



WORLD-RADIO

DOMINION & FOREIGN PROGRAMMES

The Official Foreign & Technical
Journal of the B.B.C.

Vol. XII No. 308

Registered at the G.P.O.
as a Newspaper.

FRIDAY, JUNE 19, 1931

Two Pence

PRINCIPAL CONTENTS

Music from Other Lands

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The Optimum Load

"From the Swiss Alps"

Readers' Experiences

WORLD-RADIO

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Letters should be addressed to The Editor,
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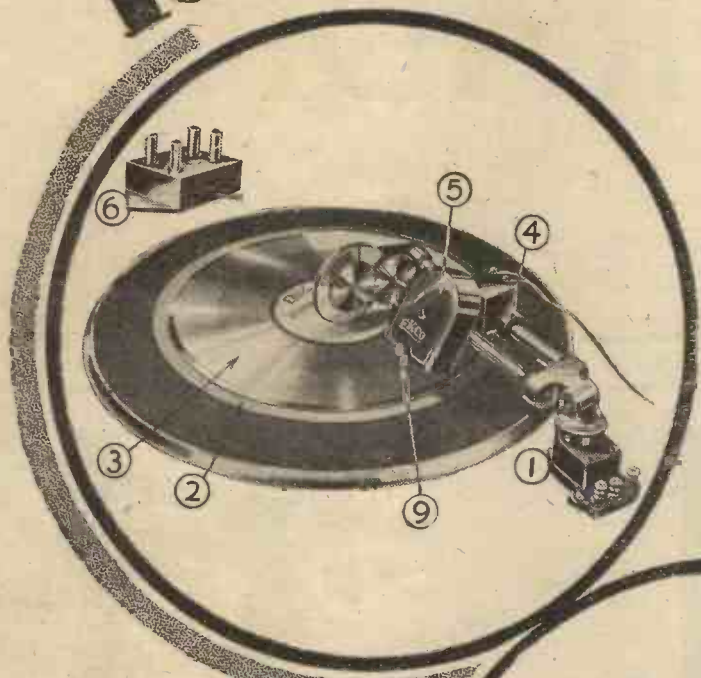
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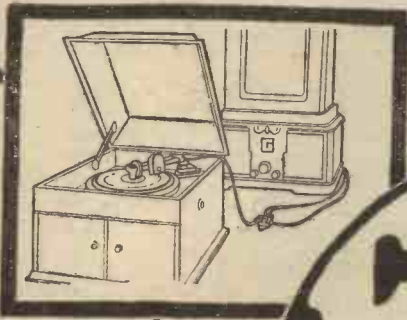
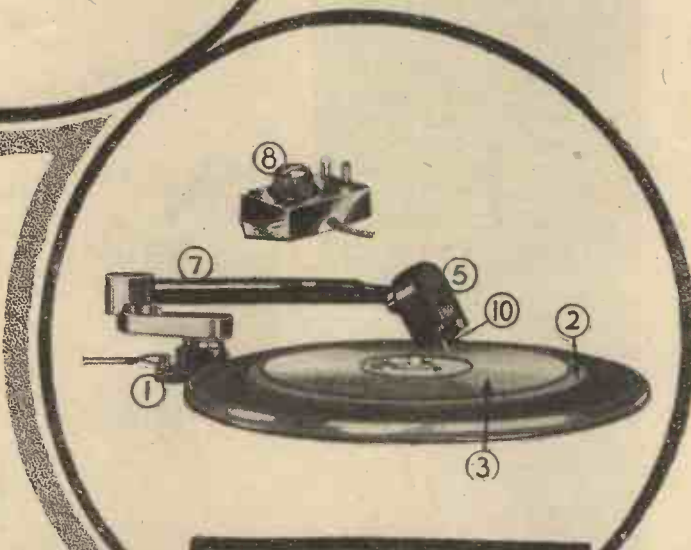
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TWO PENCE

Music from Other Lands

I.—Czechoslovakia

Foreword

[The aim of this series of articles is to furnish a background, though necessarily a very sketchy one, to the national music broadcast from the stations of those countries whose music, though of international importance, has been hitherto little known in Britain. They are intended for those listeners who wish to know something about the national music to which they listen, but have not the time or inclination to sift the information they require from large works of reference or files of periodicals, as is usually necessary if they want it in the English language.]



B. Smetana in 1862

TO get an intelligent grasp of the music broadcast from the Czechoslovak stations under the heading of national music, it is essential to have an idea of the history of the peoples of which the Republic is composed. All truly national music must necessarily embody much of the historical experience of the nation if it is to crystallise in sound the deepest thoughts and aspirations of a people during

the period in which it is written.

The Republic of Czechoslovakia was formed in 1918 of Bohemia, Moravia, Slovakia, and part of Silesia. Though these peoples have a musical history continuing from the Middle Ages, the music with which we are concerned dates only from the beginning of the nineteenth century. After the Napoleonic Wars, the musical counterpart of the national revival, beginning in Bohemia as an interest in the Czech antiquities and language, was naturally the collection of Czech folk music and dances. For this reason it is logical to begin with some account of the folk music of the republic.

The Czechs, known in pre-War times as Bohemians, form about forty per cent. of the population of Czechoslovakia. They were subdued by the Austrians in the sixteenth century, and so far Germanised by the end of the eighteenth that the Czech language was hardly found save on the lips of the workers and peasants. The influence of Vienna was supreme, and so Czech folk music includes old village melodies, strains of Italian opera metamorphosed into street songs, and even themes from the sonatas and symphonies of Mozart, escaped from the concert hall and gone wild. For all its mixed origin, however, Czech folk music is a lovely thing, rich in melody and rhythm, and, which is

not always the case with folk music, with great innate harmonic possibilities.

The Slovaks make up 25 per cent. of the population, and are an agricultural rather than an industrial people for the reason that they were long oppressed by the Hungarians, who insisted on all trade flowing through Budapest. Their folk music is much influenced by Hungarian folk music, and may often be heard from Košice and Bratislava.

The Moravians are a mining and agricultural people, and form about 24 per cent. of the population. Their country was long the subject of dispute between Poland, Hungary, and Bohemia, and its folk music has traces of the influence of these three nations. It is still distinctive, however, and has attracted the attention of many foreign composers and collectors. It is often broadcast from Brno and Moravská-Ostrava.

The collection of folk music at the beginning of the nineteenth century was rather a protest against the influence of Vienna than an effort to found a truly national school of Czech music. Czechs still felt themselves German though they were no longer content to be Viennese. When, however, the Romantic Movement reached Bohemia and nationalists began to lay stress on history rather than philology and archæology, Czech musicians similarly were not content merely with using Czech texts, but sought national musical forms and subjects for their compositions. Franz Skřoup (1811-1892) wrote an opera *Dratník* (The Broomwinder), in 1825, which was the first considerable work of this kind.

Bedřich Smetana (1824-1884) was the first to reveal the soul of the nation in music. The course of the development of his significant works is bound up with the cause of national independence. In the stirring days of 1848 he wrote a march for the Students' Legion and a *Solemn Overture*, which caused him to be

blacklisted by the Austrians and driven into exile. He returned to Prague as soon as possible to take his part in the rebuilding and liberation of the nation.

By 1863 he had completed the first of his eight national operas, *The Brandenburgers in Bohemia*, which he followed by *Dalibor* (1868), and *Libuša* (1881). *Dalibor* is an almost legendary Czech hero, a national leader and faithful friend. "He personifies the invincible national soul, just as his friend, Zdenek, whose wraith visits the hero in the darkest hour of affliction, is typical of the spirit of hope speaking through the medium of music a message of confidence in a happier future"

("Smetana"—Groves: *Dictionary of Music*).

No less national is the truly delightful opera, *The Bartered Bride*, by which he is best known outside his own country. Other rustic operas are *The Kiss* and *The Secret*. Equally important whether from the national or purely musical point of view are his five symphonic poems, published under the title of *Má Vlast* (My Country), of which the best known

abroad are *Vysehrad* (the Capital City), *Vltava* (Germanic: Moldau) and *From the Fields and Groves of Bohemia*. Smetana stands in the first rank among the composers of the world and was the first to make Europe realise that Czechoslovak music was going to count.

Antonin Dvořák (1841-1904) excelled Smetana in international celebrity. Even to-day Czech music is represented to thousands of British listeners by his "New World" symphony, his *Stabat Mater*, his *Songs My Mother Taught Me*, and his *Humoresque* (No. 7). Like Smetana, Dvořák was greatly influenced by the national movement, but his aim was less comprehensive. Smetana wrote to remind the Czechs of their glorious past, to rouse them to a yet more glorious future, and to point the way to freedom. Dvořák wrote as a rank-and-file Czech rather than as a leader, as a Pan-Slav rather than a Czech, merely trying to express his joy in national life and his sympathy for his countrymen in subjection.

Like Smetana, Dvořák did not consider that the national spirit could be expressed by the mere use and imitation of folk songs. He did, however, incorporate in his chamber music such specifically Slavonic dance forms as the *medvedí* (bear dance), *furiant*, *skožna* (reel),



Antonin Dvořák



One of the studios of Prague Broadcasting Station

(Continued in column 3, page 936)

Control of Canadian Radio

Federal v. Provincial Arguments
(From our Montreal Correspondent)

OWNERSHIP of "the air," in so far as it relates to radio broadcasting in Canada, was always conceded to belong to the Dominion Government until, in February this year, Premier Taschereau, of Quebec, following a dispute with the Minister of Marine over the hours allocated to a Quebec broadcasting station, decided to submit to the Appeal Court at Quebec the question of whether control of broadcasting fell under the jurisdiction of the Dominion or the Province. Mr. Taschereau, in his capacity as Attorney-General, submitted a case contending that—

"Serious doubts on the constitutional validity of this legislation (The Radio-Telegraph Act adopted by the Parliament of Canada by which the Dominion exercises jurisdiction over radio communication) have been raised, and that the Government of this Province is of the opinion that the legislative competence, as regards the control and the regulation of radio, belongs to the Legislature, in virtue of the British North America Act, 1867."

On receipt of a communication from the Quebec Prime Minister intimating the step he was taking, the Dominion Government decided to prepare a case for submission to the Supreme Court of Canada, with the object of ascertaining its powers in the matter, and the Quebec Provincial Government agreed to withdraw the case it had submitted to the Appeal Court and submit its case to the Supreme Court of Canada at the same time as the Federal Government. The provinces of Ontario, New Brunswick, Manitoba, and Saskatchewan associated themselves with Quebec Province in this action, the first two actively, and the second two by having a representative present at the hearing.

The questions which the Supreme Court of Canada was asked to decide were two:

1. Has the Parliament of Canada jurisdiction to regulate and control radio communication, including the transmission and reception of signs, signals, pictures, and sounds of all kinds, by means of Hertzian waves, and including the right to determine the character, use, and location of apparatus employed?

2. If not, in what particulars, or to what extent is the jurisdiction of Parliament limited?

The hearing began in Ottawa on May 6 and lasted three days, the Court (consisting of a bench of six judges), reserving its decision, which it intimated later might be expected about June 20.

The factum filed by the Attorney-General of Canada based the Dominion's case squarely on the British North America Act. Radio, it claimed, is not a matter which falls within any of the subjects assigned to the Provinces such as property and civil rights, or local works and undertakings. Control of radio by the Dominion is necessary for the "peace, order, and good government of Canada." Radio, the Attorney-General argued, is similar to telegraph lines, railways, canals, and steamship lines, extending beyond the boundaries of the Provinces, and connecting two or more Provinces which are assigned to the jurisdiction of the Dominion. Control by the Dominion, the factum stated, is necessary for the fulfilment of international treaties and obligations incurred by Canada on its own account, or as a part of the British Empire.

In a lengthy argument opposing the Dominion's claim, the Attorney-General of Quebec insisted that radio receiving and sending apparatus are essentially local works within the control of the Province. The fact that radio waves, once transmitted, may extend beyond the borders of the Province does not alter this any more than does the fact that fumes from a factory

on the Quebec side of the Ottawa River extending to Ontario would make the factory subject to Dominion control.

The Attorney-General of Ontario concurred in and supported the arguments of Quebec.

The Attorneys-General of Manitoba and Saskatchewan said they appeared merely to watch the case as it affected or might affect their Provinces, but the Attorney-General of New Brunswick presented an argument of his own on behalf of that Province, and joined issue with a memorandum on "the underlying principles of radio communication" included in the record of the Dominion's case. The memorandum, New Brunswick claimed, is a statement of theories no longer held by scientists. The questions submitted to the court assume the existence of Hertzian waves, and the Provinces claimed that the wave theory is long outmoded.

The Dominion Government maintained that radio does not fall within Section 92 of the British North America Act, that regulation by international agreement is necessary, that the ether has been definitely appropriated by the action of the nations of the world, including Canada, to purposes which in no sense can be regarded as Provincial. Radio, the Federal counsel contended, is of national importance, and falls within the legislative powers of the Dominion as relating to the peace, order, and good government of Canada.

