No Transmission. **3.30,** Concert by Carl Rydahls' Instrumental Ensemble; Soloist, Ellen Polack (Songs). **5.35,** Exchange and Fish Market Prices. **5.50,** Talk on the Motor-Car Industry. **6.20,** German Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on Social Reform. **8.0,** Chimes from the Town Hall. **8.5,** Programme by Per Knutzon. **8.10,** Concert of French Music by the Radio Orchestra, conducted by Emil Reesen: Overture, La Princesse jaune (Saint-Saëns); Bacchanale from Samson and Delilah (Saint-Saëns); Suite, Jeux d'enfants (Bizet); Pavane pour une Infante défunte (Ravel); Rhapsody on Popular Themes (Gaubert). **9.0,** H. C. Andersen sits as a Model—Radio Play (Carl Arctander). **9.15,** Dance Music for Pianoforte and Saxophone. **9.45,** A Radio Sketch (Evald Lougfors). **10.0,** News. **10.15,** Viggo Brodersen Song Recital by Hertha Bjorvig. **10.30,** String Quartet in A Flat, Op 105, for Two Violins, Viola, and 'Cello (Dvorak). **11.5** (approx.), Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW.—**7.0 p.m.,** Talk on the Modern Theatre. **7.15,** Miscellaneous Items and News. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

DANZIG.—See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C., T. St. A. Ronald and B. McNabb announcing. **5.30,** Military Band Concert for Southampton and Winchester Listeners: On the Quarter Deck (Alford); Stein Song (Coleord-Enstead); Old Comrades' March (Teike); The Battle of Waterloo (Eekersberg); Xylophone Solo, National Emblem (Bagley); Jungle Drums (Ketelbey); Serenade (Heykens); Cornet Solo, The Lost Chord (Sullivan); Carry on (Dundas); Selection from Floradora (Leslie Stuart); Marche lorraine (Ganne). **6.15,** Concert for Bournemouth and Weymouth Listeners: Vienna, City of my Dreams; Three Songs: (a) Boots (McCall), (b) The Gay Highway (Drummond), (c) The Smugglers' Song (Mortimer); Spanish Serenade (Herbert); Chinese Serenade (Herbert); Two Songs: (a) To Mary, (b) Down Vauxhall Way (Oliver); By the Swanee River (Myddleton); Three Songs: (a) A Border Ballad (Cowen), (b) The Mighty Deep (Jude), (c) March of the Cameron Man (Campbell); Waltz, Wiener Blue (Joh. Strauss). **7.0,** Programme in French. **10.0** till Close Down. Programme in English by the I.B.C. **10.0,** Dance Music by the Dcolians: Underneath the Arches (Flanagan); Ain't misbehavin' (Brooks); The Flies crawled up the Window (Ellis); Kansas City Kitty (Leslie); One more Kiss (Tobias); I faw' down and go Boom (Stevens); Mona Lisa (Sullivan); The Bogie Wail (Myers); Sheltered by the Stars; Just a Little Home for the Old Folks; You've got me in the Palm of your Hand; Fit as a Fiddle; My Romance; I can't believe it's true. **11.0,** A Half-Hour with Mendelssohn: Overture, Ruy Blas; Pianoforte Solo, The Bees' Wedding; Selection from A Midsummer Night's Dream; Pianoforte Solo, Rondo Capriccio; Spring Song; War March of the Priests, from Athalie. **11.30,** Vocal and Orchestral Concert: Overture, Masaniello (Auber); Aria from Martha (Flotow); Questa o Quella, from Rigoletto (Verdi); Barcarolle from The Tales of Hoffman (Offenbach); Tarantella, La Danza (Rossini); Santa Lucia (Traditional); La

Donna e Mobile, from Rigoletto (Verdi); Reconciliation from Les millions d'Arlequin (Drigo). **12 Midnight,** Club Concert for Colchester Listeners: The Changing of the Guard (Flotsam and Jetsam); Two Songs: (a) Exactly like you (Fields), (b) More than you know (Youmans); Carry one (Dundee); Two Songs: (a) The Crocodile (Traditional), (b) Pretty Polly Perkins (Traditional); Organ Solo, There's something about a Soldier (Gay); Two Songs: (a) Archie of the R.A.F. (Longstaffe), (b) The Driver of the 8.15 (Longstaffe); The Voice of the Guns (Alford); Song, Silver Threads among the Gold (Danks); Organ Solo, Butterflies in the Rain (Sherman Myers); Song, Love's Old Sweet Song (Molloy); Colonel Bogey March (Alford). **1.0 a.m. (Saturday),** Hawaiian Duets; Sing Something Simple (Hupfield); Bone Festa (Traditional); Three Little Words (Creek); O Sole Mio (di Capua); Alma Mia (Whidden); Kamschamoki (Traditional); Goodnight Sweetheart (Noble); Hawaiian Twilight (Traditional). **1.30,** Vocal Duets; Dancing with Tears in my Eyes; Songs I heard at Mother's Knee; Sweeping the Clouds away; Song of the West; Sleepy Time down South; The same as we used to do; Kiss me Goodnight. **2.0,** Dance Music by the Ibeolians: I'll follow you; Isn't it Romantic? A Million Dreams; Mimi; Here's hoping; Somebody stole my Gal; Always in my Heart; What would happen to me? Dreaming; Wheezy Anne; Wanderer; Night after Night; Just an Echo in the Valley; A little Street where Old Friends meet. **2.57,** I.B.C. Goodnight Melody. **3.0,** Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres;** and **Trier, 1,157 kc/s, 259.3 metres.—7.0 p.m.,** Transmission for all German Stations: Echoes from the Rhine-Main District—a Radio Sequence. **8.0,** See **Munich. 9.0,** The Flags of Germany—a Radio Sequence (Heinz Nieth). **9.30,** Symphony in D, Op. 73 (Brahms), by the Station Orchestra, conducted by Hans Rosbaud. **10.15,** Time and News. **10.45,** Concert; Part I: Music by Hans Fleischer; Part II: Old Dance Music. **12 Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse), **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.—5.0 p.m.** (from **Bremen**), Humorous Dialect Programme. **5.30,** Hamburg, Bremen and Lübeck Report on Events in the Senate and House of Burgesses of the Hanseatic Free Cities. **6.0,** Piepen Papen Basteriahn, a Comedy in North German Dialect (C. F. Mass). **6.40,** Frankfurt Exchange and Hamburg Market Prices. **6.50,** Weather Report. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** See **Munich. 9.0,** (from **Kiel**), From the Archives of the Schleswig-Holstein Musical Collection Concert by Käthe Trass (Soprano), August Schreibage (Violin), Karl Zanbitzer (Viola), Hans Hillebrand ('Cello) and Hans Döring (Pianoforte). Serenade Op. 126 No. 2 for Violin 'Cello and Pianoforte (Reinecke); Des Kindes Gebet (Rhode); Mutterfreude (Rhode); Adagio from the Sonata Op. 70 for Violin and Pianoforte (Niemann); Die schlanke Wasserlinie (Woyrsch); Weil auf mir du dunkles Auge (Woyrsch); Quartet Op. 272 for Violin, Viola, 'Cello and Pianoforte (Reinecke). **10.0,** Time and News. **10.20,** Topical Talk. **10.30** (from **Kiel**), Orchestral Concert, conducted by Hans Döring, Overture, The Crown Diamonds (Auber); Minuet, Belvedere (Brose); Selection from Der Waffenschmied (Lortzing); Mazurka, Herzblattl (Blon); Selection from Der Tenor der Herzogin (Künnecke); Friedemann Bach Suite (Lenschner); Waltz from Ball bei Hof (Ziehrer); Intermezzo, Puppert (Siole); March Um den Lorbeer (Christ).

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.—12.30 p.m.,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Hungarian Comedy Overture (Keler-Bela); Waltz, Wiener Bonbons (Joh. Strauss); Selection from The Hermit's Bell (Maillart); Suite, Ein Fest im Gnomenreich (Wittelborn); Overture, The Merry Wives of Windsor (Nicolai); Two Melodies from the Sound Film, Grün ist die Heide (Blume); Selection from The Bartered Bride (Smetana); Slav Rhapsody (Volpatti); March Potpourri (Schmidt-Hagen). In the intervals, Weather and News. **2.30,** Programme arranged by the Post Office, with Gramophone Records. **3.0,** Exchange and Market Prices. **3.30,** Programme for Children. **4.0,** Programme for Women. **4.30,** Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Overture, Le Cheval de bronze (Auber); Suite mignonne (Sibelius); Waltz, Flattergeister (Jos. Strauss); Selection from Der Rosenkavalier (Richard Strauss); Rhapsody No. 4 (Liszt); Overture, Turandot (Lachner). In an interval at **5.0,** Dialogue on Rambling. **5.45,** Review of Periodicals. **6.15,** Market Prices. **6.25,** Pianoforte Quartet No. 13 in C Minor (R. Strauss) by the Königsberg Chamber Music Association. **6.50,** Weather. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** News. **8.10,** The Zoological Gardens—A Song Sequence (Erwin Zillinger) for Four-Part Mixed Choir and Orchestra. The Wireless Chorus and the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky. **9.30,** News. **9.40,** Reading from Michael Kohlhaas (Heinrich von Kleist). **10.10,** News.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW. (7 kW. up to **4.40 p.m.**).—**11.40 a.m. to 3.40 p.m.,** Programme of the Algemeene Vereeniging Radio Omroep. **11.40,** Time and Gramophone Records. **12.10 p.m.,** Dance Music by Kovacs Lajos and his Orchestra. **1.40,** Talk. **2.10,** Gramophone Records. **2.40,** Talk. **3.10,** Gramophone Records. **3.40 to 7.40,** Programme of the Workers' Radio Society (V.A.R.A.). **3.40,** Organ Recital by J. Jong. Selection from Chu Chin Chow (Norton); Waltz, Gold and Silver (Lehar); Selection from I Pagliacci (Leoncavallo); High Society Blues (Hanley); Het lied van de vlag (van Zetten). **4.25,** Programme for Children. **4.55,** Gramophone Records. **5.55,** Concert by the V.A.R.A. Orchestra, conducted by de Groot: Overture, Die Felsenmühle (Reissiger); Suite from Czar Saltan (Rimsky-Korsakov); Die Schwärmer (Lanner); Die Waldvögel (Mayer); Schritte im Zweivertelt-takt (Kuckert); Invitation to the Dance (Weber Berlioz); Three Novelettes from Op. 15 (Glazunov); Melody (Mascagni); Aquarellen-Walzer (Strauss); Jubel-Overture (Weber). In the interval at **6.40,** Talk. **7.40 to 10.25,** Programme of the Liberal Protestant Radio Society (V.P.R.O.). **7.40,** Medical Talk. **8.10,** Gramophone Records. **8.40,** Talk. **9.10,** Gramophone Records. **9.40,** Religious Notes. **9.45,** Press Review. **9.55,** Religious Address. **10.25** till Close Down, V.A.R.A. Programme. **10.25,** Gramophone Records. **10.40,** Dance Music by the Piatrogibas Quartet. **11.40** (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW. **11.55 a.m.** till Close Down, Programme by the Catholic Radio Society (K.R.O.). **11.55,** Concert by the K.R.O. Sextet. **1.25,** Interval. **1.40,** Organ Recital by W. van Bruggen: Organ Concerto No. 2 (Handel); O Sanctis sina (Chipp); Elevation (Bossi); Kyrie Eleison (Reger); Gramophone Music; Two Variations on Puer nobis nascitur (Guilmant); Interlude (Wagenaar); Choral Fantasia (Smeets); Pastorella (v. Bruggen); Religious March (Peralli). **2.55,** Gramophone Music. **4.10,** Concert by the K.R.O. Orchestra, conducted by J. Gerritsen. **4.40,** Gardening Talk. **5.10,** Concert (contd.). **5.40,** Talk on Germany. **5.55,** Concert (contd.). **6.40,** Police Notes. **6.55,** Talk on Petrol. **7.15,** Gramophone Music. **7.25,** International Variety Programme by Willy Derby, Evy Armont, Edwin Gubbens, the Vladimir Pique Trio, De Vier Goossens, and the K.R.O. Boys, conducted by P. Lustenhouwer. **10.20,** Programme Notes. **10.25,** Variety Programme (contd.).