Challenging the right of the Dominion to monopolise control over radio, the Province of Quebec declared the questions submitted to the court are "not only entirely general, but equivocal and ambiguous." Counsel for the Province submitted that, *prima facie*, the Provincial Government has complete and absolute authority over all radio matters within the Province, and at any rate that the burden of proof was on the Dominion to show on what it relied for its assumption of full jurisdiction over all radio matters in the Dominion.

The Province invoked Section 92 of the British North America Act, relating to property and civil rights and generally all matters of a merely local or private nature in the Province, and observed that "although radio transmission through the air is without any physical apparatus such as telegraph wires, it does require apparatus for the emission of the Hertzian waves (broadcasting stations), and these are physical works situated on the land of the Province in which they are erected.

The position pending the judgment is that all legislation affecting radio is held up, and particularly consideration of the recommendations regarding some form of nationalisation made by the Royal Commission headed by Sir John Aird, whose report was made public a year ago.

Royal Air Force Display

THE twelfth Royal Air Force Display at Hendon will take place on Saturday, June 27. The attendance at last year's display, of more than 150,000 people, constituted a record for an outdoor event on a single day, and arrangements have been made to provide accommodation for a "record" attendance at this year's display. One of the new events will be the catapulting of a large twin-engined bomber. This land-type catapult operates on an entirely different method from the type used on naval vessels, and has been developed as a portable catapult for use where the taking-off area is restricted. Two new spheroidal engines, which have many unique features, together provide the necessary forces to propel the aircraft forward. Each of them develops 2,000 h.p. in the course of three seconds, and enable the aircraft to take off in about thirty yards, instead of the normal run of

MUSIC FROM OTHER LANDS

(Continued from previous page)

dupák, *sousedka* (slow waltz) and the *polka*, the newest of Czech dances, said to have been invented by a girl in domestic service in 1830. Dvořák was the founder of Czech chamber music, but he has expressed himself in many musical forms. His most frequently broadcast operas are *The Cunning Peasant* and *Rusalka*. In 1892 he accepted the position of Director of the National Conservatory of Music at New York, and his symphony *From the New World* is a record of his first impressions of America.



Leos Janáček

A notable contemporary of these two great men was Zdebeek Fibich (1850-1890), who has been called the Czech Schumann and is chiefly known to-day for his short pieces for the pianoforte. His pupil, Karel Kovarič (1862-1920), wrote operas which show the influence of Smetana and Massenet, and are often broadcast.

Between Smetana and Dvořák and Novak and Suk stands Josef Foerster (b.1859). The

profoundly subjective and metaphysical works of this composer have been likened to those of César Franck. Vitezslav Novak (b. 1870) was a pupil of Dvořák and has made a deep study of Slovak folk music. Josef Suk (b. 1874) married the daughter of Dvořák and has carried on the work of that composer. Charles Rudolph Friml (b. 1881) is well known for his songs and pianoforte music, and Oskar Nedbal (b. 1874) for his opera *Polenblut*.

This very brief indication of the musical riches of Czechoslovakia which may be explored by radio may fitly close with a short note on Leos Janáček (1854-1928), who is one of the most significant and truly modern of Czech composers. Of special interest are his choral settings of the works of the Silesian poet, Peter Bezuc, and his famous operas *Her Foster-daughter* (*Germanice*: *Jenufa*) and *Katja* based on "The Storm" by Ostrovsky. He made important researches into the psychology of folk music and maintained that "song lives by and in the melody of speaking and the whole spirit of a nation is manifested in its speech." Janáček is only one of a band of intensely interesting and important composers whose works are hardly accessible at all to English students of music except *via* ether.

F. W.

300 yards, at a speed of nearly sixty miles an hour. The catapult and engines have been developed at the Royal Aircraft Establishment, Farnborough.

For the first time an exhibition of refuelling military aircraft in the air will be given. Successful experiments to prove the practicability of aerial refuelling were carried out several years ago by the Royal Air Force, but as there was then no immediate need for departing from the regular practice of filling up aircraft on the ground, the matter was not proceeded with. Radio telephony will be used for communicating between the two aircraft before the dropping of the pipe line and during the proceedings. The fuel carrier will be auto-controlled, so as to ensure that it will fly on a perfectly straight course.

Tickets for the special enclosures and the stands can now be obtained from the Secretary, Royal Air Force Display, Hendon, or from various booking agents.

Via Ether

Midsummer Day

THE microphones of the Continental stations are now busily engaged in the open air, and they promise several interesting relays in connexion with Midsummer Day celebrations. Thus, for 8.55 p.m. on SUNDAY Ravag announces a transmission "Summer Solstice in the Mountains." Scenes enacted at Innsbruck, in the Tyrol, will then be heard through the Austrian station, and will be relayed by Königs Wusterhausen and Leipzig. On TUESDAY evening, however, the real festival begins, and the Scandinavian stations have made elaborate preparations for European listeners to join in the festivities. From 9.40 to midnight Stockholm relays Swedish midsummer celebrations, while from 8 p.m. to midnight the traditional St. John's Day festival, annually taking place at Maihaugen, in Norway, will be relayed by Oslo and most of the German and Austrian stations. At 8 p.m. on MONDAY Brussels No. 1 transmits a programme entitled "Summer in Music"; Beethoven's Sixth (Pastoral) Symphony will be heard from Hamburg at 9.20; and at 10 p.m. famous Serenades will be played by the Copenhagen station orchestra. A new tone-poem by Breslau's Director of Music, Herr E. Nick, entitled *Midsummer Night*, is to be broadcast from Breslau and relayed by Heilsberg and Berlin-Witzleben at 8 p.m. on TUESDAY.

British Artists Abroad

Two well-known English artists, Miss Lilian Harrison and Mr. John Armstrong, will broadcast a programme of English poetry and songs from Munich and its associated stations at 9.40 p.m. on TUESDAY. A programme of English music is also to be broadcast from Stockholm at 8 p.m. on FRIDAY. Listeners should note both these dates. Other interesting transmissions announced for next week are a Mussorgsky commemoration and a Wagner concert from Rome and Vienna respectively at 9 p.m. on THURSDAY, and two concerts on SATURDAY, emanating from Berlin and Budapest, which will commemorate the centenary of the great violinist Josef Joachim, about whom more next week.

Clerk Maxwell's Centenary

JUST one hundred years ago last Saturday, June 13, 1831, was born, at Dundee, James Clerk Maxwell, the mathematical genius who gave to the world—far in advance of the world's ability to utilise or even appreciate at its full value—the initial theory which led eventually to the conception of wireless communication. Although not actually associated with the discovery of the principles of wireless communication as we know them to-day, his wonderful deductive powers enabled him to foresee that the electro-magnetic phenomenon involved must exist, and though he was never able to demonstrate it, he effectively paved the way for the other pioneers who came after. In his famous treatise on Electricity and Magnetism he deduced that the speed of electro-magnetic radiation must equal that of light—an elementary fact now commonly known and used in every wavelength and frequency calculation. Maxwell was the first to hold the Chair of Professor of Experimental

Physics at Cambridge, and he died in that town in 1879.

A Summer School for "Group Leaders"

THE term "adult education" is probably familiar to all listeners; but what proportion of them is even aware of the existence of the groups formed for the purpose of systematically listening to and discussing broadcast talks? Not as great as it should be, certainly; yet last winter there were more than 800 such groups. The fact of this considerable nucleus of a real system of wireless adult education—for it must be considered only as a nucleus of what that system is likely to grow to in the next few years—presents certain problems. Not the least of these is the appointment and training of group leaders. Tutors in adult education and professional educationists have helped on many occasions, but their immediate duties, of course, limit the amount of assistance they can give. In order to minimise this lack of leaders the Central Council for Broadcast Adult Education, after the successful national conference of group leaders and student listeners held in London last January, decided to hold a summer course for training leaders of wireless discussion groups. The Council has been fortunate enough to secure for this purpose the use of New College, Oxford, for the week from June 27 to July 4, and is able to provide accommodation for women as well as men. Among the speakers at the opening and introductory sessions of this Summer School—the first of its kind in the world—will be Sir John Reith, Director-General of the B.B.C., and Mr. G. H. Gater, Chief Education Officer of the London County Council and Chairman of the Executive Committee of the Central Council for Broadcast Adult Education. Opportunities will be afforded for practice in group leadership, since the subjects to be broadcast during the Conference will be varied in character.

The Importance of Being a Group Leader

GROUP leaders perform a most useful function in the wireless educational life of this country and one which, it appears to me, will grow enormously in importance as time goes on. I understand that some of the most successful groups have been brought together and led by persons who had not regarded themselves as teachers in the formal sense of the word, but have none the less performed a useful duty in a thoroughly efficient manner. All those who have educational advantages and to whom this interesting work may appeal are asked to consider the possibility of undertaking it. In order to acquaint those who may think of attending the course with some of the problems involved in building broadcast programmes and in receiving them to the best advantage, a series of lectures will be given by experts, including Professor T. H. Searls, of University College, Hull; Mr. J. H. Nicholson, Director of Extra-Mural Studies, Bristol University; Mr. R. S. Lambert, Editor of the *Listener*; and Mr. C. A. Siepmann, Secretary of the Central Council for Broadcast Adult Education. I understand that arrangements have been made for financial assistance to be given to those attending the Conference who, without such help, would be prevented from doing so.

While this country is not alone in providing assistance for adult education—Germany and the United States take considerable interest in this part of their broadcast programmes—it may probably be said with truth that the systematisation of broadcast talks with this end in view has reached a higher point in this country than in any other.

Boito's Mefistofele

A CORRESPONDENT who occasionally obliges me with his views on broadcast music which he has heard from the Continent writes as follows on a recent transmission from Rome-Naples: "During the last few days there has been two broadcasts from 'Roma-Napoli' of Arigo Boito's *Mefistofele*. It is exactly fifty years since, at Brussels, I first became acquainted with Boito's masterpiece, and the performance gave a mighty fillip to my musical perception faculties. Here are, indeed, majesty, loftiness of conception, and vibrative expansiveness carried to the highest pinnacle. The similarity of the subject invites, of course, subconsciously (if nothing else), comparison with Spohr, Berlioz, and Gounod. Well, vulgarly speaking, they are not in it; which may be a bold thing to assert, having regard to the attractiveness and well-deserved popularity of the last-named's *Faust*. The fact, however, remains. The effect of the opera is what our musical Teuton cousins call 'Markerschüttertn.' The rendering was superb! And here in London we had the alternative of *Turandot! Mein Gott!*"

More about the New York Air "Attack"

A PROPOS my note two weeks ago concerning the air "attack" on New York: as I expected, a number of readers heard this broadcast on May 23. One correspondent who listened to the relay of the "attack" through W2XAD found that the reception was fairly good and that the broadcast lost none of its thrill by trans-Atlantic transmission. Indeed, he describes it as "one of the finest 'stunt' broadcasts I have heard. The switching from one observer's microphone to another was extremely well done, as was the speech from the 'planes, which, although accompanied by engine noise, was perfectly intelligible. One ground observer (if one may call him such) was on the 103rd floor of the new Empire State building, 1,350 ft. up, and stated that on several occasions the 'planes were on a level below him. At the conclusion of the broadcast the NBC stated that the sound of machine-gun fire, etc., was synthetic, as was, I suppose, only to be expected." This correspondent was fortunate enough to pick up another special trans-Atlantic broadcast in which the National Broadcasting Co., in co-operation with the Canadian Pacific Railway, relayed a concert from the s.s. *Empress of Britain* on June 1. According to my correspondent, "the ship was at the time steaming up the St. Lawrence on the way to Quebec. During the programme, which was given by the ship's orchestra and two Canadian artistes, Mary Pickford and Douglas Fairbanks, with other well-known passengers, were heard to say a few words." All of which shows what interesting transmissions can be picked up, from time to time, on the short waves.

ETHERVIATOR

Dominion and Foreign Broadcasting Intelligence

Growth of U.S.A. Radio Industry Some Striking Figures

(From our Chicago Correspondent)

The growth of the United States radio industry, which came into being a little more than a decade ago, is phenomenal, says Mr. O. H. Caldwell, former Federal Radio Commissioner and now editor of *Electronics and Radio Retailing*. He claims that this growth has occasioned 192,000 new jobs with an annual pay roll of £68,000,000. He states that the investment in broadcasting stations, radio factories, and distribution quarters totals £47,000,000, while the listening public, with 15,000,000 receivers, has an investment in radio of £300,000,000. The listeners likewise make an annual expenditure of £40,000,000 for the operation and upkeep of their receivers. Of this sum £12,000 is paid out for valve replacements, £20,000,000 for electricity and batteries, and the balance for servicing, repairs, and miscellaneous supplies. The valve, which made possible the growth of the radio industry, is finding new uses, one of which has been in the sound-picture field. Sound-picture manufacturers, producers, and distributors have a total investment of £180,000,000, give employment to 65,000 people, with an annual pay roll of £23,000,000.

In addition to these figures cited by Mr. Caldwell, statistics accumulated by the National Association of Broadcasters show that programme sponsors are spending £15,000,000 a year in bringing radio entertainment to the 60,000,000 people in the radio audience throughout the United States. Broadcasting stations in the nation have approximately 10,000 employes, who receive £4,000,000 in wages each year. This does not include the fees paid to radio artists, whose salaries are included in the sum paid by programme sponsors. Ten years ago the radio industry was doing about £200,000 a year of business in fitting out ships with wireless equipment. In a decade it has increased nearly a thousandfold.

AUSTRIA

(From our Vienna Correspondent)

Vienna's Projected High Power Station

The contract for the new 100 kW station has been given to the Telefunken concern, and as much as possible of the material is to be produced in Austria with Austrian labour. It will take about a year to build, and will cost about ninety thousand pounds. The site has not yet been definitely fixed, but it will be somewhere in Lower Austria, at least twelve miles from the city.

The Rotarian Conference

Immediately after the Festival Fortnight, the first week of which has been marred by heavy rainstorms, 4,000 Rotarians are due to arrive in Vienna from all parts of the world, for their Congress here from June 22 to 24. Several speeches are to be broadcast, and perhaps also some of the entertainments provided for them, which will include special performances of Lehár's *Merry Widow* and *The Land of Smiles*, to be conducted by the composer, for he is an ardent Rotarian, though these performances as a whole will not be broadcast. On Friday, June 26, there will be a relay from the State Opera, but the selection has not yet been made.

FRANCE

(From our Paris Correspondent)

Unauthorised Amateur Stations

Three young amateur transmitters have recently been fined a small amount for erecting a transmitting post and communicating with each other. Their defence was that they were merely experimenting, but it was accepted only to the extent that their fine was reduced.

The B.B.C. Report

A summary of the B.B.C. Report has been published in many papers, and the comments made have been very favourable. It seems to be the general opinion that broadcasting is better organised in Great Britain than in France, and the B.B.C. is held up as an example of what can be done if the matter is properly tackled. Very few, however, wish the B.B.C. methods to be copied in France, as it is realised that the problems are not the same, and also that there are great differences of opinion as to the methods of tackling those problems.

The Retiring President

Listeners feel that they are losing a friend in the retirement of M. Gaston Doumergue from the Presidency of the Republic. It is known that he is an enthusiastic listener and he has evidenced his interest in many small ways during his term of office. The new President, it is understood, is not particularly interested in the science, but his granddaughters will make use of the aerial of the retiring President at the Elysée Palace.

GERMANY

The Fourth High-Power Station

(From our Munich Correspondent)

It has been officially stated that the Bavarian Section of the German Ministry of Posts has decided to erect a high-power broadcasting station close to Munich. This station forms part of the net of eight high-power stations at present being built in Germany, of which three are already in operation, Heilsberg, Mühlacker, and the new Königs Wusterhausen. The station will probably be situated some ten miles due east from Munich. I understand that the building is to be erected this year, so that the station will be ready for tests about May, 1932. The site will definitely be decided upon after exhaustive measurements. It is thought that by arranging the transmitting aerial in a certain manner the reflected ray of the transmitter can be greatly reduced or at least sent up at such an angle as to come back to earth at a considerable distance from the service area. Thus this area can be increased, the zone of fading pushed farther off, and the efficiency of the transmitter greatly enhanced. Should the tests prove as successful as they have on the shorter waves, the Bavarian authorities hope to make use of this latest development. A consequence of this aerial construction would be that distant reception of a given station would become much poorer, but listeners in Germany are increasingly becoming aware of the fact that distant reception at its best is poor as compared with local reception of a well-modulated station.

St. John's Day Celebrations in Norway

(From our Cologne Correspondent)

German microphone reporters are visiting Sweden and Norway in connexion with international football matches. They have been invited by the Norwegian broadcasting authorities to relay to Germany the ancient Midsummer Day celebrations which take place at Maihaugen, near Lillehammer, on June 23. The West German group of stations is one of the groups participating in this relay.

HOLLAND

(From our Correspondent at The Hague)

Transfer of Scheveningen Transmitter to Kootwyk Preparations are being made to transfer the so-called Business Broadcast from Scheveningen Harbour to Kootwyk. There are a number of different reasons for this change, most of them being of a technical nature, including the

comparatively higher ground on which the station at Kootwyk stands, the fact that already there are at Kootwyk aerials of great height, and also that most of the Government technical equipment is centred there. Additional reasons are that while the Business Broadcast from Scheveningen does not easily reach all quarters, it is something of a nuisance to listeners in the vicinity who are trying to pick up other stations, since it cuts through everything anywhere near 1,000 metres. The tests from Kootwyk are being made on the old Scheveningen transmitter formerly used on a wavelength of 1,070 metres, the present wavelength being 1,053 metres, the aerial power during tests being 15 kW, and capable of being raised to 60 kW. A number of further tests and experiments are being made before the transmitter is put into regular working, which will be done at as early a date as possible. Reports of reception coming from all parts of Holland and from abroad are very good, one from Dundee stating that the reception is clearer than either Huizen or Königs Wusterhausen.

Ten Radio Commandments

The Rotterdam police take their work as guardians of the peace very seriously, and prefer prevention of disturbances to their cure and punishment. As a means to such prevention they have just issued to all known owners of radio sets and gramophones a card, suitable for hanging on the instrument, on which are printed the following "ten commandments":—

1. Radio rows, neighbours' rows.
2. A loud radio is a trouble to your neighbour and no pleasure to you.
3. A neighbour who creates a disturbance is listened to with annoyance.
4. Get pleasure from your radio without causing displeasure to others.
5. Compulsory enjoyment is never valued.
6. Tastes vary with radio and gramophone as with other things.
7. What you will not that others do unto you, do not unto them, applies also to radio and gramophone.
8. Summer pleasure: Open doors, scent of flowers, no tiresome wireless.
9. Summer vexations: Fine weather, annoyance from unwanted wireless; so a closed door and a bad temper.
10. From his handling of his set, one learns to know one's neighbour.

In the original a number of these "commandments" are in humorous rhyme, and so attract attention without causing annoyance.

NORTH AFRICA

Wireless Stations for the Sahara

(From a Correspondent)

The seventh North African Conference, which opened at Tunis on June 1 last, and at which the Governors-General of Algeria, Tunisia, Morocco, French West Africa, and French Equatorial Africa were present, has expressed some interesting views concerning the creation of wireless stations throughout the great North African Desert. Such stations should prove to be helpful to the Saharan tourist services of motor-cars, as well as of aeroplanes. The Conference has expressed the desire that a regular trans-Saharan line of motor-cars, sponsored by Government, may be created, as soon as possible, both for travellers and goods. This service would operate twice a week during the winter and once a month in summer. In addition, an aerial service would be created, and aeroplanes would take travellers from Algeria down to the River Gao. All the aeroplanes flying over the desert would be equipped with wireless sets, enabling airmen to be always in touch, as to the atmospheric conditions, with

(Continued at foot of col. 1, page 945)

From the Swiss Alps

A Review of the May European Programmes
By "YODELLER"

IT is with some regret that we, in the Swiss Alps, see the last of May, for the month, contrary to all our expectations, has been exceedingly kind to us. For days on end we have had glorious summer-like weather, at a time when, as a rule, we get cold winds and not infrequently, snow. The snow line has now receded far above our village, and at eight thousand feet there are only a few patches of white left where the scorching hot sunshine has not been able to penetrate. Our garden is now planted, and within three days of planting, seeds were sprouting above the surface of the steaming earth. Within another week or so our flowers will be in bloom, so incredibly quickly do things shoot up on this ground which, for many months, has been buried under a six-foot layer of snow. The cuckoo is already working hard in the pine forest behind our chalet, and many other birds familiar to English eyes and ears can be seen and heard now that winter has definitely passed.

Wireless programmes during May have been excellent, and now that the evenings are lengthening, I have run a loud speaker extension lead out into the garden, and am able to enjoy symphony concerts and opera music in almost idyllic surroundings.

Friday May 1.—Began the month by tuning in Mühlacker, from which station came a song recital by a wonderful tenor. The name of the singer, however, I missed, but I thoroughly enjoyed his marvellous rendering of some Schumann songs.

Sunday, May 3.—Enjoyed somewhat of a novelty by listening to a relay from Montreux, via Sottens, of the Davis Cup tennis match, Switzerland v. Ireland. The announcer, or rather commentator, was a Swiss, and his running commentary was very cleverly arranged in both English and French, so that listeners of both nationalities could follow the game.

Tuesday, May 5.—Picked up a superb version of Verdi's *La Traviata*, which was being put out by Budapest from the Royal Hungarian Opera House in that city. At the same time, Munich was broadcasting Flotow's *Martha*—always a great favourite of mine—and from time to time I was able to drop in on this latter with a slight touch of my tuning dials.

Wednesday, May 6.—Found all the Swiss "Romande" transmitters doing a gramophone version of Gounod's *Faust*. At first I tried the high-power Sottens station, but, finding a clumsy neighbour "treading on" his reaction with all his power—why it should be necessary to use reaction on a local transmitter of Sottens' strength beats me entirely—I changed up to Lausanne on 680 metres. Here I found things quite comfortable, and spent a most enjoyable couple of hours free from all interference.

Saturday, May 9.—I feel I must mention how greatly the broadcasts by the National Orchestra of Wales from Cardiff via Daventry are appreciated by at least one listener. On this occasion, in the afternoon, I heard Berlioz' "Dance of the Sylphs" and Delibes' "Entr'acte and Waltz" from *Coppelia*, to mention only two items, and listened enthralled to the beautiful orchestration of these works. Many of my foreign friends have commented upon these broadcasts in highly complimentary terms. In the evening, went over to Berlin via Königs Wusterhausen for the Foreign Press Banquet from the Hotel Adlon in that city.

Monday, May 11.—As was only to be expected, spent the evening, in company with their Majesties the King and Queen, at the London Palladium, listening to the Royal Command Variety programme. I may say that this was the first occasion on which I have heard the English Amos 'n' Andy, Messrs. Alexander and Mose,

and I must say I found them much more to my liking than their American prototypes.

Tuesday, May 12.—Tried Budapest for the advertised broadcast of *Tannhäuser*, but found reception from this station so distorted that I was forced to give it up. Compensation came immediately, however, when, on changing up to Warsaw, I stumbled upon a gorgeous version of Offenbach's *Tales of Hoffmann* being relayed from the Grand Theatre.

Thursday, May 14.—Seldom a week passes without one of the Italian stations broadcasting Donizetti's *Don Pasquale*, so that it came as almost a novelty when, on turning to Leipzig, I heard this operetta being put out in German.

Monday, May 18.—Heard a fine interpretation of Lortzing's three-act comic opera, *Der Wildschütz* from Munich. This station was on the top of its form and has, for some time, been one of the most reliable signals in Middle Europe.

Thursday, May 21.—Again my set was imbued with a roving complex. Geneva, direct, gave me an excellent concert by the orchestra of the Suisse Romande, which included Bach's "Air for the G String," Weber's *Oberon* Overture, and Schubert's "Unfinished" Symphony. Then transferring my attention to Budapest, I picked up a wonderful pianoforte recital, and only relinquished this in time to hear the speech from Dorchester House, via Daventry, by the Prince of Wales. This came over excellently out here. Staying on in England, I was disappointed to learn that, owing to inclement weather, the nightingale broadcast would not take place. Great was my surprise, however, when, on tuning in Daventry again about half-an-hour later, I heard the joyous song of this night songster sandwiched between dance tunes by Jack Payne and his orchestra.

Monday, May 25.—Tuned in Munich for a charming version of Bizet's *Carmen* from the National Theatre of that city.

Wednesday, May 27.—My last notes of the month concern Rome. When I tuned to this station at about 9 p.m., I found it putting out Verdi's *Don Carlos*, with not an atmospheric to be heard. But as the evening went on, static trouble began to make itself heard with ever-increasing persistence, until at about 10.30 I was forced to give up the transmission altogether and close down for the night. Five minutes later, a violent mountain thunderstorm broke out with appalling suddenness, and at once I realised the significance of the *crescendo* "artillery" fire which had been coming from my receiver just previously.

Summary.—Conditions have, on the whole, been good—in fact, much better than one could have expected for May. For nearly a week during the middle of the month distant reception was as good and as powerful as it has ever been during the winter. Atmospherics have at times been troublesome, but not unduly so, and only on four nights was I entirely prevented from using my set.

The two new Swiss stations, Romande and Beromünster, are now in full swing, and will, I think, be a great blessing to us during the summer months. These transmitters are powerful enough to drown all but the worst of static disturbances, yet do not interfere with other stations.

I find the long waves are rather poor of late, and notice that Oslo has fallen off in signal strength considerably, as also have Motala, Moscow (Trades Unions), and Hilversum. The new English North Regional transmitter comes in at great strength sometimes, but the other English stations are not so good.