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News, Financial Report, and Racing Results. **8.15,** Esperanto Lesson. **8.30,** Radio Concert. **9.0,** News. **12 Midnight** till Close Down, Programme in English by the I.B.C., H. K. Hitchcock announcing. **12 Midnight,** The Studio Chorus: Carry me back to Old Virginny; Way down yonder in the Cornfield; Selection from Cavalcade (Coward); Auld John Braddleum (Traditional); On Ilka Moor baht 'at (Traditional); Music Hall Favourites. **12.30 a.m. (Saturday),** Rhythm Band: Stevedore Stomp, Misty Morning; The Dicty Glide; Saratoga Swing; I'm so in love with you; The Minor Drag; Shout 'em Aunt Tillie; Harlem Fuss. **12.57,** I.B.C. Good-night Melody. **1.0,** Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW.; and **Helsinki, 815 kc/s, 358.1 metres.—6.15 p.m.,** Programme for Children. **6.40** (from **Helsinki**), Accordion Recital of Marches and Dances. **7.5,** Talk. **7.30,** Talk: A Visit to the Police Station. **7.55** (from **Helsinki**), Concert by the Station Orchestra, conducted by Erkki Linko: Persian March (Strauss); Overture, Orpheus in the Underworld (Offenbach); Pesther-Walzer (Lanner); Selection from Polenblut (Nedbal); Villanesca and Rondalla Aragonesa (Granados); Hungarian Dance No. 6 (Brahms). **8.45,** News in Finish and Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**1.0 p.m.,** Concert, conducted by Wolf; Soloist, Ferdinand Pankok (Zither); Overture, The Water Carrier (Cherubini); Musikanten - Suite (Geisler); Waltz, Am Wörther See (Kochat); Zither Solos: (a) Suite, Waldeinsamkeit (Reigersberg), (b) Mit Lust und Liebe (Huber); Selection from Der Tenor der Herzogen (Künnecke); Quadrille from Die Fledermaus (Joh. Strauss). In the interval at **2.0** (approx.), News. **2.30,** Sponsored Programme with Gramophone Records. **3.30,** Economic Notes and Time. **3.50,** Programme for Children. **4.30,** Orchestral Concert, conducted by Kühn; Soloist, Lotte Hellwy-Joster (Violin). Divertemento No. 1 in E flat (Mozart); Violin Concerto in A minor, No. 22 (Viotti); Valse chivaleresque (Sibelius); Variations on a Theme by Haydn (Brahms). **5.30,** Review of German Novels. **6.10,** German Poems. **6.20,** English Conversation. **6.45,** Weather, Time, Economic Notes and Sports Report. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** News. **8.5,** Political Talk. **8.15,** Concert of German Folk Dances by the Concert Choir, the Children's Choir, and Station Orchestra, conducted by Kneip. **8.45,** Jampitter Morsbach Radio Play (Johann Gottlieb Peiselers). **10.5,** News and Sports Report. **10.20,** Serenade conducted by Wolf. **11.30** (approx.), Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.—12 Noon,** Weather and Time. **12.5 p.m.,** Orchestral Concert, conducted by Bruno Schestak. In the interval at **1.0,** News. **2.0,** Second News. **2.10 to 2.30,** Notes on Art. **2.55,** Music for Flute and Pianoforte. **3.15,** Programme for Country Women: Music in the Village. **3.35,** Market Prices. **4.0,** Concert by the Station Orchestra, conducted by Willy Steffen: Overture, The Siege of Corinth (Rossini); Andante from the Surprise Symphony (Haydn); Cradle Song in F (Georg Pittrich); Suite for Orchestra, Op. 3 (Hans Weilig); Scandinavian Caprice in A Minor (Max Dohnisch); Overture, Karnevalsstreiche (Martin Richter); Pieces from the Serenade in G Minor, No. 4 (Robert Fuchs); Seliges Waldesgeheimnis, Op. 15 (Wilhelm Kienzl); Bolero from Pictures from the South (Carl Reinecke). In an interval at **5.0,** Review of Books. **5.50,** Economic Notes, Weather and Time. **6.0,** Talk: Art in the Village church. **6.20,** Evening in a Youth Hostel: A Sequence in Song and Verse by the Leipzig Branch of Young Hitlerites. **6.45,** Talk: A Thousand Years of Barchfeld. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Italian Concert by the Leipzig Symphony Orchestra, conducted by Theodor Blumer; Soloists, Kurt Hermann (Pianoforte) and Alois Heydrich (Oboe): Antiche Danze ed Arie for Lute and Orchestra (Respighi); Idillio-Concertino for Oboe, String Orchestra, and two Horns (Wolf-Ferrari); Chamber Symphony in B Flat for Pianoforte, two Violins, Viola, 'Cello, Double Bass, Flute, Oboe, Clarinet, Bassoon and Horn (Wolf-Ferrari); First Suite from La Donna Serpente (Casella). **9.30,** The Malice of Objects: a Radio Sequence (Gustav Herrmann). **10.10,** News. **10.20** (approx.), Concert of Light Music by the Emilé Orchestra. **12 Midnight** (approx.), Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 574.7 metres; 7 kW.—**6.0 p.m.,** Quintet Concert. **7.0,** French Lesson. **7.30,** Talk on Geology. **8.0,** Programme relayed from **Belgrade. 10.0,** News and Gramophone Music.

LWOW

788 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Reading. **7.15,** Miscellaneous Items. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

LYONS

LA DOUA, 644 kc/s, 465.8 metres; 1.5 kW.—**7.30 p.m.,** Radio Gazette for Lyons and the South East. **8.30,** Concert of Popular Music. After the Concert, News Bulletin.

MADRID

ARANJUEZ (EAQ), 9,850 kc/s, 30.43 metres; 20 kW. **11.30 p.m.** Concert of Popular Music. In the interval at **11.45,** Radio Chronicle. **12.35 a.m. (Saturday),** Answers to Correspondence. **12.40,** Spanish South-American Talk. **12.45,** Light Music. **1.0** (approx.), Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, Talk by Joaquin Gomez de Llarena. Programme of Musical Novelties and Variety Items by Ramon Gomez de la Serna. **9.15,** News and Political Review. **9.30 to 10.30,** Interval. **10.30,** Chimes, Time Signal, and Political Review. **10.45** (approx.), Symphony Concert on Gramophone Records: Overture, Don Giovanni (Mozart); Entr'acte from Khovantchina (Mussorgsky); Three Dances (Granados); Pianoforte Concerto in A Minor (Schumann); Symphonic Poem, Till Eulenspiegel's Merry Pranks (Oscar Straus); Spanish Caprice (Rimsky-Korsakov). **12.45 a.m. (Saturday),** News and Programme Announcements for Listeners Abroad. **1.0,** Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.15 p.m.,** See **Prague. 7.25,** Concert by the Radvanice Village Band. **8.15,** See **Prague. 10.30** (approx.), Close Down.

MOTALA.—See **Stockholm.**

MUHLACKER.—See **Stuttgart.**

MUNICH

563 kc/s, 533 metres; 60 kW. Relayed by **Augsberg** and **Kaiserlautern, 538 kc/s, 560 metres;** and **Nürnberg, 1,256 kc/s, 239 metres.—5.45 p.m.,** Talk on Moritz Rugendas. **6.5,** Talk on Protection from Aerial Attack. **6.25,** Time, Weather, and Agricultural Notes. **6.35,** Concert by the Tegernsee Trio. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** Trees and Flowers Concert by the Small Station Orchestra, conducted by Erich Klosz; Soloists: Marit Sunko-Saller (Soprano) and Walter Holten (Recitations). **9.0,** Topical Talk. **9.20,** Symphony Concert by the Station Orchestra, conducted by Hans A. Winter; Soloist: Edith von Voigtländer (Violin): Symphonic Prologue to King Oedipus (Schillings); Concerto in E for Violin and Orchestra (Bach); Sinfonietta for Full Orchestra (Jung). **10.20,** Time and News.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredriksstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.—5.0 p.m.,** Gramophone Concert. **6.0,** French Lesson. **6.30,** Agricultural Talk. **7.0,** Announcements, Weather, and News. **7.30,** English Lesson. **8.0,** Time Signal. **8.1,** Hengt man förer an Sketch (Rudo Mabert). **9.30,** Agricultural Notes, Weather, and News. **10.15,** Light Music and Dance Music by the Walter Schubert Ensemble. **11.15** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopodavoro Notes, Tourist Talk, Agricultural Notes, Report of the Royal Geographical Society and Giornale Radio. **8.30,** Gramophone Music. **8.45,** Falstaff—Opera in Two Acts (Verdi) on Gramophone Records. In the intervals: Talk and Announcements. After the Opera, News Bulletin.

PARIS

EIFFEL TOWER, Call FLE, 207.5 kc/s, 1,445.7 metres; 13 kW.—Time Signals (on **2,650 metres**) at **10.26 a.m.** and **11.26 p.m.** (Preliminary and 6-dot Signals). **6.45 p.m.,** Theatre Talk. **7.0,** Le Journal Parlé. **8.30,** Literary and Musical Programme for Young People. **9.15,** Symphony Concert, conducted by M. Flament; Soloists, M. Manouvrier (Flute) and M. René Bas (Violin): A Bâtons rompus (Gillet); Extase (Ganne); Selection from Madame Favart (Offenbach); Flute Solo, Chaconne de l'Impératrice (Honegger); Violin Solo, Entr'acte from La Colombe (Gounod); 'Cello Solo, Waltz, Hofballtänze (Joh. Strauss). **10.0** (approx.), Close Down.

PARIS

POSTE PARISIEN, 914 kc/s, 328.2 metres; 60 kW.—**6.45 p.m.,** Le Journal Parlé. **7.0,** Sponsored Talk. **7.10,** Gramophone Music. **7.55,** Press Review. **8.0,** Talk on Music. **8.15 to 8.30,** Interval. **8.30,** Concert by the Station Symphony Orchestra: Prelude and Dance from Daria (Marty); Etudes latines (Nérini); Song with Orchestral Accompaniment, Musique sur l'eau (Vuillermoz); Piece for Pianoforte and Orchestra, Rhapsody in Blue (Gershwin); Songs, Chansons à la bien-aimée (Bertrand); Suite mignonne (Coppola); Traversée heureuse (F. Schmitt); Paysage polaire (Silver); French March (Filippucci). **10.30,** News.

PARIS

RADIO PARIS, Call CFR, 174 kc/s, 1,725 metres; 75 kW.—**6.45 a.m.,** Physical Culture. **7.30,** Weather and Physical Culture (contd.).

7.45, Gramophone Music. 8.0, Press Review and Weather. 12.0 Noon, Jewish Talk. 12.30, Gramophone Concert: Overture, Le Roi d'Ys (Lalo); Polonaise from Eugène Onegin (Tchaikovsky); La Capricciosa (Ries); Air from Figaro (Mozart); Air from Messidor (Bruneau); Danse sacrée (Debussy); Danse profane (Debussy); Prelude in C (Prokofiev); Le bonheur est chose légère (Saint-Saëns); Le Chasseur maudit (César Franck); La Chanson du pêcheur (Fauré); Pastorale d'été (Honegger); Symphony No. 5, the Pathetic (Tchaikovsky). In the intervals at 1.0, Exchange, News and Weather, and at 1.30, Exchange. 2.0, Exchange and News. 3.45, Exchange and Market Prices. 6.10, Agricultural Talk, Weather and Market Prices. 6.30, Gramophone Music: Impressions of Damascus (Konguell); Serenade (Saint-Saëns); Valse triste (Sibelius); Hungarian Rhapsody (Liszt). 6.50, Insurance Societies' Report. 7.0, Radio Dialogue. 7.20, Gramophone Concert: Lensia (Loyraux); Donauwellen (Ivanovici); Coq et Poules (Paradis); Divine Lady (Shilkret); Saxophone Marmalade (Rosenthal); C'est peu de chose (Verdun); A la Godilie (van Hoorebecke). 7.45, Commercial Prices and News. 8.0, Reading. 8.30, News, Weather. 8.40, Gastronomic Review. 8.45, La danseuse rouge—Play (Charles Henri Hirsch). In the interval at 9.15, Press Review and News.

PITTSBURGH

(KDKA), 980 kc/s, 306 metres; 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.—7.30 p.m.,** KDKA Home Forum. **7.45,** Variety Programme. **8.0,** Betty and Bob, from **New York. 8.15,** International Sunday School Lesson by Rev. S. S. Lappin. **8.30,** Tenor Solos by John Dunlap. **8.45,** Morin Sisters, from **New York. 8.55,** Baseball Scores. **9.0,** Hotel Cosmopolitan Orchestra, from **New York. 9.30,** Market Reports. **9.45,** Programme to be announced. **10.0,** Baseball Scores. **10.5,** Programme to be announced. **10.15,** Dick Daring, from **New York. 10.30,** The Singing Lady, from **New York. 10.45,** Little Orphan Annie. **11.0,** Hotel Roosevelt Orchestra, from **New York. 11.15,** Time Signal. **11.16,** Weather Report. **11.17,** Sport Review. **11.22,** Press News Reeler. **11.29,** Temperature Report. **11.30,** Riggs and Moke. **11.45,** To-day's News, by Lowell Thomas, from **New York. 12 Midnight,** Amos 'n' Andy, from **New York. 12.15 a.m. (Saturday),** Variety Programme. **12.30 to 3.15, New York** Relay. **12.30,** Five Star Theatre—Charlie Chan. **1.0,** Variety Programme. **1.30,** Adventures in Health. **1.45,** Phil Cook and his Ingram Shavers. **2.0,** Echoes of the Palisades. **2.30,** Variety Programme. **3.0,** Time Signal and Music is my Hobby.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—**5.55 p.m.,** Theatre Notes and Programme Announcements. **6.0,** Educational Report. **6.15,** Missionary Talk. **6.30,** Talk: The Foundations of Modern Poland. **6.45,** Talk on Polish Topography. **7.0,** News. **7.28,** Time Signal. **7.30,** See **Warsaw. 10.15,** Time Signal, Sports and Police Notes. **10.30,** Dance Music, relayed from the Café Esplanade. **11.50** (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—**4.10 p.m.,** See **Brno. 4.55,** Talk. **5.5,** Concert by the Ondricek Quartet: String Quartet in D, Op. 10 (Kricka); String Quartet in A Minor, Op. 41, No. 1 (Schumann). **6.5,** Market Prices. **6.15,** Talk for Workers. **6.25,** News in German. **6.30,** German Transmission: Talk: German Schools in Czechoslovakia. **7.0,** Chimes. **7.1,** News Bulletin. **7.10,** Russian News. **7.25,** See **Moravská-Ostrava. 8.15,** Hermelin the Acrobat—Comedy in Three Acts (Werner). In the Intervals at **9.0** and **10.0,** Time Signal. **10.15,** News Bulletin. **10.30** (approx.), Close Down.

RABAT

721.1 kc/s, 416 metres; 6 kW.—**1.30 to 3.0 p.m.,** Concert of Popular Music. **5.0 to 6.0,** Gramophone Concert. **8.30,** Gramophone Music. **8.45,** News. **9.0,** Concert. Waltz, The Blue Danube (Joh. Strauss); Song, La cocarde de Mimi Pinson (Goublier); Overture, The Secret Marriage (Cimarosa); Song: Signorina; Hungarian March from The Damnation of Faust (Berlioz); Tango (Canaro); In a Persian Market (Ketelbey); Recitation; Waltz, The Skaters (Waldteufel); Song Valse des cols bleus; Selection from The Barber of Seville (Rossini); Song: Petit à petit; 'Cello Solo: Berceuse (Fauré); Song: Ta Voix; Selection from The Love Parade (Schertzinger-Salabert). In the Interval, Aviecultural Talk. **11.0,** Gramophone Music or Relay.