On the medium waves, I find Rome, Mühlacker, Vienna, Budapest, Munich, and Leipzig most reliable. Toulouse is very feeble nowadays, but Radio-Grenoble comes through at great

(Continued in column 3, page 946)

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FRENCH

Tremblements de Terre

CE fut une grande surprise, le 7 juin dernier, lorsqu'on apprit que la Grande-Bretagne avait été secouée par un tremblement de terre (*earthquake*) qui, heureusement, fit plus de bruit que de mal.

Tout de suite, des anxiétés se firent jour. Allions-nous, dans notre coin tranquille de l'Europe occidentale, être victimes à notre tour des cataclysmes qui firent tant souffrir le Japon, l'Amérique et l'Italie ?

La secousse (*shock*), si elle fut violente ne provoqua ni mort ni blessures. Elle alarma cependant tous les sismographes, ces appareils enregistrant (*registering*) dans les observatoires les frissons intempestifs de notre bonne mère la Terre.

A Kew, les appareils ont noté le premier choc à 1 heure 26 du matin (heure d'été) (*Summer time*). A Bruxelles, ce fut dix secondes plus tard que le sismographe enregistra le phénomène. Le sismographe de Strasbourg s'est mis en branle (*set going*) à 1 heure 26 minutes 52 secondes. Il indiqua que le sol s'était soulevé de sept millimètres !

Dans toute l'Europe du nord-ouest la terre a tremblé, mais c'est surtout en Angleterre que son écorce a frémi avec le plus de vigueur. Et ceci me rappelle un épisode de l'histoire de Londres rapporté par Edward Walford dans son excellent "Old and New London." Un grand tremblement de terre qui devait détruire la Cité et ses faubourgs (*suburbs*) avait été prédit pour le mois d'avril 1750. Comment cette effarante nouvelle s'était-elle répandue ? On

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l'ignore exactement, mais déjà en mars de nombreux Londoniens quittèrent leur ville avec précipitation. Lady Hervey écrivait à Mr. Morris, un de ses amis :—

Les Ides de mars sont arrivées et passeront, j'en suis persuadée, en toute sécurité avant que vous receviez cette lettre, en dépit des prophètes et des prophéties. Les journaux sont pleins des récits de cent petits tremblements de terre insignifiants (*the newspapers are filled with accounts of a hundred little subaltern earthquakes*) qui ont été ressentis en beaucoup d'endroits différents. . . .

Il eût été certes amusant d'assister à Hyde Park Corner, à l'exode des gens de toutes conditions (*people of all ranks*) qui abandonnaient leurs riches demeures comme si elles avaient été frappées de la peste.

La prophétie ne se réalisa pas et les honnêtes Londoniens purent regagner leurs pénates intactes.

Moins bénins, hélas, furent les catastrophes qui détruisirent Lisbonne le 1er novembre, 1755, San-Francisco le 18 avril, 1906, Messine le 28 décembre, 1908, et Yokohama plusieurs fois en quelques siècles.

Le 1er novembre, 1755, à neuf heures et demie du matin, trois secousses ébranlèrent Lisbonne. Leurs effets furent épouvantables. Après la troisième secousse, la ville n'était plus que débris. Une crevasse engloutit à elle seule quatre mille maisons. Le nombre total des édifices endommagés fut estimé à 25,000. Les plus belles églises, les palais les plus somptueux, avaient été rasés comme des châteaux de cartes. Les effets du séisme se firent sentir très loin. A Séville, les clochers tremblèrent, dit un témoin oculaire "comme des roseaux sous un coup de vent." A Madrid, dans une église, une croix, sous la violence du choc, s'abattit en écrasant deux enfants. L'Escorial fut tellement secoué que la famille royale s'enfuit précipitamment et campa pendant plusieurs jours sous des tentes qu'on avait élevées dans la plaine ! De milliers de vies humaines furent perdues.

En Grande-Bretagne, où, entre 974 et 1916 on a compté 1190 séismes, une seule mort fut à déplorer. Un apprenti fut tué à Londres par la chute d'une pierre lors du tremblement de terre de 1580. Ce tremblement de terre, à trois cent cinquante ans d'éloignement, offre presque les mêmes caractéristiques que celui du 7 juin dernier. En effet, il se fit sentir non seulement en Angleterre mais aussi en France, en Belgique et en Allemagne, comme ce fut le cas à présent. A Audenarde, le séisme de 1580 dura 14 secondes. L'imagination populaire avait exagéré de beaucoup l'événement, car, nous disent des chroniqueurs belges "la terre ondula comme des vagues de la mer."

Que faire contre les tremblements de terre ? Que tenter contre ces fléaux qui dévastèrent l'île d'Ischia le 28 juillet, 1883, en causant la mort de 2313 personnes et qui, déjà tant de fois, ont endeuillé la Japon ? L'homme est impuissant devant l'aveugle colère de la Nature. Le plupart du temps, aucun signe précurseur n'annonce la venue du fléau. Le cataclysme s'abat brusquement sur villes, campagnes et mers, ne laissant aux populations affolées aucune chance de se sauver.

Le XXe siècle a cependant sur ses prédécesseurs cette supériorité qu'il est l'âge de la T.S.F. Grâce à elle l'homme peut voler plus rapidement au secours de ses semblables éprouvés. La T.S.F., en moins d'une minute, lance au monde entier son appel déchirant. Traversant les mers, survolant les montagnes, les ondes magiques vont quérir l'aide indispensable. Inappréciables sont à ce sujet les services rendus par la télégraphie sans fil lors du récent tremblement de terre de Managua.

L. Q.

SPANISH

¿Cómo son los españoles ?

HE dicho que la hospitalidad es una cualidad que, con raras excepciones, es común a todos los españoles, sean de la región que sean. Y en esto no exagero, pues hasta el campesino más pobre se presta gustoso (se ofrece con gusto) a ayudar en lo que pueda (as far as he can) al forastero que la trate con respeto y amabilidad.

Desgraciadamente, muchos turistas ingleses y americanos no tienen en cuenta (*take into account*) la gran diferencia que existe entre el temperamento español y el suyo, y a menudo (muchas veces) hieren (herir—to wound) el amor propio del hospitalario pero orgulloso español, quien entonces se vuelve taciturno y hosco (*sullen*), y oculta su verdadero carácter tras una altivez fingida (*assumed haughtiness*).

España tiene algunas costumbres curiosas que son hijas de (que nacen de—*arise from*) la innata hospitalidad de su pueblo (*people*), o, mejor dicho, de sus pueblos, pues entre los habitantes de las varias regiones de España existen diferencias tan marcadas que no lo serían más (*more so*) si se tratara de países distintos. Pero las costumbres a que me refiero son propias de (*peculiar to*) todas las regiones de la Península, como lo son la urbanidad (*politeness*) y la cortesía de que proceden.

Por ejemplo, si un individuo,—amigo o forastero,—hablando con un español, expresa admiración por algún objeto de su propiedad, sea su reloj, su sortija, o cualquier otra cosa de poco o mucho valor, el español no vacila (*hesitate*) en ofrecérselo cordialmente, diciendo "es suyo" o "está a la disposición de Vd." Desde luego (por supuesto), el otro, con igual cordialidad, le da las gracias por el ofrecimiento, del cual va sin decir que nunca se aprovecha (*takes advantage*), quedando así cumplida la amistosa formalidad, pues no es otra cosa. Y cuando el español muda de casa (*removes*), siempre escribe a todos sus amigos y conocidos anunciándoles su traslado (*removal*) a tal o cual punto "donde tiene Vd. su casa."

De igual (la misma) manera, el español nunca come delante de otro sin primero ofrecerle sus viandas (*food, fare*) con un formal "si usted gusta" o "¿gusta usted?" A lo cual le contesta el otro "Muchas gracias ; que aproveche."

Donde más se nota la sencilla generosidad del pueblo español es entre los pobres labriegos (*peasants*) del campo. Hace algún tiempo una corresponsal mía, acompañada de una amiga suya,—inglesas ambas,—visitaron algunas aldeas situadas en la Sierra de Guadarrama, al norte de Madrid, y la descripción que me hizo de la vida de sus habitantes es tan interesante que la traduzco textualmente. Dice : "Nos decidimos a organizar una partida de campo (*picnic*), y fuimos a visitar a varias familias de aldeanos para ver quienes podían venir. En la primera casa que visitamos vivían un aldeano, su mujer y sus cinco hijos descalzos (*barefooted*) que, aunque el día era bastante caluroso, estaban acurrucados (*huddled together*) al lado de un fuego de leño (*log*). El hombre y su mujer (esposa) nos dieron una acogida (*reception*) digna de un príncipe, y apenas (tan pronto como) estuvimos sentadas, la pobre mujer trajo un taburete (*stool*) que colocó entre nosotras, y antes que nos diéramos cuenta (darse cuenta—to realize) de lo que hacía, nos puso delante lo que para esta pobre gente era un festín (banquete) : un poco de puerco de su propia matanza (*killing*). En un viejo plato esmaltado (*enamelled*) nos ofrecieron un pedazo de jamón crudo y una especie de salchicha de puerco que aquí es muy apreciada. El marido entonces sacó de un cajón (*drawer*) un enorme trozo (*chunk*) de pan, y apoyándolo en el pecho, nos cortó un pedazo para cada una con su cortaplumas."

W. F. BLETCHER.

(concluirá).

TECHNICAL SECTION

The Optimum Load

By F. M. COLEBROOK, B.Sc., D.I.C., A.C.G.I.

THERE appears to be some little confusion, in nomenclature at least, if not in ideas, in the use of the term "optimum load" as applied to the output or power stage of a receiving set. It is generally understood that under conditions of operation a power valve can be regarded as a source of electro-motive force associated with an internal resistance (i.e., the internal alternating current resistance of the valve), supplying electric power to an external load (i.e., the loud speaker). It is also generally understood that when an electro-motive force is associated with an internal resistance, the optimum load, or the load in which the maximum output power is consumed, is a resistance equal to the internal resistance. In the case of a power valve, however, we are told that the optimum load is a resistance equal to twice the internal resistance of the valve, and it will be found that where valve makers specify an optimum load it is always in the neighbourhood of this value. On the other hand, one can also find in contemporary technical literature the statement that the optimum load for power amplification by a valve is a resistance equal to the internal resistance of the valve.

These apparently contradictory statements are somewhat confusing, particularly as they are both true with certain reservations, and can be shown to be so. The reconciling factor is a difference in the meaning of the term "optimum load" as applied in the two cases. There is always the danger of ambiguity when one term is made to do the work of two, and it is a pity that the old and well-established term "optimum load" should have been charged with the new interpretation now placed upon it. One of the objects of the present article is to resolve this ambiguity by making as clear as possible, in an elementary manner, the difference between the two meanings attaching to the term.

Original Definition

First we will consider the original meaning, which is also the most general meaning. It is one of the most important principles in electrical engineering, and one which finds application at a number of points in the process of broadcast transmission and reception. A simple, though not quite complete, statement of it is as follows. When electrical power is supplied to a load by a source of electro-motive force which has an internal resistance, the maximum output power for a given electro-motive force is obtained when the resistance of the load is equal to the internal resistance of the source.

A simple example will perhaps help to make this clear to those not already familiar with the idea. We will imagine that we have an electric battery of 120 volts with an internal resistance of 10 ohms, and that we wish to supply power (for conversion into heat, for example) to an external load resistance. According to the above principle the external power obtainable will be a maximum if we make the load resistance 10 ohms. This we can easily check. With a load of 10 ohms the current will be, by Ohm's law, $\frac{120}{(10 + 10)} = 6$ amperes. The power consumed in the load is the square of the current, multiplied by the resistance, i.e., $36 \times 10 = 360$ watts. Suppose we increase the load to 30 ohms. The power, calculated in the same way as before, is 270 watts, which is less than before. Suppose now that we make

the load less than 10, say, 2 ohms. The power will be found to be only 200 watts, which again is less than that given by the 10 ohms. A more detailed calculation would show that whichever way we depart from the value 10, upwards or downwards, the output power is reduced, and for this reason the load of 10 ohms is called the optimum load.

The power and efficiency relations of the optimum load are of some interest. If the battery were short-circuited upon itself, the current would be $\frac{120}{10} = 12$ amperes, and the power consumed (in the internal resistance) would be 1,440 watts. Thus the maximum power which can be consumed or transformed in an external load is only 25 per cent. of the highest total output of the battery. This is a general conclusion in relation to a source of e.m.f. having an internal resistance. Under the optimum load conditions the load is equal to the internal resistance, and, since the same current flows through both, the total power output of the battery is equally divided between

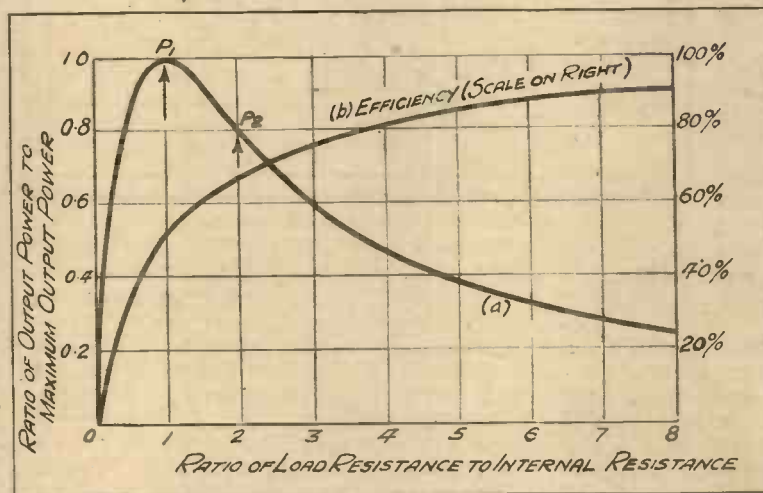


Fig. 1.—Variation of useful output power with varying load

that wasted in the internal resistance and that consumed or transformed in the load. Thus the process can be described as having an efficiency of 50 per cent.

This does not mean, however, that 50 per cent. is the maximum efficiency of the power supply of any such system. It is fortunate for the power supply companies that this is not the case. Putting the matter in general terms, let R ohms be the resistance of the load, and S ohms the internal resistance of the source. Then, since the same current flows through both, the ratio of the external power to the total power output is $\frac{R}{(R + S)}$, which represents the efficiency of the process so far as the external power is concerned. When R=S this is $\frac{1}{2}$ or 50 per cent. as already explained, but it obviously becomes nearer and nearer to 1, i.e., to 100 per cent., as R is made larger and larger relative to S. In fact, the efficiency increases continuously from zero up to 100 per cent. as the external load resistance increases from zero up to infinity, but high efficiencies, of the order of 90 per cent. or so, are only obtained when the output load is very large and the output power correspondingly small compared with the maximum obtainable.

The way in which the useful output power varies with the load is best illustrated by a curve, which can be made very general in application by plotting it as shown in Fig. 1 [curve (a)]—i.e., the ratio of the output power in the load to the maximum value of this power, plotted against the ratio of the load to the internal resistance. The curve rises to a maximum value of unity when the load ratio is unity, and an important feature of the variation as a whole is that the curve is much steeper on the low ratio side than on the other, so that it is better from the power point of view, for the load to be too large rather than too small. The efficiency of the process is also shown in the same diagram [curve (b)].

Broadcast Applications

It may be of interest to point out some examples of the application of the above principle of the optimum load to broadcast reception. We find one example at the very outset of the reception process, i.e., in the aerial itself. In an article published in *World-Radio* some time ago, I showed that a receiving aerial situated in the field of a distant transmitting station can be regarded, so far as the receiving set is concerned, as a source of electro-motive force, of carrier-wave frequency, in series with an effective aerial resistance and aerial capacity.

The tuning circuit, modified in general as to its effective resistance by the input impedance of the receiving set, can be regarded as a load supplied with electric power by the aerial electro-motive force. It was shown that the maximum input potential difference is obtained when the coupling to the aerial is so adjusted that the load effect of the tuning circuit is equal to the aerial resistance, i.e., when the total power collected by the aerial is equally divided between the aerial and the tuning circuit. (This is not necessarily the con-

dition to be aimed at in all cases, since selectivity may be a more important factor than sensitivity, and a looser coupling than that corresponding to the maximum input potential may be desirable for this reason.)

In the next stage of the reception process we find yet another example of the optimum load principle. The anode circuit of the radio-frequency amplifying stage is again, in effect, a source of electro-motive force, in series with the internal resistance of the valve, supplying power to a tuned circuit load, either directly or through the medium of a transformer winding. It has been shown in numerous technical papers on radio-frequency amplification that the optimum transformer ratio or other coupling condition is such that the effective resistance introduced by the tuned circuit into the anode circuit of the valve is equal to the valve internal resistance, under which conditions the total radio-frequency power output of the valve is divided equally between the valve and the tuned circuit. It would almost seem that Nature had contrived to hold up continually before our eyes this brotherly principle of share and share alike.

(To be continued)

Readers' Experiences

A Simple Wave-Meter for Short Waves

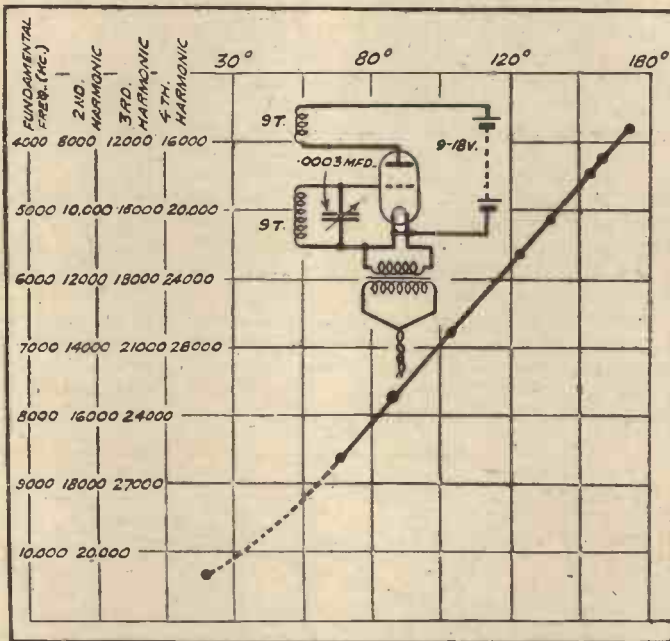
MOST short-wave listeners have experienced the irritation of slowly revolving the dials "in step" while searching for a station, particularly on a wave-band not previously explored. Even when the desired station is found, any alteration of aerial coupling or size of coil throws out tuning, and, if the transmission is weak, several minutes may be lost in further search. Readers may therefore be interested in a simple wave-meter which has enabled the writer to overcome this trouble and tune in to any station at will.

The instrument consists of an oscillating valve with a 9-turn grid coil tuned by a 0.0003 μ F square-law-frequency condenser, and a 9-turn reaction coil controlled by a key. If a rather soft valve is used, a 9-volt grid bias battery will suffice for H.T. The filament is heated by a transformer from the A.C. mains (in the writer's case a domestic bell transformer is used), and a carrier modulated by the mains frequency is generated on depressing the key connected in the H.T. negative lead.

The note produced is sharp enough for tuning purposes, while being much easier to pick up in the receiver than the "chirp" of an unmodulated oscillator. A much greater advantage, however, is secured by this arrangement, in that the harmonics of the modulated carrier extend the range of the instrument and enable a complete calibration chart to be obtained by the use of a single station as a "key."

The method adopted depends on the fact that when the wave-meter is oscillating on a frequency f , harmonics are generated of frequency $2f$, $3f$, $4f$, etc., and the procedure for calibrating is as follows: Tune in a reliable station, say W2XAD on 15,340 kc/s. The short-wave receiver at this same tuning adjust-

ment should now respond to three settings of the wave-meter—i.e., to the second harmonic of 7,670; to the third harmonic of 5,113, and the fourth harmonic of 3,835. Plot these settings on squared paper. Further points may now be obtained by adjusting the receiver to respond to the fourth harmonic of 5,113 (20,452). It will now also respond to the third harmonic of 6,817. Proceed in this way until a sufficient number of points have been obtained to determine the shape of the curve. A further check



Circuit and calibration of wave-meter

may be obtained by using a second known station, and the curve derived from this should coincide with the first.

The accompanying diagram shows the curve derived from W2XAD on the writer's instrument, and indicates the useful range covered without change of coils, roughly 80-36 metres, using fundamental, 40-16 metres on second harmonic, and 20-8 metres on third harmonic.

In conclusion, this instrument can be constructed by any amateur at the cost of a few shillings and an evening's work. It is not claimed that either the design or method of calibration achieves the standard of accuracy expected of a commercial wave-meter, but its use enables the operator to tune in transmissions on any wave-band without wearisome searching, and to identify unknown stations with some degree of certainty.

W. L. B.

A New Wireless Station for Havana, Cuba

A FEW details of a new radio station to be opened in Havana shortly, have been released by the Cuban Government for publication. It is understood that this new station will embody the latest principles of radio transmission, and will be one of the most powerful in the country. The authorities expect that as the station has a modulation of 100 per cent., it will have a wider range than the more powerful but older type of stations.

The station's operations have been announced as follows: American stations will broadcast programmes by short wave direct to Havana, where they will be automatically transferred to the long-wave transmitter and relayed to Cuban listeners. In return, from the studios in Havana, Cuban music, domestic propaganda and advertising will be transmitted to the United States, where the items will be picked up by a selected American station and relayed on long waves throughout the States. It has been emphasised that musical features will also be broadcast from Havana especially for the Cuban listeners, and some performances by the best local artists have been promised. This is more or less an innovation in Cuba, where they have depended almost entirely upon gramophone records for their local programmes. Cuban set owners have also been assured that climate conditions will not interfere with the relays from the United States as they usually do. No name has yet been given to this new station.

F. J. L.

A CORRECTION

In the article—"The Rectified Current Meter"—in last week's issue, an error occurs in the example given near the foot of the first column (page 905). The current flow through the 50,000 ohm resistance should be 2.5 m/a, not 5 m/a as printed.

Frequencies of Long-Wave European Broadcasting Stations

May Measurements by the Brussels Laboratory of the Technical Committee of the U.I.R.

The Letter T indicates Telegraphy transmission. Stations marked ● are provided with U.I.R. wave-meter.

WAVELENGTH METRES	FREQUENCY KILOCYCLES	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	31	WAVELENGTH METRES	FREQUENCY KILOCYCLES	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	31	
1875	HUIZEN 160																	1304.3	MOSCOW R.V. 49																	
1796.4	LAHTI ● 167																	1200	ISTANBUL 250																	
1728.1	RADIO PARIS ● 174																	1153.8	KALUNDBORG 260																	
1635	ZEESEN 183.5																																			
1558.4	DAVENTRY ● 193																																			
1481.5	MOSCOW R.V. 202.5																	1071.2	OSLO 280																	
1445.8	EIFFEL TOWER ● 207.5																																			
1411.3	WARSAW TOWER ● 212.5																																			
1383	MOTALA ● 222.5																	1010.1	BASLE 297																	

Correspondence

Short-Wave Reception

To the Editor of WORLD-RADIO

SIR,—While sending you a query concerning a short-wave station which is new to me, my notes on short-wave reception in India may be of interest. The bright sunshine which prevails in India for the greater part of the year appears to make no difference in the reception of signals below 20 m., but above this it certainly does. For instance, PCJ, which I receive at very good strength at night here, drops to a very weak, almost unreadable signal during daylight (their 2 a.m. transmission). On the other hand, Bandoeng, on 15.9 m., is received by me, in bright sunshine, at 1 p.m., with perfect strength and quality.

G5SW, whose midday programme I used to get regularly during the winter months, is gradually losing its signal strength. Rome and Zeesen, on the other hand, have been coming in amazingly of late. Now that the Indian winter is over, the medium and long waves are very rarely free from atmospheric and therefore are scarcely worth any attention.

Yours faithfully,

W. A. D.

Cawnpore, India.

To the Editor of WORLD-RADIO

SIR,—I am a regular reader of your paper and always note with interest the reports of radio reception from your correspondents in various parts of the world. Perhaps it may interest your readers to know how we fare in this corner of the earth. I have a S.G. four-valver, suitable for reception on all wavelengths from 10 to 2,000 metres. Apart from the local station, my log consists of stations from far and near.

Starting with short waves, the strongest station received here is Saigon on 49 metres. This station transmits daily from 6.30 p.m. to 10 p.m. local time, i.e., 11.30 a.m. to 3 p.m. G.M.T. Next we have the Java stations. These are five in number and all can be received with more or less success. Bandoeng is, of course, the strongest, and its weekly broadcast on 15.93 m. on Tuesday night is a feature I rarely miss. KZRM, Manila, was very weak compared with others. I used to hear him on 48.8 m., but recently he was practically silent. VK3ME came in every Saturday afternoon from 5 to 6 p.m. local time, at fair loud speaker strength. VUC, Calcutta, a short-wave experimental station, was also received, but the signal was generally weak, and could be heard only on earphones. Khabarovsk, on 70 m., also transmits regularly from 5 p.m. This station was very strong at times but the programme was not very entertaining, a major part being lecture or talk, or something of the sort.

Late at night, when I had the patience to sit up and listen, I used to log regularly Nairobi, PCJ (Holland) and 3RO (Rome). They all came in about 11.30 p.m., sometimes earlier. But the best time to listen to European short-wave stations is from 2 a.m., when the atmosphere is most perfect, and station after station comes in loud and clear, including G5SW (Chelmsford) and Zeesen. Wednesday night, or rather, Thursday morning, was special broadcasting night for PCJ, for the East. I used to hear the announcers calling up listeners in India, Ceylon, Singapore, etc., in plain English. Among the European short-wave stations, Rome is the strongest station received by me. I used to log on both 25.4 m. and 80 metres. I did not hear him for some time, but recently he started again on the former wavelength. The lady announcer's voice was easily recognisable; her "Radio-Roma-Napoli" preceding every item. It is well known to all short-wave listeners here.