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.—7.0 p.m.** (from **Lausanne**), Religious Address. **7.25** (from **Lausanne**), Weather and News. **7.30** (from **Lausanne**), Political Review of the Week. **8.0** (from **Lausanne**), Flute and Pianoforte Recital by E. Defrancesco and Maggy Gayr-hos-Defrancesco. **8.25** (from **Lausanne**), Song Recital of Operetta Airs by Gilda Prince-French. **8.50,** Military Music, relayed from **Fribourg. 9.25** (from **Lausanne**), Radio Sketch. **9.50,** News and Weather. **10.0** (from **Lausanne**), Old Dance Music by the Ed. Moser Orchestra. **10.30** (from **Geneva**), Talk: The Work of the League of Nations. **10.50** (approx.), Close Down.

RIGA

572 kc/s, 525 metres; 15 kW.—**6.0 p.m.,** Talks **6.30,** Latvian Lesson. **7.0,** Weather. **7.5,** Puccini Concert. Selection from Manon Lescaut, The Girl of the Golden West, Madame Butterfly and La Bohème. **8.0,** News. **8.20,** Recital of Songs. **8.40,** Concert of Popular Music by the Radio Orchestra, conducted by Prof. Medins. **9.30,** Dance Music. **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.—1.0 to 2.15 p.m.,** Orchestral Concert of Light Music. In the interval from **1.30 to 1.45,** Giornale Radio and Exchange. **5.10,** Announcements. **5.15,** Exchange and Giornale Radio. **5.30,** Vocal and Instrumental Concert. **6.40 (Naples),** Shipping and Sports Notes. **6.50,** Announcements. **6.57,** Report of the International Institute of Agriculture (in Spanish, German, and French). **7.10,** Tourist Report. **7.20,** News in Various Languages. **7.40,** Giornale Radio. **8.0,** Time and Announcements. **8.15,** Gramophone Records. **8.30,** Talk by Gigi Michelotti. **8.45,** Variety Concert. Soloists: Rodolfo Caporali (Pianoforte) and Emilio Livi (Tenor). Italian Caprice (Tchaikovsky); Pianoforte Solos: (a) Tempo di ballo (Scarlatti), (b) Three Ecossaises (Chopin), (c) Tarantella (Chopin); Tenor Solos: (a) Aria from Mephistopheles (Boito), (b) Notte veneziana (Carnevali), (c) Aria from The Pearl Fishers (Bizet), (d) Aria from Rigoletto (Verdi); Pianoforte Solos: (a) Spanish Dance (Granados), (b) Ritual Fire Dance from Amor brujo (Falla), (c) Polichinelle (Rachmaninov); Talk (in an interval): Music in Ethiopia. **10.0,** Gramophone Concert. **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.—8.0 p.m.,** Biblical Drama. **8.15,** Moore Paint Programme from **New York. 8.30,** Echoes of Erin, from **New York. 8.45,** Stock Report and Police Notices. **11.45,** Stock Reports. **12 Midnight,** Cities Service Concert, from **New York. 12.30 a.m. (Saturday),** WGY Farm Forum. **1.0 to 2.30, New York** Relay. **1.0,** Musical Programme. **1.30,** Variety Programme. **2.0,** Sponsored Programme. **2.30,** Richfield Country Club, from **New York,** followed by Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres, 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.—11.59 a.m.,** Time Signal from Neuchâtel Observatory and Weather Report. **12 Noon** (from **Zürich**), Concert of Operetta Music by the Station Orchestra. **12.30 p.m.,** News. **12.40** from **Zürich**), Concert (contd.). **1.25** (from **Zürich**), Exchange, Time, and Weather. **1.30** (approx.) **to 5.0,** Interval. **5.0** (from **Basle**), Programme for Children. **5.30** (from **Basle**), Light Music on Gramophone Records. **6.0** (from **Zürich**), Concert by the Small Station Orchestra. **6.30** (from **Basle**), Talk on Beethoven. **7.0** (from **Basle**), Time, Weather, Market Prices, Tourist Report, and Sports Notes. **7.15** (from **Basle**), Gramophone Music. **7.45** (from **Basle**), Introductory Talk to the following Transmission. **8.0** (from **Basle**), Beethoven Concert, relayed from the Musiksaal. **10.0,** Weather, News, and Close Down.

SEVILLE

EAJ 7, 815 kc/s, 368.1 metres; 1.5 kW. **9.30 to 10.0 a.m.,** News Bulletin. **3.0 to 4.0 p.m.,** Concert by the Station Orchestra, followed by Dance Music. **10.0 to 12 Midnight,** Concert. Part I: Guitar Recital: Courante (Bach); Allegretto from the Sonatina in A (Moreno Torroba); Evocacion (Tárrega); Gavotte (Bach); Theme with Variations (Sors); Fandanguillo (Turina); Reverie (Tárrega); Etude (Tárrega). Part II: Song Recital; Berceuse (Gretchaninov); Granadina (Nin); Nebbie (Respighi); Wiegenlied); (Brahms); China (Manrage); Song (Pedrell); Ojos Tapatios (Menendez); Serenata (Lambert). Part III: Dance Music. **12 Midnight** (approx.) Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

JUNE 2nd FRIDAY *continued*

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.—5.5 p.m.,** Programme for Children. **5.25,** Accordion Music. **5.45,** Concert of Gramophone Music. **6.45,** Microphone Report. **7.15,** Weather and News. **7.30,** Talk relayed from **Malmö, 1,301 kc/s, 231 metres. 8.0,** Orchestral Concert, with Songs by Karin Rydqvist: Selection from Tannhäuser (Wagner); Selection from The Bartered Bride (Smetana); Aria from Die tote Stadt (Korngold); Aria from Tosca (Puccini); Intermezzo from The Jewels of the Madonna (Wolf-Ferrari); Legend (Dvorak); Dance (Mascagni); Aria from The Force of Destiny (Verdi); Aria from Aida (Verdi); Overture, William Tell (Rossini). **9.15,** Talk. **10.0,** German Music of the Romantic Period—Recital by Olof Wibergh (Pianoforte), John Järnberg (Violin), and Carin de Frumerie ('Cello): Symphonic Studies, Op. 13, for Pianoforte (Schumann); Trio No. 2 in C Minor, Op. 66, for Pianoforte, Violin, and 'Cello (Mendelssohn). **11.0** (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—**11.30 a.m.,** Variety Music on Gramophone Records. **12.45 p.m.,** News. **1.0,** Time Signal. **1.1,** Exchange Quotations. **1.5,** Light Music on Gramophone Records. **2.0 to 4.45,** Interval. **4.45,** Literary Talk in French. **5.0,** Dance Music by the Orchestra, conducted by M. Roskam. **6.0,** Chamber Music by the Station Trio, relayed from **Lille, 1,130 kc/s, 265.4 metres. 7.0,** Talk in German. **7.15,** Discussion in French on Vocations. **7.30,** Time and News. **7.45,** Newly released Gramophone Records. **8.15,** Press Review in German, Lottery Prices and News. **8.30,** Protestant Service for Whitsun, relayed from St. Thomas's Church, Erschallet, ihr Lieder—Cantata (Bach), by the Choirs of St. Thomas and St. Peter, conducted by M. Jung. Soloists: Mlle Forster (Soprano) and M. Nussbicker (Baritone). After the Transmission, Press Review in

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.—12 Noon,** Orchestral Concert, conducted by Gustav Görlich; Soloists, Lore Fischer (Contralto), Otto Seyfert (Pianoforte), Georg Beerwald (Violin), and Curt Schneider ('Cello). **1.15 p.m.,** Time and News. **1.30,** Symphony in G Minor (Mozart) by the Berlin Opera House Orchestra, conducted by R. Strauss (on Gramophone Records). **2.0,** Concert arranged by the Post Office. **2.30,** Advanced English Lesson. **3.0,** Interval. **3.15** (from **Mannheim**), Talk: Hints for Sunday Excursions. **3.30,** Concert by Students of the Academy of Music: Baritone Solos: (a) Als ich dich kaum gesehn, (b) Einen Brief sollt ich schreiben (Ruck), (c) Jägers Abendlied (Ruck); Andantino for 'Cello and Pianoforte (Martini-Kreisler); German Dance (Dittersdorf); Minuet in G for Violin and Pianoforte (Beethoven); Pianoforte Trio: (a) Das ist der erste Frühlingstag; Baritone Solos: (a) Der Kuckuck (Ruck), (b) Ach wie's ist's möglich dann, (c) Wo a kleins hüttle steht. **4.0,** Recital of Favourite Arias by Hermann Lingor (Tenor): Aria from Turandot (Puccini); Aria from Madame Butterfly (Puccini); Aria from Cavalleria rusticana (Mascagni); Non Pagliacco non son from I Pagliacci (Leoncavallo); Aria from Carmen (Bizet). **4.30,** See **Langenberg. 5.45,** Time, Weather, and Market Prices. **6.0,** Talk: The Swabian-Alemannic Civilization in South-West Germany. **6.25** (from **Mannheim**), Talk: The Future of German Aviation with Special reference to its Present Development. **6.50,** Time and News. **7.0,** Transmission for all German Stations, relayed from **Frankfurt. 8.0,** See **Munich. 9.0,** Songs of the German Troubadours, arranged by Prof. Moser and sung to the Lute by Oskar Besemfelder (Baritone). **9.35,** Robert Schumann Pianoforte Recital: Novelette in F, Op. 21; Novelette in D, Op. 21; Sonata in G Minor, Op. 22. **10.10,** Time and News, followed by Gramophone Music. **11.0,** St. Francis Five Episodes from his Life after the Poem by Felix Timmermans (Wilhelm Locks), relayed from the Ufa Palast. **11.30** (approx.), Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW. Transmissions irregular owing to Fire.—**7.0 p.m.,** Talk: The Causes and the Treatment of Diabetes. **7.15,** Horse Racing Results, Market Prices, and News. **7.25,** Local News. **7.30,** Operetta Airs. **7.45,** Military Music. **8.0,** Programme by a Viennese Orchestra. **8.30,** Accordion Solos. **8.45,** Sound Film Music. **9.0,** Concerto in A for Violin (Mozart). **9.30,** Operetta Airs. **9.45,** Military Music. **10.0,** Orchestral Music. **10.15,** North African News. **10.30,** Concert for Listeners-in Morocco. **11.0,** Orchestral Music. **11.15,** Opera Music. **11.30 to 12 Midnight,** Programme in English by the I.B.C., W. Brown-Constable announcing. **11.30,** Light Music; Hungarian Dances; Wishes fond and Fair; Venice, Waltz, Tales from the Vienna Woods; Russian Potpourri; I know of Two Bright Eyes; Where my Caravan has rested; Wine, Women, and Song **11.57,** I.B.C. Good-night Melody. **12 Midnight,** News, Weather, and Announcements. **12.5 a.m. (Saturday),** Opera Music. **12.15,** Chansonnettes. **12.30** (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—**5.0 to 6.0 p.m.,** See **Turin. 6.0 to 6.35,** Interval. **6.35,** 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.—5.0 to 6.0 p.m.,** Chamber Music Concert. **6.35,** Giornale Radio, Agricultural Report and Dopolavoro Announcements. **7.0,** Time and Report of the Royal Geographical Society. **7.10,** Gramophone Records. Nitouche (Nervitti); L'ultima catena (Ferruzzi); Cinguettio (Gentili); Piccola vagabonda (Raimondo); Villanella (Fancini). **7.20,** Giornale Radio. **7.45,** Gramophone Music. **8.0,** Announcements, Giornale Radio and Weather. **8.10,** Gramophone Records. Ah! forse è lui, from La Traviata (Verdi); Ritorna vincitor from Aida (Verdi); Prelude to Act III of Tosca (Puccini); Nostalgie del Danubio (Chiappo-Frondel-Marius); Goodbye (Tosti); Aria from L'Africaine (Meyerbeer). **8.45,** Talk: The Centenary of Ariosto. **9.0,** Symphony Concert. Talk in the interval. **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; 15 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.—5.20 p.m.,** Ballad Recital by Amy Winsberger (Contralto) and Elemer von John (Bass). **5.55,** Tourist and Traffic Report. **6.10,** Talk: Swimming as a Sport in Austria. **6.25,** Sports Talk. **6.35,** Talk: The Protection of Monuments in Austria. **7.0,** Old Dance Music by the Louis Seidl Band. In an interval at **7.30,** Time, Weather, and Programme Announcements. **8.15,** Talk: The Austrian Countryside. **8.45,** Concert of Wagner's Early Opera Music by the Vienna Symphony Orchestra and the State Opera Choir; Soloists, Luise Helletsgruber (Soprano), Karl Fischer-Niemann (Tenor), and Karl Hammes (Baritone): Unpublished Extracts from Leuhald; Introduction, Choral and Septet from Die Hochzeit; Two Arias from Die Feen; Selection from Liebesverbot; Overture, Rienzi. **10.30,** News, Weather and Announcements. **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 the Tower of St. Mary's Church, Cracow. **12.5 p.m.,** Programme Announcements. **12.10,** Gramophone Records. **1.20,** Weather Forecast. **1.25 to 3.10,** Interval. **3.10,** Announcements. **3.15,** Economic Notes. **3.25,** Aviation Report and Anti-Gas Drill. **3.30,** Naval and Colonial Report. **3.35,** Gramophone Records. **4.25,** Review of Periodicals. **4.40,** Talk: Protection of Animals in Poland. **5.0,** Soprano and Baritone Recital. **5.55,** Programme Announcements. **6.0,** Dance Music. In the Interval, News. **7.0,** Miscellaneous Items. **7.20,** Agricultural Press Review, relayed from **Wilno, 533 kc/s, 563 metres. 7.30,** Talk. **7.45,** Radio Journal. **8.0,** Talk on Music. **8.15,** Symphony Concert. In the interval, Sports Notes and Radio Journal. **10.0,** Reading. **10.15,** Dance Music. In the interval at **10.55,** Aviation Weather Forecast and Police Notes.

WILNO

533 kc/s, 563 metres; 16 kW. **5.55 p.m.,** Programme Announcements. **6.0,** Dance Music on Gramophone Records. **6.40,** Talk for Poles in Lithuania. **6.55,** Miscellaneous Items. **7.0,** Reading. **7.10,** Programme to be announced. **7.20,** Agricultural Press Review. **7.30,** See **Warsaw. 12 Midnight** (approx.), Close Down.

ZAGREB

977 kc/s, 307 metres; 0.75 kW.—**7.25 p.m.,** Talk on the History of Croatian Music. **7.40,** Announcements. **8.30,** See **Belgrade. 10.0,** News and Weather. **10.10,** Dance Music. **11.0** (approx.), Close Down.

ZURICH.—See **Schweizerischer Landessender.**

SATURDAY
JUNE THE THIRD

PRINCIPAL EVENTS OF THE DAY:

AT HOME

NATIONAL	Orchestral concert, British Composers.
LONDON REGIONAL	The White Coons' Concert Party.
MIDLAND REGIONAL	"A Day in the Country," choral programme.
NORTH REGIONAL	"Fire," with the Rochdale Fire Brigade, feature programme.
WEST REGIONAL	Orchestral programme of Eric Coates' Music.
SCOTTISH REGIONAL	Orchestral Concert.
BELFAST	"The Ballad Singer." An Ulster comedy by Dr. E. H. M. Milligan.

ABROAD

BORDEAUX LAFAYETTE	8.30 p.m. Operetta: "The Rose of Stamboul," by Fall (relayed from Paris).
COPENHAGEN	8.5 p.m. J. S. Bach Concert.
LEIPZIG	8.15 p.m. Oratorio: "Der Morgen," by Hans Sachsse.
PALERMO	8.45 p.m. Operetta: "Katja, the Dancer," by Gilbert.
ROME	9.0 p.m. Gala Concert in Honour of the Pioneers of Italian Broadcasting.
STRASBOURG	9.0 p.m. The Colmar Symphony Orchestra, conducted by M. Lochbrunner.
TOULOUSE	9.0 p.m. Extracts from "Le petit duc," by Lecocq.
VIENNA	8.0 p.m. Drinking Songs and Dance Scenes from Opera.

ATHLONE

725 kc/s, 413 metres; 60 kW., and **Cork, 1,337 kc/s, 224.4 metres.—1.30 to 2.0 p.m.,** Time Signal, Weather Report, Stock Report and Gramophone Music. **6.0,** Popular Music on Gramophone Records. **6.45,** News Bulletin. **7.0,** Talk: Rome, and how to get there. **7.15,** Gaelic Talk. **7.30,** Time Signal. **7.31,** Concert of Irish Music by the Station Orchestra. **7.40,** Irish Song Recital by Betty Byrne (Contralto). **8.0,** Traditional Fiddle Music by Tadhg Small. **8.15,** Illustrated Talk. **8.45,** The Station Orchestra. **9.0,** A Play by the Leven Players. **9.30,** The Station Orchestra. **9.45,** Sponsored Programme. **10.45,** Time Signal, News, Weather Report and Close Down.

BARCELONA

EAJ1, 860 kc/s, 348.8 metres; 8 kW. **6.30 p.m.,** Programme for Children. **8.0,** Request Gramophone Records. **8.30,** Exchange Quotations and Catalan Grammar Lesson. **9.0,** Gramophone Music and News. **10.0,** Chimes, Weather Forecast, Exchange Quotations and Market Prices. **10.5,** Concert by the Station Orchestra. **11.0,** Talk in Catalan. **11.15,** Concert by the Violeta de Clavé Choir, conducted by Pedro Jorda. In the interval, News. After the Concert, Gramophone Music. **1.0 a.m. (Sunday),** Close Down.

BARI

1,112 kc/s, 269.8 metres; 20 kW.—**8.0 p.m.,** Agricultural Report, Tourist Talk, Sports Notes, and Dopolavoro Announcements. **8.20,** Giornale Radio and Press Review. **8.30,** Time Signal and Announcements. **8.35,** Concert of Popular Music. In the interval: Book Review. **10.30,** Gramophone Music. **10.55,** News Bulletin.

BASLE.—See **Schweizerischer Landessender.**

BELGRADE

697 kc/s, 430.4 metres; 2.8 kW.—**6.55 p.m.,** Time and Programme Announcements. **7.0,** Yugoslav Song Recital by Bozidar Mitrovic. **7.30,** A Radio Play. **8.15,** Concert by a Wind Instrument Orchestra. **9.0,** Concert of Yugoslav Music by the Belgrade Choral Society. **10.10,** News, followed by Relay of Foreign Stations.

BERLIN

DEUTSCHLANDSENDER, 183.5 kc/s, 1,635 metres; 60 kW. **2.0 p.m.,** Gramophone Concert of Light Music. **2.0,** Programme for Children. **3.30,** Weather and Exchange. **3.45,** Gerhard Eschenhagen reads from his own Works. **4.0,** See **Hamburg.** **5.0,** Weekly Review. **5.30,** Pianoforte Duets: Sonata in C (F. Bach); Variations on a Theme of Schumann Op. 23 (Brahms); Polonaise in D (Max Dettman). **6.0,** A Poem. **6.5,** Recital of Humorous Songs: Schlusslied des Narren (Carl Gallus); Fastnachtskram (Hartmut Wegener); Der Bücherwurm (Hartmut Wegener); Soldatenlied (Waldemar Wendland); Lockelied (Waldemar Wendland); Altes Reiterlied (Waldemar Wendland); Lumpenlied (Conradin Kreutzer); Der Sperling und das Känguru (Hans Brehme); Die Schildkröte (Hans Brehme); Tertius gaudens (Hans Brehme). **6.30,** Talk: The Importance of the Young Hitlerite Movement for the New State. **6.50,** Weather and Announcements. **7.0,** Transmission for all German Stations: A German Whitsuntide Message—Radio Sequence (Ernst Keienburg. **8.0,** Variety Programme. **10.0,** News. **10.45,** Weather Report for Shipping. **11.0,** Programme from **Munich. 12 Midnight,** Dance Music from **Berlin (Witzleben). 12.30 a.m. (Sunday),** Close Down.

BERLIN

WITZLEBEN, 715 kc/s, 419.5 metres; 1.5 kW.—**4.0 p.m.,** Concert of Music by Berlin Composers; The German Symphony Orchestra, conducted by Manfred Gurlitt; Military Music from Wallensteins Lager Op. 51 (Wunsch); Three Dance Impressions (Borlz); Minuet (Riege); Two Aquarelles for Small Orchestra (Fischer); Deutsche Städtebilder (Schmadstich). **5.0,** Sports Notes. **5.10,** Concert by the German Symphony Orchestra, conducted by Manfred Gurlitt; Ballet Music from Céphale et Procris (Grétry-Mottl); Flemish Dances (Blockx); Overture, Russian and Ludmilla (Glinka); Nowegian Artists' Carnival (Svendsen); A Viennese Waltz (German). **6.0,** Address by Rudolf Presber. **6.20,** Soprano Song Recital by Jennie von Thillot. **6.40,** The Witzleben Station informs its Listeners. . . **6.45,** Topical Talk. **7.0,** Transmission for all German Stations relayed from **Berlin (Deutschlandsender). 8.5,** The Watchword. **8.10,** Humorous Tales. **8.20,** A Journey into the Blue - Variety Programme. **10.0,** Weather, News and Sports Notes. **10.15** (atoprox.), Dance Music. **1.0 a.m. (Sunday),** 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.—**4.10 p.m.,** Concert by the Station Orchestra. **5.0,** See **Prague.** **6.5,** Gramophone Music. **6.15,** Schrammel Quartet Concert. **6.55,** Talk for Housewives. **7.0,** See **Prague.** **7.25,** See **Brno.** **8.0,** Talk. **8.15,** Concert by the Station Orchestra, conducted by F. Dyk, a Chor and Soloists: Scene from Dorfmusikanten (Mozart); Slovak Folk Songs (Suchon); Waltz, Frühlingsstimmen (Joh. Strauss); Melody (Friml); Song from The Land of Smiles (Lehár); Song from Paganini (Lehár); Rhapsody in Blue (Gershwin); Mazurka and Gallop (Topinka); Tattoo (Fahrbach). In the interval: A One-Act Comedy (Auerheimer). **10.0,** See **Prague. 10.15,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BREMEN.—See **Hamburg.**

BRESLAU

923 kc/s, 325 metres; 60 kW.; and **Gleiwitz, 1,184 kc/s, 253 metres.—12.15 p.m.,** See **Heilsberg.** **1.0,** Time, Weather and News. **1.15,** Gramophone Concert. **2.15,** Programme arranged by the Post Office, with Gramophone Records. **3.10,** Agricultural Prices. **3.30,** Talk on the Press. **3.50,** Programme Announcements. **4.0** (from **Gleiwitz**), Concert by the Gleiwitz Orchestra, conducted by Richard Pöschke. March, Frisch voran! (Blankenburg); Waltz, Im Reiche der Venus (Gröschel); L'Arlésienne, Suite No. 2 (Bizet); Overture, Anacreon (Cherubini); Second Rhapsody in F (Liszt); Rêverie (Vieuxtemps); Beim Tanz der Nationen (Manafred); Selection from Der Obersteiger (Zeller); March, Jung Deutschland (Manfred). In an interval at **4.50,** Film Review. **5.45,** Book Review. **6.5,** Extracts from Hansel and Gretel Opera (Humperdinck), on Gramophone Records. **6.30,** Pianoforte Recital by Kurt Hattwig. Rhapsody in B Minor, Op. 79, No. 1 (Brahms); Polonaise-Fantasie, Op. 61 (Chopin). **6.50,** Weather and News. **7.0,** Transmission for all German Stations, relayed from **Berlin (Deutschlandsender). 8.0,** Programme to be announced. **8.30,** Variety Programme. **10.0,** Time, Weather and News. **10.30,** Dance Music from **Berlin (Witzleben). 12 Midnight** (approx.), Close Down.

BRNO

878 kc/s, 342 metres; 35 kW. **6.25 p.m.,** German Transmission: News, followed by Violin, Guitar and Song Recital: Sonata No. 1 for Violin and Guitar (Paganini); Sonata No. 3 (Paganini); Sonata No. 4 for Violin and Guitar (Paganini); Romance (Kreutzer); Sehnsucht (Schubert); Song (Kreutzer); Love Song, Op. 37, No. 2 (Spohr); Love Song (Weber). **7.0,** See **Prague. 7.25,** A Slovak Wedding in Song—Programme by J. Lunga (Elocutionist) and M. Lungova and J. Svirga (Songs). **8.5,** Reading. **8.15,** See **Bratislava. 10.0,** See **Prague. 10.15,** See **Moravská-Ostrava. 11.30** (approx.), Close Down.

BRUSSELS (No. 1)

I.N.R., 590 kc/s, 509 metres; 15 kW.—**12 Noon,** Extracts from Aida—Opera (Verdi), on Gramophone Records. **1.0 p.m.,** Le Journal Parlé. **1.10,** Concert by the Small Station Orchestra, conducted by P. Leemans: Onestep (Caludi); Waltz, Roses from the South (Joh. Strauss); Selection from Lilac Time (Schubert-Berthé); Violin Solo: Zephyr (Hubay); Arabesque (Montague Phillips); Ballet Music from Coppélia (Delibes). **4.45,** Programme to be announced. **5.0,** Concert by the Station Symphony Orchestra, conducted by J. Kumps: Rapsodie dahoméenne (de Boeck); Quiétude (Soudant); Fantasia (Soudant); Divertissement on Brabant Themes (Deleroix); Two Basque Airs (Kumps); Humoresque (De Greef); Sérénade de Torcello (Gilson); Walloon Fantasia (Jongen). **6.0,** Agricultural Talk. **6.15,** Violin Recital by Mme. Buysse-Rolin: Concerto in E (Bach); Sicilienne (Paradis); Waltz (Brahms). **6.45,** Gramophone Concert for Children. **7.15,** Talk: The Organisation of Big Shops. **7.30,** Le Journal Parlé. **8.0,** Choral Concert, relayed from the Jardin d'Acclimatation, Liége. Soloist: M. Hector Lockers (Violin). Le Rossignol (Grétry); Sérénade d'hiver (Saint-Saëns); Two Violin Solos; La chanson des vagues (Riga). **8.45,** Mari express—Comedy in One Act (Thibault). **9.5,** Bousoir Voisin—Opéra-Comique (Poise), by the Station Symphony Orchestra, conducted by J. Kumps and Soloists. **10.0,** Le Journal Parlé. **10.10,** Dance Music, relayed from the St. Sauveur Palais de Danses. **11.30,** Dance Music on Gramophone Records.

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 P. Leemans: Overture (Casadesus); Petite Suite No. 2 (de Micheli); Asturias (Albeniz); Ballet Music from Hérodiade (Massenet); 'Cello Solo: Hungarian Rhapsody (Popper); Czardas No. 1 (Michiels); Selection from Rouny (Kálmán). **1.0 p.m.,** Le Journal Parlé. **1.10,** Gramophone Concert. **4.45,** Talk: The League of Nations. **5.0,** Variety Concert by the Radio Orchestra, conducted by Franz André. **6.0,** Hungarian Fantasia (Liszt). **6.15,** Talk on History: Joseph II. **6.30,** Concert by the Small Station Orchestra, conducted by P. Leemans: Overture, Der Bettelstudent (Millöcker); Spanish Dances (Laparra); Selection from Rienzi (Wagner); Fantastic Rhapsody for Pianoforte (Douliez), played by the Composer; Chant sans paroles (Tchaikovsky); Two-Step (Billi-Fray). **7.15,** Talk: Belgium and the Economic Crisis. **7.30,** Agricultural and Horticultural Notes. **8.0,** Concert by the Radio Orchestra, conducted by Franz André. Soloists: Mme. Lambert and Chao Mei Pa (Songs). Overture, Orpheus in the Underworld (Offenbach); Selection from New Moon (Romberg); Chinese Folk Songs; Jazz Fantasia for Vocal Quartet (Candrix); Popular Spanish Songs; Slav Dances (Dvorak). **8.45,** Recitations. **9.0,** Concert (contd.): Three Mask Dances (Wood); Norwegian Dances (Grieg); Hebridean Folk Songs; Scènes napolitaines (Massenet); Four Lyric Songs; Ballet Music from William Tell (Rossini); Dances from The Rebel Maid (Montagne Philips). **10.0,** Le Journal Parlé. **10.10,** Dance Music by Robert de Kers and his Cabaret Kings, relayed from the Century Hotel, Antwerp.