The new Vatican station was also heard in Bangkok at good loud speaker strength. I tried both wavelengths—19.84 and 50.26 metres—and consider the latter the stronger signal. The only American short-wave station received by me is Bolinas, in California, on 41 metres. Several of my friends, however, reported reception of Schenectady and Bound Brook in the morning hours.

On the medium waveband, we have Japanese, Chinese and Manila stations. I also logged nearly a score of European stations—long-wave included—but atmospheric and crackling noises were generally prevalent, which tend to make listening-in on these wavebands most unpleasant.

Yours faithfully,

CHOO SRI WEESAKUL.

Bangkok, Siam.

Below 100 Metres

By "Vernier"

MY mail recently brought me further news concerning the Moscow broadcasting station. This transmitter, I now learn, radiates with the extraordinarily high power for the short-wave band of 100 kW., which makes it, I believe, the most powerful broadcasting short-wave transmitter in the world. It will be remembered that I recently reminded listeners in this column that the Bandoeng transmitter PLE, employs a power of 80 kW. in the aerial.

From New York, I hear that many reports have been received at W3XAL concerning the reception in this country of various harmonics of the Bound Brook transmitter, and a friend on the staff of the National Broadcasting Company, which operates this station, tells me that filters have recently been installed to eliminate the transmission of these unwanted harmonics. Judging by present reception on 12,200 kc/s the filters appear to have had little effect.

A fortnight ago I made brief reference to a new Canadian short-wave transmitter—VE9CF—but omitted to state the wavelength of this newcomer to the ether. VE9CF transmits on 48.59 metres (6,050 kc/s) on the schedule quoted.

The latest suggestion concerning the "mystery" station on approximately 31 metres, which broadcasts in Spanish, is that these programmes emanate from NAA, a short-wave station operated by the American Government at Arlington, U.S.A. Meanwhile, if any of the many paragraphs which I have written on this subject should catch the eye of those connected with a station which tallies with these details, I should be grateful for further information.

Radio Saigon again appears to be testing on the 25-metre band, and regular broadcasts now often take place on this waveband. Bangkok—HSJ—has, also, been carrying out extensive tests on 24.5 metres.

I have not yet succeeded in picking up the Rio de Janeiro short-wave broadcasting station, mentioned previously in these notes, but I have heard a commercial transmitter in the Brazilian capital testing frequently on various wavelengths. I understand that a regular schedule is now maintained by this transmitter with Rugby and other European commercial short-wave telephony stations. I have also heard reports requested from Saigon.

With the many thunderstorms which have been experienced recently all over England, atmospheric conditions have naturally been bad, but rarely extended to the lowest wavelengths. When reception on the medium waveband has been impossible, I have frequently been able to turn on Radio Roma on 25.4 metres for entertainment purposes, and obtain ample loud speaker volume without static interference. I find that the quality of the Italian transmitter has vastly improved of late.

The best stations at the moment are probably W2XAD, W8XX (25.25 metres), W2XAF, Zeesen, Skamlebak, and Rome. The Vatican transmitter has frequently been heard on the 19.84 metre wavelength, but volume has never been really good.

(Continued from column 3.)

Schenectady (19.56). Relay of broadcast from *Empress of Britain* on her maiden voyage, heard between 9 and 10 p.m., June 1, at good loud speaker strength at Lewisham (0-v-2 set) and at Portland, Dorset (S—Het. adaptor—S.G.—v—pentode set).

Buenos Aires (15.9 approx.). Special anniversary programme received at London, S.E.4, May 25 (closed down 9.10 p.m.). Good L.S. strength, no fading, slight distortion (0-v-2 set). Also heard at Mitcham, Surrey, 8 to 9 p.m. on same date. Good L.S. strength, very slight fading. Announcement heard that broadcast was being relayed by N.B.C. of America (0-v-3 set).

Short-Wave Notes

THE Citroën Automobile Expedition which is crossing Asia, and at the present moment should be somewhere near Afghanistan, is broadcasting on even days of the month on a wavelength of 36.3 metres, and on odd days of the month on a wavelength of 23.6 metres, and would be glad if listeners who are successful in picking up these transmissions would communicate the result to "Expedition Citroën Centre-Asie, 2 Place de l'Opéra, Paris." They may be heard about 7.20 p.m. and the call sign is FPCF.

The twenty-five American mayors of the towns that welcomed the French trans-Atlantic aviators, Costes and Bellontes, during their tour across America after their successful flight, were announced to speak for one minute each from the new French Colonial Short-Wave Station at Pontoise on Saturday, Jun 6. Listeners who received this station are requested to communicate results to the Director, Service of Radiodiffusion des P. T. T., 103 Rue de Grenelle, Paris. General Pershing also spoke from this station on the occasion of the opening of the American section of the Colonial Exhibition at the end of May.

Under Short-Wave Notes in our issue of May 8 last details were given of impending changes at VE9GW, Bowmanville, Canada. We now learn officially that the proposed broadcast service on 25.4 metres is postponed indefinitely owing to the fact that the necessary licence is not forthcoming. The present transmissions on 49.22 metres will continue as indicated in our Short-Wave List.

Readers' Reports

Cincinnati (49.5). Received, at good 'phone strength, at London, S.W.9, 3 a.m., May 25. Occasional fading and severe distortion (0-v-1 set). Also heard on loud speaker at Hull, 5 a.m., same date, with very little fading—reported as best station heard (S—Het. adaptor—S.G.—v-2 set).
Lisbon (42.9). Heard at good loud speaker strength at Hull, 10.35 p.m., May 28, but considered over-modulated (S—Het. adaptor—S.G.—v-2 set).

(Continued at foot of previous column.)

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Continental Programme Events

SUNDAY, JUNE 21

- Concerts**
- 11.30 a.m. Leipzig and all German stations: Bach Cantata.
- 12.30 p.m. Breslau, Königs Wusterhausen: Orchestral.
- 8.0 ,, Brussels No. 1: Orchestral and vocal (Russian composers).
- 8.40 ,, Frankfurt, Mühlacker: Orchestral.
- 9.0 ,, Radio - Suisse Romande, Beromünster: Swiss music.

- Operas and Operettas**
- 7.35 p.m. Munich: "Turandot" (Puccini).
- 8.45 ,, Milan, Turin: "La Gioconda" (Ponchielli).

- Other Events**
- 7.50 p.m. Hamburg, Mühlacker: Germany-Norway Football Match (Relay from Oslo).
- 8.55 ,, Vienna, Königs Wusterhausen, Leipzig: "Summer Solstice in the Mountains."

MONDAY, JUNE 22

- Concerts**
- 8.0 p.m. Brussels No. 1: Concert, "Summer in Music."
- 8.0 ,, Brussels No. 2: Spanish music.
- 9.15 ,, Munich, Königs Wusterhausen: Chamber music.
- 9.15 ,, Vienna: Yugoslav music.
- 9.20 ,, Hamburg: Beethoven's 6th Symphony.
- 10.0 ,, Copenhagen: Serenades.
- 10.10 ,, Milan, Turin: Chamber music.
- 10.15 ,, Königs Wusterhausen: Orchestral and vocal.
- 11.20 ,, Barcelona: Catalan composers.

TUESDAY, JUNE 23

- Concerts**
- 7.30 p.m. Munich, Mühlacker: Mozart
- 8.0 ,, Breslau, Heilsberg, Berlin-Witzleben: "Midsummer Night" (Tone Poem by E. Nick).
- 8.45 ,, Copenhagen: "Midsummer" festivities.
- 9.0 ,, Rome: "St. John's Night" concert.
- 9.40 ,, Munich: English songs and poetry.
- Operas and Operettas**
- 7.50 p.m. Warsaw: "A Night in Venice" (J. Strauss).
- 8.0 ,, Radio-Paris: "Fortunio" (Messager).
- 9.0 p.m. Beromünster: Selections from "Faust" (Gounod).

- Other Events**
- 8.0 p.m. Oslo, Hamburg, Königs Wusterhausen, Langenberg, Leipzig, Mühlacker, Vienna: Relay of the Maihaugen (Norway) St. John's Day celebrations.
- 9.40-12.0 Stockholm: Swedish Midsummer celebrations.

WEDNESDAY, JUNE 24

- Concerts**
- 8.0 p.m. Langenberg, Mühlacker, Frankfurt. Hamburg: Schönberg's "Gurre-Lieder."
- Operas and Operettas**
- 9.0 p.m. Rome: "Carmen" (Bizet).
- Plays**
- 8.30 p.m. Berlin, Breslau, Heilsberg: "Medea" (Euripides).

THURSDAY, JUNE 25

- Concerts**
- 7.55 p.m. Hilversum: Relay from Concert Hall, Amsterdam.

- 8.0 p.m. Copenhagen: Modern French music.
- 9.0 ,, Rome: Mussorgsky commemoration.
- 9.0 ,, Vienna: Wagner concert.
- 9.30 ,, Mühlacker, Frankfurt: Compositions by Clemens Schmalstich.
- 10.10 ,, Stockholm: Chamber music.

FRIDAY, JUNE 26

- Concerts**
- 7.0 p.m. Heilsberg: "The Seasons" (Haydn).
- 8.0 ,, Langenberg: Choral concert.
- 8.0 ,, Stockholm: English music.
- 8.10 ,, Copenhagen: Verdi-Puccini Hour.
- 8.15 ,, Warsaw: Symphony concert.
- 10.15 ,, Copenhagen: Present-day Danish composers.

- Operas and Operettas**
- 7.30 p.m. Vienna: Opera relay.
- 8.30 ,, Berlin, Königs Wusterhausen: "Das schönste Mädchen im Städtchen" (Conradi).

SATURDAY, JUNE 27

- Concerts**
- 7.30 p.m. Berlin, Heilsberg: Professor Joachim commemoration.
- 8.0 ,, Beromünster: "The Children's Crusade" (Pierné).
- 8.35 ,, Budapest: Professor Joachim commemoration.

- Operas and Operettas**
- 8.0 p.m. Oslo: "I Pagliacci" and "Cavalleria Rusticana."
- 9.0 ,, Rome: "Siberia" (Giordano).

Interference between Stations

(June 7-13)

THE beginning of the above period showed the disappearance of some of the interferences which had marked the previous week—thus there has been no further trace of the very powerful carrier wave which was the cause of the loud whistle to be heard on Hilversum (1,004 kc/s). On the 8th, Bratislava, previously working on 1,073 kc/s, was found on his usual frequency of 1,076 kc/s, and Montpellier P.T.T., who was on 1,063 kc/s on the 4th, has since been on about 1,054 kc/s instead of 1,049 kc/s, where he should be. Thus Copenhagen's transmissions are free from heterodynes. But Montpellier is now severely heterodyning the Berlin-Stettin-Magdeburg common wave, and Innsbruck, the Austrian relay, who are sharing the 1,058 kc/s wave.

Palermo has not been heard this week round 703 kc/s, where he was testing previously, and was announced to carry out his official transmissions, which began on the 14th.

Radio-Normandie is still using round 250 metres. He is now on 1,189 kc/s, where he heterodynes Gleiwitz (1,184 kc/s) and Trollhättan, a Swedish relay working on 1,193 kc/s. Gleiwitz is also interfered with by Barcelona Asociación, who is now working on 1,180 kc/s, after having been a few weeks on 1,170 kc/s. Toulouse P.T.T. (1,175 kc/s) is also heterodyned by Barcelona Asociación, whose carrier wave is still very unsteady and varies continually in the course of the transmission.

Wilno has been the cause of an interference to Belfast (1,238 kc/s) since the 30th ultimo, as he was working on 1,232 kc/s instead of on 1,229 kc/s. Wilno was again in his correct place on the 8th, and has not left it since. He is always heterodyned by Basle, who works also on 1,229 kc/s.

L. B.

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Letters to the Editor

An Unidentified Station

To the Editor of WORLD-RADIO

SIR,—The station which puzzled your correspondent "Long-Waver," of Cambridge, calls itself "De Haag, Groepzender van de Zakelijke Radio Omroep te Kootwijk." I, too, heard it at remarkable strength last Sunday. The announcer, who did his job in a remarkably amateurish manner, stated that the station would close down at 2 p.m. and resume at 3 p.m. Being otherwise engaged, I could not try for it again. The announcer asked for reports from listeners as to the reception as compared with the Huizen and Hilversum transmitters. Having failed to hear the remainder of the afternoon transmission, I am unable to say whether any announcements were broadcast as regards programmes. At any rate, I have since repeatedly tried to get the same station, but failed. My set is a four-valver. The translation of the style adopted by the station, by the way, is "The Hague, Group Sender of the Business Broadcasting Company at Kootwijk."