BUCHAREST

761 kc/s, 394 metres; 12 kW.—**5.0 p.m.,** Light Music and Romanian Music by the Sibiceano Orchestra. In the interval at **6.0,** Radio Journal. **7.0,** Educational Talks. In an interval at **7.20,** Gramophone Music. **8.0,** Talk on Georges Koukon. **8.15,** Choral Concert. **8.45,** Talk. **9.0,** Concert, relayed from a Restaurant. **9.45,** Radio Journal.

BUDAPEST

545 kc/s, 550.5 metres; 18.5 kW. Programme also relayed on **840 metres.** — **5.20 p.m.,** Concert by the Janesi Toll Cigany Band. **5.50,** Answers to Correspondence. **7.0,** Market Prices. **7.10,** Ludwig Bardos Concert by the Palestrina Choir, conducted by the Composer. **7.55,** Talk. **8.20,** Concert of Operetta Music. **10.20,** News Bulletin. **10.30** (approx.), Dance Music from the Rajnapark; Soloist: Paul Fekete (Popular Songs). **11.0,** Lecture Recital: Popular Hymns and Marches.

CASSEL.—See **Frankfurt.**

COPENHAGEN

1,067 kc/s, 281 metres; 0.75 kW.; and **Kalundborg, 260 kc/s, 1,153 metres;** 7.5 kW.—**12 Noon,** Time and Chimes from the Town Hall. **12.5 p.m.,** String Ensemble Concert, relayed from the Wivex Restaurant. **2.0 to 2.30,** Interval. **2.30,** Gramophone Music. **3.0,** Programme for Children. **3.30,** Concert by the Radio Orchestra, conducted by Launy Grondahl. Soloist: Helge Rungwald (Songs). Characteristic March (Schubert); Suite from Lackschmi (Nielsen); Waltz from Der Mann mit den drei Frauen (Lehar); Serenade (Czibulka); March, Dunkirk (Lotter); Songs, Overture, Il reggente (Mercadante); Selection from the Suite Nordische Volkstänze, (E. Hartmann); Mazurka, L'Auvergnate (Ganne); Dance from Sommertugle (Andersen); Ave Maria stella (Grieg); Hungarian Rhapsody No. 2 (Liszt). **5.35,** Exchange and Fish Market Prices. **6.0,** Time and Chimes from the Town Hall. **6.5,** Talk. **6.20,** French Lesson. **6.50,** Weather Forecast. **7.0,** News. **7.15,** Time Signal. **7.30,** Talk on Bach. **8.0,** Chimes from the Town Hall. **8.5** Bach Concert. The Radio Orchestra, conducted by Launy Grondahl. Soloists: Johanne Karstens (Songs), Henry Muneck (Oboe), and Folmer Jensen (Pianoforte). Suite in D for Orchestra; Two Songs with Oboe obbligato: (a) Hört ihr Augen auf zu weinen from the Cantata Was Gott tut, das ist wohlgetan, (b) Seufzer, Tränen, Kummer, Not from the Cantata Ich hatte viel Bekümmernis; Prelude and Fugue from Das wohltemperierte Klavier; Overture, Die Erde lacht, die Himmel jubiliert. **8.40 to 12.30 a.m. (Sunday),** Variety Programme. **8.40,** Readings. **9.0,** Modern Music by Louis Preil's Instrumental Ensemble. **9.25,** Recital of Viennese Songs by Ilona Wieselmann. **9.40,** Modern Music (contd.). **10.0,** Violin Recital by Mogens Hansen: Canzonetta from the Violin Concerto in D (Tchaikovsky); Zigeunerweisen (de Sarasate). **10.15,** News. **10.30,** Dance Music by Louis Preil's Dance Band. **10.50** (in the interval), Humorous Items. **11.35,** Song Recital. **11.55,** Dance Music (contd.). **12.30 a.m.,** Close Down.

CORK.—See **Athlone.**

CRACOW

959 kc/s, 312.8 metres; 1.5 kW. **7.0 p.m.,** Miscellaneous Items, News and Gramophone Music. **7.30,** See **Warsaw. 11.0,** Light Music and Dance Music from the Pavilion Restaurant. In the interval at **11.30,** News for Members of the Polish Polar Expedition. **12 Midnight,** Fanfare from the Tower of St. Mary's Church.

DANZIG. See **Heilsberg.**

DRESDEN.—See **Leipzig.**

FECAMP

1,328 kc/s, 225.9 metres; 10 kW.—**5.30 to 7.0 p.m.,** Programme in English by the I.B.C. **5.30 p.m.,** Octet Concert for Tunbridge Wells and Isle of Thanet Listeners: Spring Song (Mendelssohn); Hungarian Dances in D and A Minor (Brahms); Songs: (a) Because (d'Hardelot), (b) The Second Minuet (Besly); Torcador et Andalouse (Rubinstein); Ave Maria (Schubert); Romance (Rubinstein); Song: The Sweetest Flower that Blows (Hawley); Valse Bluette (Drigo); The Butterfly (Bendix); Mock Morris (Grainger). **6.15,** Vocal Concert for Dover and Folkestone Listeners: Orchestra; Musical Comedy Switch (arr. Hall); Quartet: (a) Come to the Fair (Eachope Martin), (b) The Clock is playing (Hewitt); Orchestra; The Cockalorier's Tea Party (Noack); A-roving (Terry); Rio Grande (Harris); Orchestra: Wee Macgregor Patrol (Amers); Song of the Vagabonds (Friml); Old Man River (Kern); Orchestra: Colonel Bogey (Alford); Love and War (Cook); Song of the Drum (Ellis). **7.0,** Programme in French. **11.0** till Close Down.

Programme in English by the I.B.C. 11.0, Club Concert for Canvey Island Listeners: Hyde Park Corner; Twenty Million People; Talk by Mr. Leslie Knight; What have I got to lose; Moon Song; The Village Band; If I ever get a job again; My Heart's to let; The Girl in the Little Green Hat; Mad Moments; Sweetheart; Farewell to Arms; Let me give my happiness to you; Her Name is Mary; When you've fallen in Love. 12 **Midnight,** Variety Programme. Orchestra: Sous les Toits de Paris; Hope Brothers; Handbell Solo; Happy Days; Songs made famous by Vesta Victoria; I'm fading away; Handsaw Solo: Someone like you; You can't see the Sea to-day, Sir; Laughing Sam, the Railwayman; Orchestra: My Sunshine is you. **12.30 a.m. (Sunday),** American Songs: I don't work for a living, Dinah; Hallelujah, I'm a Bum; Orchestra: By the Swanee River; Fortunes galore; Can't we talk it over; The Railroad Boomer; Orchestra: Lazy Pete (Kernstein); Banjo Solos: The Buffoon (Curzon); The Wedding of the Painted Doll; Fashionette (Glogaw); Quartet: (a) Darktown Dandies (Morley), (b) Snatches of Song (arr. Grimshaw); Cracker Jack (Roser); Medley of Popular Airs; Flapperette (Greer). 1.30, Vocal Trios; Without a Song; Time on my Hands; You'll never realise; Orchestra: The Gold Diggers of Broadway; When it's Springtime in the Rockies; A Pair of Blue Eyes; Crying for the Carolines. 2.0, Dance Music by the Ibcolians; The World is so small; Little Nell; Mediterannean Madness; Bananas; Round the Bend of the Road; Balloons; I don't want to go to bed; Have you ever been Lonely; Standing on the Corner; Sitting in the Dark; Leave the pretty Girls alone; Put a little Springtime in the Winter of their Lives; Thompson's old grey mule; A Boy and Girl were dancing. 2.57, I.B.C. Goodnight Melody. 3.0 (approx.). Close Down.

FLENSBURG.—See **Hamburg.**

FLORENCE.—See **Turin.**

FRANKFURT

1,157 kc/s, 259 metres; 17 kW.; and **Cassel, 1,220 kc/s, 245.9 metres,** and **Trier, 1,157 kc/s, 259.3 metres.**—**4.30 p.m.,** Orchestral Concert. 5.45, Economic Notes. 6.0, Book Review. 6.30, Weekly Review. 6.45, Topical Talk. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Viola Recital by J. F. Hoff. Hans Rosbaud at the Pianoforte. 8.20, Ballet Music from Opera by the Station Orchestra. 9.0, A Wireless Cabaret. 10.10, Time and News. 10.45, See **Munich.** 12 **Midnight,** Close Down.

FREDRIKSSTAD.—See **Oslo.**

FREIBURG.—See **Stuttgart.**

GENEVA.—See **Radio-Suisse Romande.**

GENOA.—See **Turin.**

GLEIWITZ.—See **Breslau.**

GOTEBORG.—See **Stockholm.**

GRAZ.—See **Vienna.**

HAMAR.—See **Oslo.**

HAMBURG

Call ha (in Morse); **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.,** Military Band Concert: Reichsritter-Fanfare (Prager); Selection from Lohengrin (Wagner); Suite from Sigurd Jorsalfar (Grieg); Blue Danube Waltz (Joh. Strauss); March (Röhrig); Potpourri, O Deutschland hoch in Ehren (Lindemann); Hanseatic Hymn, Die Hamburger Flagge (Beyer); March, Schleswig-Holstein meerumschlungen (Funk). 5.30, Dialogue: The World War Collection in the Hamburg State Library. 6.0 (from **Hanover**), Marschner Concert, conducted by Otto Ebel von Sosen, with Introductory Talk. Soloist, Josef Correck. Overture, The Vampire; Aria and Wedding March from Hans Heiling; Selection from Austin. 6.50, Weather Forecast. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Flute Recital. 8.20, See **Berlin (Witzleben).** 10.15, Time, Weather, and News. 10.35, Topical Talk. 10.45, Late Concert, relayed from Lake Schwerin.

HANOVER.—See **Hamburg.**

HEILSBERG

1,085 kc/s, 276.5 metres; 60 kW. Relayed by **Danzig, 662 kc/s, 453.2 metres.**—**12.30 p.m.,** Concert by the Königsberg Opera House Orchestra, conducted by Ludwig Leschetizky: Overture, Rübezahl (Weber); Introduction to the Third Act and Bridal Chorus from Lohengrin (Wagner); Selection from Tosca (Puccini); Spanish Caprice (Rimsky-Korsakov); March from Le Cid (Cornelius); Overture, Zampa (Herold); Waltz (Waldteufel); Overture, Gipsy Love (Lehar); Intermezzo from The Arabian Nights (Joh. Strauss). In the intervals, Time, Weather and News. 2.30, Programme arranged by the Post Office, with Gramophone Records. 3.0, Agricultural Prices and Exchange. 3.30 (from **Danzig**), Programme for Children. 4.0, Concert by the Small Station Orchestra, conducted by Eugen Wilcken: Comedy Overture (Leuschner); Old Styrian Suite (Pachernegg); Selection from Madame Butterfly (Puccini); Variations on the Carnival in Venice (Strauss-Pitzau); Jubel-Walzer (Joh. Strauss); Czardas (Bohm); Selection from Der Göttergatte (Lehár); March Potpourri, Soldatenleben (Kachmann). In an interval, Report on the East Prussian ADAC Road Races. 5.40, Dialect Reading. 6.5, Programme Announcements. 6.15, Agricultural Prices. 6.25, Talk: The New Constitution. 6.50, Weather. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0 **to** 10.20, Programme from **Stuttgart.** 10.20, News, followed by Dance Music from **Berlin (Witzleben).** 12.30 **a.m. (Sunday),** Close Down.

HILVERSUM

1,013 kc/s, 296.1 metres; 20 kW (7 kW up to **4.40 p.m.**).—**11.40 a.m. to 7.40 p.m.,** Programme of the Workers' Radio Society (V.A.R.A.). 11.40, Concert by De Notenkrakers, conducted by D. Wins. 1.40 **p.m.,** Interval. 1.55, Gramophone Music. 2.30, Talk. 2.50, Concert by De Flierefluiters, conducted by J. v. d. Horst. 3.40, Programme for Children. 4.40, Gramophone Music. 5.20, Literary Talk. 5.40, Temperance Programme by a Mixed Choir, conducted by J. F. Keja. Soloist: G. Dumont (Songs); Recitations by Mme. Straalem-Kremer. 6.40 **to** 7.40, Interval. 7.40 **to** 8.40, Programme of the Liberal Protestant Radio Society (V.P.R.O.). 7.40, Opening of the Whitsun Conference of the V.C.J.C. 8.40 till Close Down, V.A.R.A. Programme. 8.40, Concert by the V.A.R.A. Orchestra, conducted by H. de Groot: March, Per aspera ad astra (Urbach); Serenade (Toselli); Liebeswalzer (Reger); Selection from Lilac Time (Schubert-Berté). 8.10, Popular Songs. 9.25, Press Review and Announcements. 9.40, Concert (contd.). Overture, Phèdre (Massenet); Ballet Music from Sylvia (Delibes). 10.10, Popular Songs. 10.45, Concert (contd.), Mit Laute und Geige (Armandola); The Clock is Playing (Blaauw); Sonia (Parton); Waltz, Mon Rêve (Waldteufel); Sicilienne (von Blon); Serenade (Chapi); Selection from The Flower of Hawaii (Abraham). 11.10, Gramophone Records. 11.40 (approx.), Close Down.

HORBY.—See **Stockholm.**

HUIZEN

160 kc/s, 1,875 metres; 8.5 kW.—Programme of the Catholic Radio Society (K.R.O.).—**11.55 a.m.,** Orchestral Concert: March, El Capitan (Sousa); Overture, Jean de Paris (Boieldieu); Suite, Im Puppenhaus (Englemann); Berceuse de Jocelyn (Godard); Selection from Rigoletto (Verdi-Tavau). 12.40 **p.m.,** Pigeon Flying Report and Gramophone Music. 12.55, Concert (contd.): Overture, A Life for the Czar (Glinka); Selection from Lakmé (Delibes); Idylle passionelle (Razigade); Sang und Klang aus dem Osten (Eberle); A Day in Seville (Waldteufel); March, Farewell of the Gladiators (Blankenburg). 1.25, Interval. 1.40, Programme for Young People. 2.10, Programme for Children. 3.40, Programme arranged by the H.I.R.O. 4.40, Concert by the K.R.O. Boys. Soloist, M. J. Mossel (Songs); Hungarian March (Lincke); Ich habe in der Liebe ein Prinzip (Berger); A Little Street (Kahn); Brighter than the Sun (Winn). 4.55, Esperanto Lesson. 5.10, Concert (contd.): Unsre Zeit ist endlich gekommen (Becce); Notenregen (Urbach); Im Grinzing beim heurigen Wein (Sieczynsky); I'll do my best to make you happy (Noble); Potpourri, Wir kurbeln an (Dostal); Waltz Potpourri (Ciere); Melody (Lindern). 6.0, Press Review. 6.20, Concert (contd.): After the Night (Lutcwers); Waltz, Ich hatte nie gedacht (Langsfelder); Kleine Liebe, grosze Liebe (Grothe); Drei von der Kavallerie (Erwan). 6.40, Police Announcements. 6.55, Talk on Gardening. 7.15, Gramophone Music. 7.25, Talk. 7.40, Concert for the Eighth Anniversary of the Royal Dutch Union of Singers; Three Male Voice Choirs, the Utrecht Municipal Orchestra, and Mme. Jo. Vincent (Soprano). In the interval, at 8.55 (approx.), News. 10.40, News. 10.45, Gramophone Music. 11.40, Close Down.

INNSBRUCK.—See **Vienna.**

JUAN-LES-PINS

1,205 kc/s, 249 metres; 0.8 kW.—**8.0 p.m.,** Amusement Guide, News and Financial Report. 8.10, Review of North Africa. 8.20, Film Review. 9.0, News and Racing Results. 9.15, Radio Concert. 12 **Midnight** till Close Down, Programme in English by the I.B.C. H. K. Hitchcock announcing. 12 **Midnight,** Variety Concert: Can't we meet again? (Flanagan); If you were the only Girl in the World (Ayer); Good-night Vienna (Posford); Mona Lisa (Sullivan); Jerry becomes Coram's Batman; My Bluebird's back again (Friend); The Fairies' Gavotte (Kohn); Time alone will tell (Nicholls); I'll always be true (Benatsky); Scotch Strathpeys (Cuvelier); Guilty (Kahn); Just Friends (Klenner); Whistling Waltz (Evans); Love Letters in the Sand (Coats and Kenny); Marianne (Ahlert); Do you recall? (Flanagan). 12.57, I.B.C. Good-night Melody. 1.0, Close Down.

KALUNDBORG.—See **Copenhagen.**

KIEL.—See **Hamburg.**

KLAGENFURT.—See **Vienna.**

KOSICE.—See **Prague.**

LAHTI

167 kc/s, 1,796 metres; 40 kW and **Helsinki, 368.1 metres.**—**6.15 p.m.,** Talk. 6.40, Concert by the Station Orchestra, conducted by Erkki Linko. 7.20, Talk. 7.45, Song Recital. 8.10, Concert by the Station Orchestra. Selection from Samson and Delilah (Saint-Saëns); Tarantella, Naples (Mezzacapo); Grief (Mezzacapo); Waltz, Roses from the South (Strauss). 8.45, News in Finnish. 9.0, News in Swedish.

LANGENBERG

635 kc/s, 473 metres; 60 kW.—**12 Noon,** Concert, conducted by Wolf. Soloist: Lore Schröter (Soprano): March, Auf rauhen Pfaden zu den Sternen (Urbach); Hungarian Comedy Overture (Kéler-Béla); Waltz, Schwert und Leier (Strauss); Oriental Suite (Popy); Selection from The Hermit's Bell (Maillart); Song Potpourri, Jugendklänge aus Alt Heidelberg (Rhode). 12.50 **p.m.,** Weather, Time, and News. 1.0 **p.m.,** Concert (contd.): Overture, Peter Schmoll (Weber); Salut d'Amour (Elgar); Four Soprano Solos; Waltz, Freut Euch der Lebens (Strauss); German Dances (Schubert); Overture, the Caliph of Bagdad (Boieldieu); Two Soprano Solos; Waltz Serenade (Rezarcek). In the interval at 2.0, News. 2.30, Radio Report from the Exhibition People on Sunday in Düsseldorf. 3.0, Programme for Children. 3.30, Economic Notes and Time. 3.50, Talk on Westphalia. 4.10, English Reading. 4.30, Mandoline Concert. Soloist: Willy Overzier (Songs to the Lute). Six Folk Songs to the Lute; Three Pieces (Anelli): (a) Prelude, (b) Passionate Serenade, (c) Romantic Fantasia; Suite after Etudes by J. F. Burgmüller (Stoye); Concerto in G after a Sonatina by Diabelli (Stoye); Six Folk Songs to the Lute. 5.50, Talk: The Lost Atlantis. 6.15, Political Talk. 6.35, Weather, Time, Economic Notes, and Sports Report. 6.50, Chimes. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, News. 8.5, A Gay Journey—Variety Programme. 10.5, News and Sports Report. 10.30, Serenade relayed from **Munich.** 12 **Midnight,** Close Down.

LAUSANNE.—See **Radio-Suisse Romande.**

LEIPZIG

769.9 kc/s, 389.6 metres; 120 kW.; and **Dresden, 941 kc/s, 319 metres.**—**12.20 p.m.,** Lehár Concert on Gramophone Records; Waltz from The Merry Widow; Two Airs from The Count of Luxembourg: (a) Waltz, (b) Mädel klein; Selection from The Czarevitch; Two Airs from Schön ist die Welt: (a) Schön ist die Welt, (b) Liebste, glaub' an mich; Song, Gern hab' ich die Frau'n geküsst, from Paganini; Song, Maiden my Maiden, from Frederica; Selection from The Land of Smiles. In the interval, Wireless Notes. 1.0, News. 1.15, Gramophone Concert. 2.40, News. 2.45, Programme for Children. 3.45, Economic Notes. 4.0, Concert from **Berlin (Witzleben).** In the interval, from **5.0 to 5.15,** Talk on Music. 6.0, German for Germans. 6.20, A Modern Dictionary. 6.30, Song Recital by Alfred Kase (Baritone): Kennt ihr das Land so wunderschön (Nägelli); Den Rucksack aufgeschnallt (Gretscher); Ach, wie ist's möglich dann (Kücken); Annchen von Tharau (Silcher); Gold'ne Abendsonne (Nägeli); Student Songs: (a) Drei Klänge sind's, die tönen hold und rein (Seidel), (b) Die bange Nacht ist nun herum (Lyra), (c) Reicht mir das alte Burschenband (Lachner), (d) Und hörst du das mächtige Klingen (Marschner). 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Topical Programme. 8.15, Der Morgen—Oratorio (Hans Sachsse), relayed from **Bautzen.** The Teachers' Choral Society, the Hering Choral Society, and the Bautzen Cathedral Choir, conducted by Martin Bauer. Soloists: Lotte Schrader (Soprano), Lotte Wolf-Matthäus (Contralto), Valentin Ludwig (Tenor), and Otto-Karl Zinnert (Bass). 9.45, Pfingstküsse—Radio Play (Rudolf Bartsch, arr. Martin Kunath). 10.15, News. 10.30 (approx.), Concert. 12 **Midnight,** Close Down.

LINZ.—See **Vienna.**

LJUBLJANA

522 kc/s, 547.7 metres; 7 kW.—**5.0 p.m.,** Quintet Concert. 6.0, Talk on Ethnology. 6.30, English Lesson. 7.0, Educational Programme. 7.30, Programme for Workers. 8.0, Concert of Russian Music. 9.30, News. 9.45, Quintet Concert.

LWOW

798 kc/s, 381 metres; 16 kW.—**7.0 p.m.,** Talk: Poland and her Marvels. 7.15, Miscellaneous Items. 7.30, See **Warsaw.** 11.0, Concert by the Serenada Mandoline Orchestra. In the interval, News for Members of the Polish Polar Expedition. 12 **Midnight** (approx.), Close Down.

MADRID

ARANJUEZ (EAQ); 9,860 kc/s, 30.43 metres; 20 kW.—**7.0 to 9.0 p.m.,** Programme for Listeners in the Canary Islands, Guinea, and America. 7.0, Concert of Popular Music. 8.15, Talk. 8.30, Light Music. 9.0 **to 11.30,** Interval. 11.30, Programme relayed from **Madrid (EAJ7).** 1.0 **a.m. (Sunday),** Close Down.

MADRID

UNION RADIO, Call EAJ7, 707 kc/s, 424.3 metres; 2 kW.—**8.0 p.m.,** Chimes, Exchange, Radio Journal, Medical Talk, and Request Gramophone Records. 9.15, News. 9.30 **to 10.0,** Interval. 10.0, Linguaphone English Lesson. 10.30, Chimes and Time Signal. 10.35 (approx.), Opera Music on Gramophone Records: Extracts from: (a) L'heure Espagnole (Ravel), (b) La Traviata (Donizetti). 12.45 **a.m. (Sunday),** News Bulletin. 1.0, Chimes and Close Down.

MALMO.—See **Stockholm.**

MILAN.—See **Turin.**

MORAVSKA-OSTRAVA

1,137 kc/s, 263.8 metres; 11 kW.—**6.25 p.m.,** Concert by the Ostrava Schrammel Orchestra. 7.0, See **Prague.** 7.25, Concert by the Station Orchestra, conducted by J. Plichta. Soloists: Nectar de Flondor (Soprano) and Richard Kubla (Tenor). Aria from Rusalka (Dvorák); Variations for Flute (Adam); Ophelia's Aria from Hamlet (Thomas); Dalibor's Aria from Dalibor (Smetana); Aria from Manon (Massenet); Aria from The Prodigal Son (Debussy); Soprano Solos: (a) Beau soir (Debussy), (b) Vocalise en forme d'Habanera (Ravel), (c) Aria from Les Filles de Cadiz (Delibes); Tenor Solos: (a) The Dreary Steppe (Gretchaninov), (b), The Piper (Nedbal); Soprano Solo: Hindu Song (Rimsky-Korsakov). 8.15, See **Bratislava.** 10.0, See **Prague.** 10.15, Concert of Light Music. 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.**—**4.40 p.m.,** Concert by the Lorenz Jais Orchestra. Overture, Turandot (Lachner); Ballet Scene, Zigeunerfest (Lehár); Selection from Der Waffenschmied (Lortzing); Serenata Napolitana (Fauchey); Intermezzo, Chinesische Leibwache (Rehl); Neckteufelchen (Seybold); Selection from The Bird Fancier (Zeller). 5.45, Programme for Young People—Horst Wessel—Radio Play (Ewers-Beyer). 6.25, Sonata in F Minor, Op. 120, No. 1, for Clarinet and Pianoforte (Brahms). 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Concert by the Station Orchestra, conducted by Karl List. Soloist Lorenz Obermaier (Zither). Overture, The Caliph of Bagdad (Boieldieu); Waltz, Goldschmieds Töchterlein (Fétras); Selection from The Merry Widow (Lehár); Sturmgalopp (Komzak); Zither Solo, Waltz, Tales from the Vienna Woods (Joh. Strauss); Melody; Radetzky March (Joh. Strauss, Sen.). 8.50, Wolfram and Adelgunde, or, Papa won't hear of it—a Terrible Tragedy (Gregor Jarcho and Heinz Stratz), with Songs. 9.15, Lincke Concert. 10.20, Time, Weather, News and Sports Notes. 10.45, Serenade. In the interval, Recital on Two Pianofortes by Ludwig Schmidmeier and Ludwig Kusche. 12 **Midnight** (approx.), Close Down.

NAPLES.—See **Rome.**

NOTODDEN.—See **Oslo.**

OSLO

277 kc/s, 1,083 metres; 60 kW. Relayed by **Fredrikstad, 820 kc/s, 365.8 metres; Hamar, 522 kc/s, 574.7 metres; Notodden, 671 kc/s, 447.1 metres; Porsgrund, 662 kc/s, 453.2 metres;** and **Rjukan, 671 kc/s, 447.1 metres.**—**4.15 p.m.,** Concert by the Trygve Christiansen Orchestra, relayed from the Logen Hall. 5.15, Programme for Children. 6.15, Hardanger Fiddle and Song Recital of Norwegian Music. 6.45, Talk on Economics. 7.0, Announcements, Weather and News. 7.30, Talk: The Germany of Goethe. 8.0, Time Signal. 8.1, Concert of Light Music and Operetta Music by the Oivind Fjelstad Orchestra. 9.40, Weather and News. 10.0, Topical Talk. 10.15, Cabaret Programme. 10.45, Dance Music on Gramophone Records. 12 **Midnight** (approx.), Close Down.

OSTERSUND.—See **Stockholm.**

PALERMO

558 kc/s, 537.6 metres; 3 kW.—**8.0 p.m.,** Dopolavoro Announcements, Tourist Talk, Agricultural Notes, and Giornale Radio. 8.20, Sports Notes and Gramophone Music. In the interval at 8.30, Time Signal and Announcements. 8.45, Katja the Dancer—Operetta in Three Acts (Gilbert). In the intervals, Book Review and Announcements. After the Operetta, News Bulletin.