Yours faithfully,

Harrow, June 12, 1931. F. P. V.

To the Editor of WORLD-RADIO

SIR,—I cannot help thinking that "Long-Waver," in his letter of June 7 last, has made a mistake in the figures he gives for his dial readings. The first figure is apparently that of the aerial tuning circuit. Oslo should read about 36 or 37 and not 42½. I believe the station he refers to is an harmonic of Brussels No. 1, which I can always get a little below my readings for Leningrad. In any case, the frequency cannot be 283 kc/s.

Yours faithfully,

E. A. ESTCOURT.

162, Sandgate Rd., Folkestone, June 14, 1931.

[We have to thank other correspondents for letters in reply to "Long-Waver's" inquiry in our last issue. The transmission, which was purely experimental, came from Kootwijk, Holland, which was broadcasting on a wavelength of 1,053 m. Fuller particulars will be found in our "Dominion and Foreign Intelligence."—Ed.]

Coincidences in Listening

To the Editor of WORLD-RADIO

SIR,—I was interested to read the listening coincidences which you have published. Here is one of another kind, experienced by a friend of mine a year or two ago. Having taken a portable receiver into the country, he was listening to Jack Payne's dance band. In the middle of the number, "There ain't no sense sitting on a fence," the top bar of a gate on which my friend was perched at the time collapsed under him.

June 10, 1931.

C. J.

Esperanto Transmissions, June 21—27.

Sunday.—Lille, 8.30 a.m., News, etc. (A. Trotin).

Leipzig, 2.30 p.m., Course (Dr. Dietterle).

Monday.—Leningrad, 10.5 p.m., News.

Tuesday.—Fécamp, 9 p.m., Course and News (H. Dubuisson).

Thursday.—Paris P.T.T., 5.45 p.m., Course (Prof. Rousseau).

Lyons-la-Doua, 8.20 p.m., Course (Prof. Pouchot).

Kaunas, 9.50 p.m., News.

Leningrad, 10.5 p.m., News.

Friday.—Mühlacker, 7 p.m., Week's programme (Prof. Christaller).

Saturday.—Hilversum, 5.25 p.m., Course (G. J. Degenkamp).

Heilsberg, 6.45 p.m., Week's programme.

Lyons-la-Doua, 8.15 p.m., News (M. Borel).

DOMINION AND FOREIGN INTELLIGENCE

(Continued from page 938)

ground stations. The Conference also expressed the wish that all military posts and small cities of the desert may be equipped in a regular way with wireless stations, which, besides being so many *traits d'union* between North Africa and black Africa, would put these distant places in direct contact with the principal wireless stations of the world.

Last Week's Log

(June 7—13)

By "THE SEARCHER"

IT is not often that a writer on wireless reception in this country has to record the effects of an earthquake. As luck would have it, though, I was using my short-wave set when the recent tremors appeared and, since it comes into my week by an hour and a half, readers may be interested to know just what effects it produced. I noticed in one of the lay papers a report that a fellow-searcher in another part of the country had observed a definite strengthening of signals at the time. I cannot say that anything of the sort happened to me. The first intimation that I had that anything unusual had occurred was that my ordinarily very quiet short-wave set became suddenly possessed of demons. I was nearly deafened by an outburst of microphonic "pings" in the headphones. Hardly had the first uproar died down when another outbreak occurred. As this was by no means my first earthquake I realised what was going on. Atmospheric seemed to be neither more powerful nor more numerous during the earthquake period as some have reported, and the only effect upon reception that I could discern was the rattling up of one's valves just described.

Summer appears really to have come at last, and we know now which are the foreign stations upon which we can rely during the lighter part of the year. On the long waves I find all stations good with the exception of Oslo, who has not been of much use lately from the long-distance man's point of view.

On the medium wave-band the completely reliable stations make surprisingly good showing. First and foremost I would place Brussels No. 1, who in my locality is excellent both by day and by night. Though not so good in the daytime, Rome is a wonderful evening station; I have, too, had good reception from him on one or two occasions as early as 4 p.m. Langenberg is always there when wanted. He, too, is a daylight signal as a rule; he shows, though, rather more variation than either Rome or Brussels No. 1.

Both of the big Swiss stations, Beromünster and Radio-Suisse Romande (as Sottens prefers to be called), are keeping up their strength well. Frankfurt very seldom fails to give loud speaker reception and Toulouse never lets one down. Brussels No. 2, is, in my locality, almost as strong as Brussels No. 1; in other places I know the order is reversed, No. 2 being the better and more consistent station. Turin and Heilsberg may also be classed definitely as all-the-year-round stations, and the list is completed by Hilversum, with both Göteborg and Breslau as strong candidates for admission to it.

These stations by no means exhaust the list of those to be heard on reasonably good evenings. Budapest is generally to be picked up, though during the week his strength was up to the mark only on the Tuesday and the Thursday. Munich has been logged, though never at more than moderate strength. Milan was good on the Wednesday and Thursday. Strasbourg was heard on most nights, but was at his best on the Wednesday. Bordeaux has been suffering somewhat from interference, and his strength is much less than one would expect, considering his high power. Lwów gave excellent reception on the Friday, and Hamburg was very good on the same night.

Atmospherics, unfortunately, have been distinctly troublesome during the week. The worst nights were the Tuesday, Thursday, and Friday. On the Wednesday and Saturday this kind of interference was noticeable only at intervals, whilst the Sunday and Monday were almost entirely free from it.

SHORT-WAVE STATIONS

The times quoted are reduced to B.S.T.

M.	Kc/s	
70.1	4280	Khabarovsk (U.S.S.R.), 10 a.m. to 1 p.m.
62.5	4800	Long Island W2XV, FRI, 11 p.m. 1.30 a.m.
61	4918	Radio LL (France), 0.5 kW.
58	5172	Prague, TUES, and FRI., 8.30—10.30 p.m.
54.52	5502	Brooklyn (N.Y.) W2XBH, Relays WCGU.
51.22	5857	Chapultepec (Mexico) XDA, 20 kW. Daily, 4—5 p.m.
50	6000	Barcelona Radio Club EAJ25, SAT, 9—10 p.m.
50	6000	Bucharest (Romania), 0.3 kW.
50	6000	Moscow (Russia), Relays Moscow T'des Un.
49.83	6020	Chicago (Ill.) W9XF, 5 kW. Relays WENR, SUN, 5—7 a.m., 1—5.30 p.m., 8.30—11 p.m. and 1—6 a.m. (MON.) Weekdays, 3.15—4.45 p.m., 8.30 p.m.—12 m'nt and (ex.SAT.) 1.30—6 a.m.
49.67	6040	New York (W2XAL), 0.25 kW. TUES., 12 m'nt.—5 a.m. WED., 12 m'nt.—2 a.m. FRI., 12 m'nt.—4 a.m. SAT, 12 m'nt.—3 a.m.
49.5	6050	Cincinnati, W8XAL, 10 kW. Relays WLW.
49.5	6050	Nairobi (Kenya), 7LO.
49.5	6050	Philadelphia (Pa.) W3XAU, 0.5 kW. Relays WCAU. Daily 2—9 p.m. THURS. and FRI., 2 p.m.—6 a.m.
49.43	6069	Vancouver (B.C.) VE9CS.
49.4	6072	Johannesburg (S. Africa). Daily, 4.30—9.30 p.m.
49.34	6080	Chicago (Ill.) W9XAA, 0.5 kW. Relays WCFL. Daily 2—5 a.m.
49.22	6095	Bowmanville (Canada) VE9GW, 0.028 kW. Weekdays, 11.45 a.m.—3 p.m.; and 8 p.m.—3 a.m. SUNDAYS, 5.30 p.m.—4.15 a.m.
49.18	6100	Bound Brook (N.J.) W3XAL, 12 kW. MON., 10—11.45 p.m. TUES., WED., THURS., FRI., and SAT., 10—11 p.m. Daily, 4—6 a.m.
49.02	6120	Richmond Hill (N.Y.) W2XE, 0.5 kW. Relays WABC. D'y 1 p.m.—5 a.m. next day.
49	6122	Saigon (French-Indo-China) F3ICD. Daily, 12.30 p.m.—4 p.m.
48.86	6140	Pittsburgh East (W8XK). Relays KDKA. WED. and SAT., 10 p.m.—5 a.m.
48.8	6147	Winnipeg (Canada) VE9CL, 2 kW. Daily (except SUN.) from 12.30—2.30 a.m. Frequently from 10 p.m. to 3 a.m.
48.65	6167	Mexico City X1F.
48.62	6170	Tegucigalpa (Honduras) HRB, 2.5 kW. Daily (except SUN.), 1—6 a.m.
48.35	6205	Bogotá (Colombia) HKC. Daily, 4 p.m.
48	6250	Casablanca (N. Africa) CN8MC. Relays Rabat, MON., 9—10 p.m. TUES., 1—2 p.m. and 9—10 p.m.
46.6	6438	Moscow (Russia).
45	6667	Constantine (Algeria) 8KR, 0.2 kW. MON. and FRI., 11 p.m.
43	6976	Madrid (EAR100). TUES. & SAT., 11.30 p.m.
42.9	6991	Lisbon CT1AA, 2 kW. FRI., 11 p.m.
41.7	7195	Singapore VS1AB, SUN. & WED., 3.30—5 p.m.
41.6	7211	Tenerife Radio Club EAR8, 0.5 kW.
41	7313	Bangkok HSP2, 2.5 kW. (Testing)
40.7	7370	Nuevo Laredo (Mexico) X26A. THURS., 5—6 p.m.
39.7	7556	Bogotá (Colombia) HKF.
36.92	8125	Bandoeng (Java) PLW.
34.68	8650	Long Island W2XV, FRI, 11 p.m.—1.30 a.m.
32.5	9230	Paris (FLJ). Time Sig. 8.56 a.m. and p.m.
32.26	9300	Rabat (Radio Maroc), 6 kW. SUN. 8—10 p.m.
31.75	9450	Rio de Janeiro (Brazil), 11.30 p.m.—1.30 a.m.
31.55	9510	Melbourne (Australia) VK3ME, 5 kW. WED. and SAT., 11 a.m.—12.30 p.m.
31.51	9520	Skamlebak (Denmark) OXY, 0.5 kW. Relays Copenhagen. Daily 8 p.m. to close down.
31.48	9530	Schenectady, N.Y. (W2XAF), 10 kW. (Aer.) Relays WGY. Daily 11 p.m.—5 a.m.
31.38	9560	Zeesen (Germany), 8 kW. Relays various stations, generally 2 p.m.—1.30 a.m.
31.35	9570	Poznań (Poland) SR1, 1 kW. TUES., 7.45—10.45 p.m. THURS., 7.30 p.m.—2 a.m.
31.35	9570	Springfield (Mass.) W1XAZ.
31.3	9582	Philadelphia (Pa.) W3XAU, 0.5 kW. Daily (except THURS. and FRI.), 9 p.m.—6 a.m.
31.28	9590	Sydney (Australia) VK3ME, 20 kW. SAT., 6—8 p.m. SUN., 11 a.m.—1 p.m.
31.28	9590	Eindhoven (Holland) PCJ, 25 kW. WED., 5—8 p.m. THURS., 2—6 p.m., and 10 p.m.—2 a.m. (FRI). FRI., 6—8 p.m. (or earlier) and 2—7 a.m. (SAT. morning). Announcements in six languages.
30.75	9756	Agen. TUES. and FRI., 9—10.15 p.m.
30	10,000	Belgrade. MON. only, 9—10 p.m.
29.3	10,238	Heredia (Costa Rica) NRH, 7.5 watts. Daily 11 p.m.—12 midnight and 3—4 a.m.
28.98	10,350	Buenos Aires LSX, 20 kW. W'days, 1—3 a.m.
28.2	10,365	Bandoeng (Java) PLR.
25.53	11,750	Chelmsford (G5SW), 16 kW. (Aerial). Relays 5XX daily (except SAT. and SUN.), 12.30—1.30 p.m. and 7 p.m.—12 m'nt.
25.5	11,763	Chapultepec XDA, 20 kW. Daily, 9—10 p.m.
25.4	11,810	Rome (Italy) 3RO, 9 kW. (Aer.)
25.34	11,840	Chicago (Ill.) W9XAA. Relays WCFL.
25.27	11,870	Calcutta (India) VUC, 0.5 kW. Weekdays, 3.45—4.15 a.m. and 4.15—6 p.m.
25.25	11,880	Pittsburgh East (W8XK). 5 p.m.—3 a.m.
24	12,500	Funchal (Madeira) CT7AQ, 0.05 kW.
23.8	12,605	Rabat (Radio Maroc), 6 kW. SUN., 12.30 p.m.
21.5	13,950	Bucharest, 0.3 kW. WED. and SAT., 8.10 p.m.
20.5	14,630	Chapultepec XDA, 20 kW. D'y 8.30—9 p.m.
19.72	15,210	Pittsburgh East (W8XK). Relays KDKA. WED. and SAT., 12 noon—4 p.m.
19.56	15,340	Schenectady (W2XAD), 20 kW. Weekdays, 9 p.m.—12 m'nt. SUN., 7 p.m.—12 m'nt.
16.57	18,105	Chicago (Ill.) W9XAA. Relays WCFL.
15.93	18,830	Bandoeng (PLE) 80kW. TUES., 1.40—3.40 p.m.
15.5	19,350	Nancy (France). 9—10 p.m.
14.55	20,618	Bandoeng (Java) PMB.