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.,** Programme of Music

by Mozart, Lalo, and Fauré. 7.0, Le Journal Parlé. 8.30, Le Malade Imaginaire—Comedy in Three Acts (Molière). 10.0 (approx.), Close Down.

PARIS

POSTE PARISIEN; 914 kc/s, 328.2 metres; 60 kW.—6.45 p.m., Le Journal Parlé. 7.5, Gramophone Music. 7.30, Answers to Correspondents. 7.35, Gramophone Music (contd.). 8.0, Review of the Week. 8.15 to 8.30, Interval. 8.30, Quartet for Pianoforte, Violin, Viola, and 'Cello (Klemperer). 9.0, Interval. 9.10, Dance Music. 11.0, News. 11.5, Dance Music on Gramophone Records. 12 Midnight (approx.), Close Down.

PARIS

RADIO PARIS; Call CFR; 174 kc/s, 1,725 metres; 7.5 kW.—6.45 a.m., Physical Culture. 7.30, Weather and Physical Culture (contd.). 7.45, Gramophone Music. 8.0, Press Review and Weather. 12 Noon, Concert by the Station Orchestra: Suite, London Every Day (Eric Coates); Tzigania (Canuas-Andray); Vieille Castille (Capri); Scenes gitanes (Infante); Potpourri of Viennese Operetta Music (Marishka-Karczag); Vesuvian Song (Marenucci); The Londonderry Air (arr. O'Connor-Morris); Kermaria (Erlanger); In Old Thibet (Gatty-Sellars); The Nile (Leroux); Carnival Ballad (Marchetti); Le Souvenir d'Aubagne (Gabriel Marie); Morocco (Marangue-Heurteur); Tales of the Valley of the Enns (Pachernegg); Russian Song (Paladilhe-Moutou). In the intervals at 1.0, Exchange, News, and Weather; and at 1.20, Exchange. 2.0, Exchange. 3.0, Programme for Children. 3.45, Market Prices. 6.10, Agricultural Talk, Weather, and Market Prices. 6.30, Concert by the Station Orchestra: Le Salut du Toréador (Bernlaux); Waltz, Love (Nicotini); Nuit d'Alger (Stalin); Au Tournant de la route (Levis and Kleuner); Valse Musette (Berniaux); March (Guejlot); Waltz Intermezzo, Primrose (Gabrié); Melody (Mina). 7.0, Talk on the Discovery of America. 7.20, Concert (contd.): Waltz (Oscar Straus); Tous les Trois (Warren); La plus douce (Stalin); Nostalgie d'amour (Antoli); El guason (Pascal); Comment dire non (Kahal and Burke); La Java des Bouges (Beckand). 7.45, Commercial Prices, News, and Review of the Latin Press. 8.0, Popular Concert. 8.30, News and Weather. 8.40, Review by Jean Rieux. 8.45, Gramophone Music. 9.0, Ma Sœur de luxe—Comedy in Three Acts (Birabeau), relayed from the Théâtre de Paris.

PITTSBURGH

(KDKA), 980 kc/s, 306 metres; 50 kW. Relayed by **W8XK** on **48.86 metres** and **25.27 metres.**—7.30 p.m., Radio Débuts. 8.0, Radio Troubadours, from **New York.** 8.30, Wealth of Harmony, from **New York.** 8.58, Baseball Scores. 9.0, Tangodahl Orchestra, from **New York.** 9.30, Concert Favourites, from **New York.** 9.55, Baschall Scores. 10.0, The United States Government in Pittsburg: Postal Activities, by J. B. Hershey. 10.15, Hotel Sherman Orchestra, from **New York.** 10.30, Behind the Law—Tales of the Pennsylvania State Police. 10.45, Little Orphan Annie, from **New York.** 11.0, Hotel Lexington Orchestra, from **New York.** 11.15, Time Signal. 11.16, Weather Report. 11.17, Sport Review. 11.22, Press News Reeler. 11.29, Temperature Report. 11.30, A Recreo, by Bill and Alex of the Downtown Y.M.C.A. 11.45, Jack Pettis and his Orchestra. 11.59, Time Signal. 12 Midnight, American Taxpayers' League, from **New York.** 12.15 a.m. (Sunday), Al Mitchell's Orchestra, with Baritone Solos by Everett Marshall, from **New York.** 12.30, Homely and Old-fashioned Quartet. 12.45 to 2.0, **New York** Relay. 12.45, Irene Bordoni and Emil Coleman. 1.0, John Commission on Emergency in Education. 1.15, The Leaders. 1.30, Kaltanmeyers Kindergarten. 2.0, Programme to be announced. 3.0, Programme to be announced.

PORSGRUND.—See **Oslo.**

POZNAN

896 kc/s, 335 metres; 1.9 kW.—7.0 p.m., Theatre Notes and Programme Announcements. 7.5, News. 7.28, Time Signal. 7.30, See **Warsaw.** 10.0, Time Signal, Sports and Police Notes. 10.5, See **Warsaw.** 10.40, Announcements. 10.50, Dance Music, relayed from the Café Polonia. 11.50 (approx.), Close Down.

PRAGUE

614 kc/s, 488.6 metres; 120 kW.—4.10 p.m., See **Bratislava.** 5.0, Report on the Masaryk Games. 6.5, Agricultural Talk. 6.15, Talk for Workers: Social Problems in the Far East. 6.25, News in German. 6.30, German Transmission: Pianoforte Recital of Couperin's Music, with Commentary. 7.0, Chimes and News. 7.10, Music Review. 7.25, See **Brno.** 8.0, Gramophone Records of English Tattoos. 8.15, See **Bratislava.** 10.0, Time, News and Sports Notes. 10.15, See **Moravská-Ostrava.** 11.30 (approx.), Close Down.

JUNE 3rd **SATURDAY** *continued*

RADIO-SUISSE ROMANDE

SOTTENS, 743 kc/s, 403 metres; 25 kW.; and **Geneva, 395 kc/s, 760 metres.**—7.0 p.m. (from **Geneva**), Talk: Across India. 7.30 (from **Geneva**), Weather and News. 8.0 (from **Geneva**), Hawaiian Guitar Recital. 8.30 (from **Geneva**), Review of the Week. 8.40, Concert by the Station Orchestra. 9.25 (from **Geneva**), Whistling Solos. 9.50, News and Weather. 10.0 (from **Geneva**), Talk: The Work of the League of Nations. 10.20 (from **Geneva**), Dance Music by the Broadcasting Serenaders, conducted by J. M. Pasche. 11.30 (approx.), Close Down.

REYKJAVIK

250 kc/s, 1,200 metres; 21 kW.—9.5 p.m., Programme for Children. 9.30, Weather Report. 9.40, Musical Programme and Announcements. 10.0, Chimes and News Bulletin. 10.30, Talk. 11.3, Concert by the Station Trio and Choral Music on Gramophone Records.

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.**—1.0 to 2.15 p.m., Orchestral Concert of Light Music. In the interval from 1.30 to 1.45, Giornale Radio and Exchange. 4.30, Children's Radio Review. 4.45, Announcements. 5.15, Reading. 5.30 to 6.15, Orchestral Concert: Pensiero nostalgico (Wassil); Suite campestre (Amadei); Serenata (Galli); La Fileuse (Raff); Descriptive Piece (Mendelssohn); Staccato (Alleniz); Niobe (Petralia). 6.40 (**Naples**), Shipping and Sports Notes. 6.50, Announcements. 7.0, Tourist Report. 7.10, Lesson in Morse. 7.20, Announcements in Various languages. 7.40, Giornale Radio. 8.0, Time and Announcements. 8.30, Announcements. 9.0, Gala Concert in Honour of the Pioneers of Italian Broadcasting. 10.55, Giornale Radio.

SALZBURG.—See **Vienna.**

SCHENECTADY

GENERAL ELECTRIC COMPANY, WGY, 590 kc/s, 379.5 metres; 50 kW. Relayed at intervals by **W2XAF** on **31.48 metres** and by **W2XAD** on **19.56 metres.**—11.45 p.m., Stock Reports. 12 Midnight to 3.0 a.m. (Sunday), **New York** Relay. 12 Midnight, Kaltenmyer's Kindergarten. 12.30 a.m., The Economic World To-day. 1.0, Band of Famous Brands. 1.15, Zora Layman and her Debonairs. 1.30, K-7, Secret Service Spy Story. 2.0, B. A. Rolfe and his Terraplane Orchestra. 3.0, Programme Resumé.

SCHWEIZERISCHER LANDESSENDER

BEROMUNSTER, 653 kc/s, 459 metres; 60 kW.; **Basle, 1,229 kc/s, 244.1 metres;** and **Berne, 1,220 kc/s, 245.9 metres.**—11.59 a.m., Time Signal from Neuchâtel Observatory and Weather Report. 12 Noon (from **Berne**), Gramophone Music. 12.30 p.m., News. 12.40 (from **Berne**), Gramophone Music (contd.). 1.25 (from **Berne**), Exchange, Time, and Weather. 1.30 (from **Zürich**), The Listeners' Quarter of an Hour. 1.45 (from **Zürich**), Book Review. 2.15, Gramophone Records. 2.45 (from **Zürich**), Talk on Guatemala. 3.30 to 5.0, Interval. 5.0 (from **Zürich**), Accordion Band Concert. 5.30 (from **Zürich**), Gramophone Music. 6.0 (from **Zürich**), Medical Talk on Hygiene. 6.30 (from **Basle**), Programme in Dialect. 7.0, Chimes from Zürich Churches. 7.10 (from **Basle**), Time, Weather, and News. 7.15 (from **Basle**), Gramophone Music. 8.0 (from **Basle**), Talk. 8.30, Song Recital by Hermann Schey. 9.10, Weather and News. 9.20 (from **Basle**), Concert of Popular Music. 10.20 (from **Basle**), Dance Music on Gramophone Records. 11.0 (approx.), Close Down.

SOTTENS.—See **Radio-Suisse Romande.**

STOCKHOLM

689 kc/s, 436 metres; 55 kW. Relayed by **Boden, 244 kc/s, 1,229.5 metres; Göteborg, 932 kc/s, 322 metres; Hörby, 1,166 kc/s, 257 metres; Motala, 221.5 kc/s, 1,354.4 metres; Ostersund, 389 kc/s, 770 metres;** and **Sundsvall, 554 kc/s, 542 metres.**—4.0 p.m., Technical Talk. 4.20, Concert of Light Music. 5.0, Weather Report. 5.20, Programme for Children. 6.0, Concert of Gramophone Music. 7.0, Microphone Report. 7.15, Weather and News. 7.30, Dialogue. 7.45, Talk. 8.15 (from **Göteborg**), Old-Time Dance Music. 9.0, Concert of Light Music. 9.45, Weather and News. 10.0 (from **Göteborg**), Modern Dance Music. 12 Midnight (approx.), Close Down.

STRASBOURG

869 kc/s, 345 metres; 11.5 kW.—11.30 a.m., Gramophone Records. 12.45 p.m., News. 1.0, Time Signal. 1.1, Exchange Quotations. 1.5, I Pagliacci—Opera (Leoncavallo), on Gramophone Records. 2.0, Local Talk in German. 2.15, Cavelleria Rusticana—Opera (Mascagni), on Gramophone Records. 3.15 to 3.45, Interval. 3.45, Music Talk in French: Richard Wagner. 4.0, Concert by the Station Orchestra, conducted by M. de Villers. Part I, Music by Wagner: Prelude and the Death of Isolde, from Tristan und Isolde; Airs from Parsifal; Overture, The Mastersingers. Part II, Music by Liszt: Les Préludes; Pianoforte Solos: (a) Waldesnanschen. (b) Jeux d'eaux de la Villa d'Este. (c) La Leggerezza; Hungarian Rhapsody No. 12; Extracts from The Ungarische Krönungs-Messe; Rakoczy March. 6.0, Tourist Talk in French. 6.15, French Lesson. 6.30, Orchestral Concert, conducted by M. Roskam: Marche parisienne (Gamne); Waltz, Tout Paris (Waldteufel); Selection from La Belle Hélène (Offenbach); Violin Solo, Liebesleid (Kreisler); Suite pour mes petits amis (Pierné); Marche de France (Goublier). 7.15, Horticultural Talk in German. 7.30, Time. 7.31, News. 7.45, Gramophone Music. 8.15, Press Review in German. Lottery Results, and Announcements. 8.20, Reception of the Great Britain and France Association, relayed from the Prefecture—Programme of Speeches by M. de Witt-Guizot, President, M. Roland Marcel, Prefect for the Lower Rhine, and Viscount Burnham, President of the British Delegation. 9.0, Concert in connection with the International Song Festival, relayed from Colmar: The Colmar Symphony Orchestra, conducted by M. Loehbrunner, and Mixed Choirs; Overture, Les Francs-Juges (Berlioz); Chorus and Orchestra: Joshua Navin, based on Hebrew Themes (Moussorgsky); Basle Double Quartet: (a) Meine Heimat (Ackermann). (b) Muterliche (Kirchoff); Municipal Choir: (a) Les Caprices de la Mé (Gourgault-Ducoudray). (b) Le chant du Travail (de la Tombelle); Marche Héroïque (Saint-Saëns); Barcarolle (Mendelssohn); Fugue (Bach); Ode à la jeunesse (Naudier); Choir: (a) L'Eté de la Saint-Martin (Maréchal). (b) Le Gave (Kunc); Mixed Choir and Orchestra: Waltz, Wine, Women and Song (Joh. Strauss). In the interval, Press Review in French and Talk on Colmar.

STUTTGART

MUHLACKER, 832 kc/s, 360.5 metres; 60 kW. Relayed by **Freiburg, 527 kc/s, 570 metres.**—12.20 p.m., Tenor Song Recital by Karl Jantz; Songs (Schubert): (a) Im Abendrot. (b) Wanderers Nachtlied. (c) Am Meer. (d) Du bist die Ruh; Songs (Brahms): (a) Mainacht. (b) Feldeinsamkeit. (c) Meine Liebe ist grün. (d) Ständchen. 12.50, Gramophone Concert. 1.30, Concert from **Langenberg.** 2.30, Time and News. 2.45, Talk on Flowers. 3.10, Humorous Anecdotes. 3.30, Programme for Children. 4.30, See **Frankfurt.** 5.45, Time and Sports Report. 6.0, Talk: German Art. 6.25 (from **Freiburg**), Talk by Heinrich Höfler. 6.50, Time and News. 7.0, Transmission for all German Stations, relayed from **Berlin (Deutschlandsender).** 8.0, Silcher Concert, relayed from the Liederhalle; The Stuttgart Choral Society, conducted by August Kiesz: Sanctus; Die drei Röselein; Der traurige Bua; Reiters Morgenlied; O wie herbe ist das Scheiden; 's Herz; Tanzlied; Wohin mit der Freud? Lebewohl; Juchhe, dich muss ich haben; Abschied. 9.0, Swabian Variety Programme, relayed from the Stadt-Garten. 10.20, Time and News. 10.45, Dance Music relayed from **Berlin (Witzleben).** 12 Midnight, Close Down.

SUNDSVALL.—See **Stockholm.**

TOULOUSE

779 kc/s, 385 metres; 8 kW.—Transmissions irregular owing to Fire.—7.0 p.m., Chansonnettes. 7.15, Horse Racing Results and News. 7.25, Local News. 7.30, Opera Music. 7.45, Hawaiian Guitar Solos. 8.15, Light Music. 8.30, Military Music. 8.45, Pasodobles. 9.0, Extracts from Le Petit Duc (Lecocq). 10.0, Dance Music. 10.15, North African News. 10.30, Concert for Listeners in Morocco. 11.0, Request Concert. 11.30 to 12 Midnight, Programme in English by the I.B.C. W. Brown-Constable announcing. 11.30, Variety Music: You'll die if you worry; Murder in the Air; The Day I went to Wembley; Yodelling Solomon; Old Time Song Medley; Oh! how he looks at me; Laughing Clara. 11.57, I.B.C. Good-night Melody. 12 Midnight, News, Weather and Announcements. 12.5 a.m. (Sunday), Concert of Balalaika Music and Russian Songs. 12.15, Orchestral Music. 12.30 (approx.), Close Down.

TRIESTE

1,211 kc/s, 247.7 metres; 10 kW.—5.10 to 6.0 p.m., See **Turin.** 6.0 to 6.35, Interval. 6.35 till Close Down. See **Turin.**

TRONDHEIM.—See **Oslo.**

TURIN

1,096 kc/s, 273.7 metres; 7 kW. Relayed by **Milan, 905 kc/s, 331.5 metres; Genoa, 959 kc/s, 312.8 metres;** and **Florence, 599 kc/s, 500.8 metres.**—5.10 to 6.0 p.m., Gramophone Records of Variety Music. 6.35, Giornale Radio, Lottery Results, Agricultural Report, and Dopolavoro Announcements. 7.0, Time and Tourist Talk. 7.10, Gramophone Records: Mamma mia che vo' sapè (Nutile); Un po' d'amore (Nucci-Carabella); Carmen (De Curtis); Voce lontana (Bonelli-Montenero); Tango del passato (De Angelis). 7.20, Giornale Radio. 7.45, Gramophone Music. 8.0, Announcements. Giornale Radio, Weather, and Gramophone Music. 8.30, Talk: Events and Problems. 8.45, Band Concert. In the interval, Review of Books and Announcements. 11.0, Giornale Radio. 11.5, (**Florence** only), Dance Music from the Chez moi Rajola. 11.30 (approx.), Close Down.

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 Different Languages. 8.0 to 8.15 p.m., Religious Information in Italian.

VIENNA

581 kc/s, 517 metres; 15 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.**—5.45 p.m., Concert by the Vienna Mercantile Song Society. 5.30, Gala Concert by the Federal Railways Orchestra, with the Result of their first Lottery, relayed from the Kurpark, Baden. Lottery Results in the interval. 6.30, Talk: Miracle Plays. 6.50, Variety Programme. 7.5, Topical Talk. 7.15, Epigrams. 7.20, Time, Weather and News. 7.30, A Microphone Visit to the Presses of Prinzing. 8.0, Concert of Drinking Songs and Dance Scenes from Operas; The Vienna Volksoper Orchestra, conducted by Theodor Kristoph; Soloist, Josef Kalenberg (Tenor): Bacchanale from Tannhäuser (Wagner); Drinking Song from Cavalleria rusticana (Mascagni); Waltz and Drinking Song from Faust (Gounod); Drinking Song from Carnival in Rome (Joh. Strauss); Almée's Dance from Djamileh (Bizet); Drinking Song and Waltz from Die Fledermaus (Joh. Strauss); Drinking Song from Alessandro Stradella (Flotow); Polka and Furiant from The Bartered Bride (Smetana); Drinking Song from Othello (Verdi); The Apprentices' Dance from The Mastersingers (Wagner); Orgy Scene from The Huguenots (Meyerbeer). 9.0, Radio Report from the Grinzing Wine Festival. 9.45, News, Weather and Announcements. 10.0, Dance Music by the Charly Gandriot Band, from Hübners Parkhotel, Schönbrunn.

WILNO

533 kc/s, 563 metres; 16 kW.—5.55 p.m., Programme Announcements. 6.0, Divine Service, relayed from the Ostra Brama Chapel. 7.0, Programme to be announced. 7.10, Miscellaneous Items. 7.15, Talk: The Miraculous Apparition of the Virgin Mary in St. Michael's Church, Wilno. 7.30, See **Warsaw.** 8.0, Request Gramophone Music. 9.0, Programme relayed from **Warsaw.** 12 **Midnight** (approx.), Close Down.

WARSAW

212.5 kc/s, 1,411 metres; 120 kW.—1.57 a.m., Time Signal and Fanfare from the Tower of St. Mary's Church, Cracow. 12.5 p.m., Programme Announcements. 12.10, Gramophone Records. 1.10, Weather Report. 1.15, Educational Programme relayed from **Lwów, 788 kc/s, 381 metres.** 1.55 to 3.10, Interval. 3.10, Economic Notes. 3.25, Answers to Military Correspondence. 3.35, Programme for Children, relayed from **Lwów.** 4.0, Gramophone Records. 4.40, Talk: Queen Edwiga. 5.0, Gramophone Concert. 5.35, News. 5.40, Topical Talk. 5.55, Programme Announcements. 6.0, Divine Service relayed from the Ostro Brama, Wilno. 7.0, Miscellaneous Items. 7.20, Agricultural Notes. 7.30, Topical Talk. 7.45, Radio Journal. 8.0, Concert by the Station Orchestra, conducted by S. Navrot; Soloists, Ida Los (Musical Saw) and M. Rentgen (Songs): Mazurka (Namysłovski); Ballet Suite (Goldmark); Musical Saw Solos: (a) Chanson triste (Tchaikovsky). (b) Wiegenlied (Brahms). (c) Sicilienne (Pergolesi); Asiatic Suite (Yoshitomo); Songs with Guitar Accompaniment; Waltz, Wiener Bint (Strauss); Tarantella, Capodimanto (Solazzi); Mazurka (Labella); Musical Saw Solos: (a) Waltz (Blair). (b) Tango (Front-Ferszko). (c) Air (Gua-Arnheim); Selection from The Circus Princess (Kálmán); Songs with Guitar Accompaniment; Oberek (Sonnenfeld); Crakoviennes (Rajczak); Czardas from Der Geist des Vojevoden (Grossmann). In the interval, Sports Notes and Radio Journal. 10.5, Chopin Pianoforte Recital by Z. Drzewiecki; Nocturne in F. Op. 15. No. 1; Ballade in F. Op. 38; Etude in A Flat, No. 2; Three Mazurkas in A Minor—Nos. 4. 55, and 42; Berceuse; Waltz in E Minor. 10.40, Talk. 10.55, Aviation Weather Report and Police Notes. 11.0, Dance Music. In the interval, News for Members of the Polish Polar Expedition.

ZURICH.—See **Schweizerischer Landessender.**

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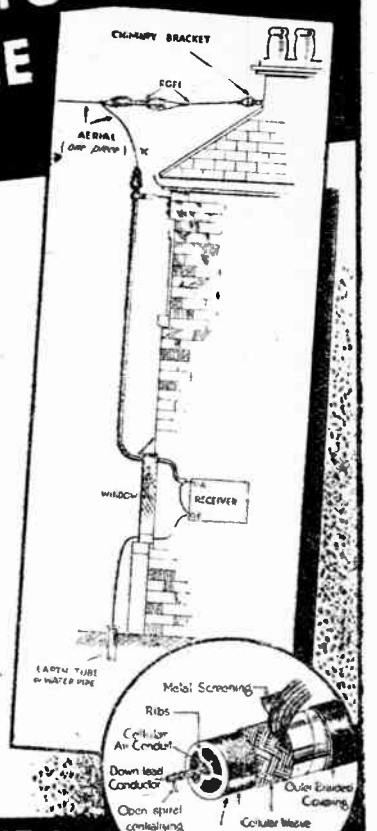

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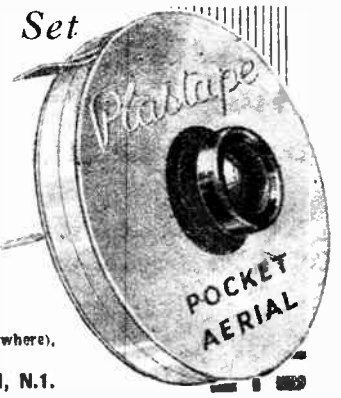

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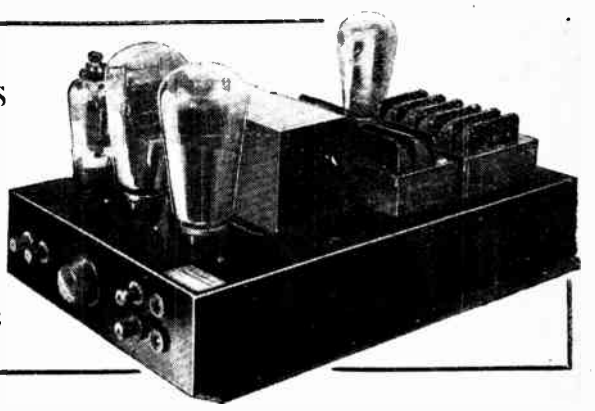

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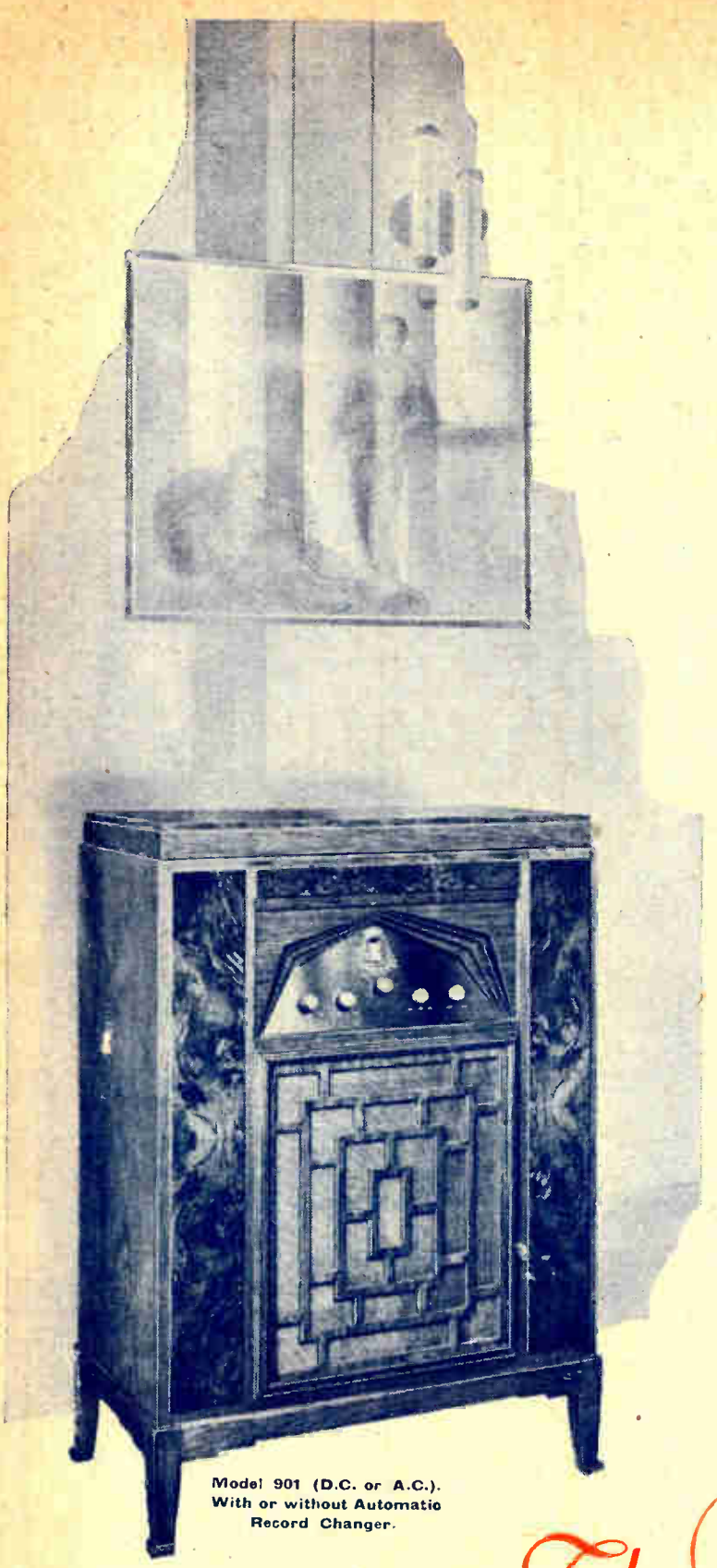

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