For Long and Medium Wave Stations see page 962.

Which Station Was That?

Answers to Correspondents

SHORT WAVE (Hadleigh): Harmonic of Moscow (Trades' Unions). **STUMPED** (Edinburgh), **WINDER** (Edinburgh): Brussels No. 1 and No. 2. **ISADORE** (W.1): Madrid (E.A. 7); (2) Beromünster. **GRATEFUL** (Hove): Vienna testing on 1,249 m. **ARDEN** (Preston): Brussels No. 2 (gram. record). **TRY-ANDGETIT** (Southampton): San Sebastian. **CURIOSITY** (Lambeth): Some indication of wavelength must be given, but station on 78 degrees of your condenser is Eiffel Tower. **INTERESTED** (Brighton): Experimental television transmission by the Baird process (sound: London National; vision: London Regional). **REPIK** (Manchester), **VICTORIA** (Birmingham), **CURIOUS** (Putney): Relay of service from Cardiff. Altered timing. **ROVER** (Stoke Bishop): Brussels No. 1. **DUGGIE** (Douglas): Reykjavik. **PUZZLED** (Brook Green): Regret, cannot trace. **WOZIT** (Edgware): WJZ, Boundbrook, N.J. **HOMOC** (No. 2): Apparently, harmonic of Daventry National. **EMLEY** (Low Fell): Langenberg; relay of running commentary on automobile races on the Nürburgring (Eifel, Germany). **JACK** (Deri): Experimental television transmission by the Baird process. **TRYANDELUS** (Southampton): Radio Normandie (Fécamp). **WUNDERBAR** (Leith), Y. A. K. (East Coast): Brussels (No. 2); a well-known gramophone record. **ETHER BIRD** (Bath): Brussels No. 1. **CHUMMY** (Bude), **NIGHT PROWLER** (Stroud): Brussels (No. 2). **PUZZLED** (Wanstead), **ELTERWATER** (S.W.1), **LISGIBBON** (Bearshead): Daventry National; a relay of service from Cardiff. Altered programme timing. **CHEMIST** (Ardrossan): Vienna testing on 1,249 m. **ARPIDY** (Newcastle-on-Tyne): Surely Berlin-Witzleben. **CURIOUS** (Feltham): (1) WIXAZ relaying WBZ, Springfield; (2) Rabat on 23.28 m. **BURGY** (Rugby): Leeds was not working on that evening; possibly harmonic. **EDDIE** (Harrow): British experimental amateur transmitter. **LYDDITE** (Teignmouth): Leipzig. **WIRELESS COOKER** (W.1): Palermo direct; the station was broadcasting on 426 m.; see under "Deviations" in current issue. **NIGHTBIRD** (Cornwall): (1) possibly WCAU, Philadelphia; (2) too vague, cannot trace. **COAL** (Hexham-on-Tyne): (1) Lvov relaying Warsaw; (2) regret, cannot trace; too vague. A. P. (S.W.1): Wilno. **BOOTS** (Southampton): (1) Brussels No. 1; (2) Göteborg relaying concert from the Nordiska Museum. **MILLIAMP** (Cardiff): (1) Eindhoven relaying Hilversum programme; (2) Moscow (T.U.) on 46.6 m. **WIRELESS ENTHUSIAST** (Birmingham): No. Radio Normandie, Fécamp. **FOA** (N.W.10): Milan broadcast an opera on that night. The chimes were from Munich; the German talk from Beromünster relaying Basle or Berne. **JENGY** (Acock's Green): (1) this was Beromünster (gram. records); (2) See Note 2. **WALLY** (Edinburgh): Northern National testing. **BIDDY** (Plymouth): It was recently stated that the EAJ13 transmitter might be transferred to Valencia; possibly a test. **PUER** (S.W.2): WTIC, Hartford Conn. **DEVON** (Cricklewood): W8XK relaying KDKA. **EAGERFAN** (Southsea): (1) possibly a test through Scheveningen-Haven (Holland); (2) Fécamp, for a time broadcast on about 218 m., now on 250 m.; see under "Deviations" in current issue; (3) surely Mühlacker relaying Frankfurt. **NINFIELD** (Groydon): This was Brussels (No. 1). **BREEZE** (Birkenhead): Rome. **INTERESTED** (West Kilbride): Moscow (Trades' Unions). **GIPSY MOUSEHOLE** (Penzance): "Poste Colonial," Pontaise, Paris. **JELLYFISH** (Tarbolton): Algiers.

ANXIOUS (Bolton): Apparently, harmonic; there is no relay on that wavelength. **QUAKER BOY** (Darlington): (1) Königsberg direct; (2) Lodz relaying Warsaw; (3) Katowice; (4) Katowice (answers to correspondents by microphone in French). **STUMPED** (Leigh-on-Sea): Not advertised in programmes, but possibly Stavanger relaying Oslo. **REGOR** (S.E.18): (1) regret, cannot trace; (2) an experimental transmission from Kootwijk (Holland) on 1,053 m. S.G.3 (Coventry): Radio Normandie, Fécamp. L. A. M. (Sheffield): (1) Nürnberg relaying Munich; (2) see following note.

Note 1.—The following listeners have heard the gramophone transmissions which are broadcast almost nightly from Brussels No. 1 and 2. The station closes down with a gramophone record (H.M.V. C.1844, *Love's Dream After the Ball*), without any further announcement. **VERY INTERESTED** (Hampton-on-Thames); **WAFFLES** (Cork); **GAMBLE** (Homerton); **VIX** (Southfields); **SOLDIER** (Queen's Park); **ALICE** (Griffithstown); **ALGY N.** (Ilford); **GIB** (Llantwit Fardre); **SIWEL** (Baitley); **PALATINATE** (Preston); **NOMAD** (Beckenham); **EAGER** (Edinburgh); **BROM** (Coventry); **NIGHT HOWLER** (Stourbridge); **TINTO** (Govan); **MARCUS** (Newquay); **STATION QUERY** (Andover); **RELAY** (Kingswood); **CHART** (Ste Bre-lade, Jersey); **BETHEGAR** (Ulverston); **COMPLEXUS** (Kiddermminster); **NEMO** (Tuxford), **RINGALING** (Morecambe); **BM/BRB** (Finesley); **T.P.** (Rusholme); **ATTANVIC** (Tamworth); **ETHER-SEARCHER** (Newport); **PERPLEXED** (Stoke Newington); **IVYERN** (Liverpool).

Note 2.—An experimental transmission was carried out on June 7 on 1,053 m., by a high-power transmitter at Kootwijk (Holland), and was heard by the following listeners: **JERSEY CRAPAUD** (St. Heliers); **NIMROD** (Brentford); **NESCES** (Forres); **ELECTRIC** (Shipley); **A. Z.** (Ladbroke Grove); **H. P.** (Oxford); **FLAGIT** (Finchley); **DOHNO** (Bentley); **SPERAMUS** (Helensburgh); **VEERE** (S.W.11); **DODO** (Aylestone); **PORTABLE** (Dundee); **PRIORY** (W. Ealing); **FLORENTIN** (Manchester); **UT COGNOSCAM** (Glasgow); **KNOWN** (Sheffield); **JO** (Sunderland); **GROPE** (Kensington); **C. G. JONES** (Portsmouth); **SOLVOX** (Scarborough); **HORSEFACE** (Shepherd's Bush); **SOLOMON** (Woolwich); **DUSKY** (Blackpool); **SEZ YOU** (Sheffield); **TRIETHER** (Bournemouth); **CHIPPENHAM TROTTER** (Wilts); (2) British experimental amateur transmitter: **DOE** (Coventry); **CHORTLER** (Denmark Hill); **OFFENDED EARS** (W.11); **THANKS** (Streatham); **A. E. F.** (S.E.9); **RED HERRING** (Lowestoft); **GUESSIVE** (Worthing); **EARTHQUAKE** (N.22); **TOM KING** (Lincoln).

(See par. under "Holland" in *Dom. and For. Intelligence*.)

READ INSTRUCTIONS IN IDENTIFICATION COUPON

Free Query Service

Each query should be numbered and the questions on the coupon carefully answered. Letters must be addressed to the Editor, *World-Radio*, Savoy Hill, W.C.2.

The Alternative Postal Service

In addition to the free service of "Which Station was That?" printed in these columns, replies to queries can be obtained within forty-eight hours of receipt of details, on payment of 6d. per query, in stamps or P.O., accompanied by stamped addressed envelope (marked in left hand top corner "Postal Query Service"), and coupon as per conditions for "Free Queries."

IDENTIFICATION COUPON (No. 125)

This coupon is valid for ONE QUESTION only, and should be cut out and attached to a separate sheet, upon which the following questions should be answered in the order shown, and a duplicate copy of questions and answers enclosed. No coupon more than one month old is valid.

1. Time and Date of reception.
2. Approximate frequency in kilocycles per sec. (or wavelength in metres).
3. Nearest known stations, above and below.
4. Call or interval signal, if heard.
5. Language.
6. Type of receiver in use and strength of signal.
7. Details of programme or signal received.
8. Name and address.
9. Nom de plume. (Proprietary names must not be used.)

FROM THE SWISS ALPS

(Continued from page 939)

strength out here in Switzerland. Barcelona has been excellent for some time, but this is the only Spaniard I get at the moment. Ljubljana is an especially good transmitter, but is too frequently marred by C.W. interference. Milan seems so much stronger than it was that I am wondering whether it has increased its power, but cannot get any confirmation of this.

Schedule of Advance Programmes

(STRICTLY COPYRIGHT)

For the benefit of traders who may wish to make arrangements for demonstrating, we are printing each week a schedule of the programmes to be transmitted by the National and Regional stations. It will be noticed that these schedules concern programmes to be transmitted a fortnight hence, and it is felt that they will also be of particular service to those of our readers living abroad who will be able to use them in connexion with the reception of the Experimental Short Wave Station, G5SW, which relays the National (5XX) programme from 7 p.m.

SUNDAY, JULY 5

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
AFTERNOON	Song Cycle Military Band	As Northern Reg. Chamber Music	Studio Orch. As London Reg.	Brass Band As London Reg.
EVENING PROGRAMME	Celtic Prog.	Hotel Orchestra	As London Reg.	As National

MONDAY, JULY 6

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Studio Concert	Gram. Records	As London Reg.	Relay from Isle of Man
AFTERNOON	Orch. Concert Gram. Records Restaurant Music	Restaurant Music As Midland Reg.	As London Reg. Cinema Orch.	Studio Orch.
1ST EVENING PROGRAMME	Handel Opera	Light Music Military Band	Studio Orch. String Orchestra	Organ Recital Orch. Concert
2ND EVENING PROGRAMME	Orch. Concert Dance Music	Gram. Records Dance Music	As London Reg. As London Reg. (till 11 p.m.)	As London Reg. Dance Music

TUESDAY, JULY 7

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Cinema Organ	Studio Concert	As London Reg.	Studio Orch.
AFTERNOON	Restaurant Music Sonata Recital Cinema Orch.	As Midland Reg. As Midland Reg.	Cinema Organ Studio Orch.	Gram. Records Studio Orch.
1ST EVENING PROGRAMME	Talks Vaudeville	As Northern Reg. As Northern Reg.	Military Band Cinema Orch.	Light Music Orch. Concert
2ND EVENING PROGRAMME	Chamber Music Dance Music	Revue Dance Music	As London Reg.	As London Reg. As National

WEDNESDAY, JULY 8

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Gram. Records Organ Recital	Cinema Organ As Midland Reg.	As London Reg. Studio Orch.	
AFTERNOON	Restaurant Music Symphony Con.	Gram. Records Ballad Concert	As London Reg. As London Reg.	Studio Orch.
1ST EVENING PROGRAMME	Talks Revue	Light Music Military Band	Light Music Revue	As National Organ Recital
2ND EVENING PROGRAMME	Symphony Con. Dance Music	Dance Music Dance Music	As London Reg. As London Reg. (till 11 p.m.)	As National As National

THURSDAY, JULY 9

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Cinema Organ	As Midland Reg.	Ballad Concert	Ballad Concert
AFTERNOON	Light Music Abbey Evensong Restaurant Music	Cinema Orch. As National As National	As London Reg. As National As National	As National Orch. Concert
1ST EVENING PROGRAMME	Talks Play	Light Music Vaudeville	Studio Orch. As London Reg.	As National As National
2ND EVENING PROGRAMME	Light Music Dance Music	"Serenade" Dance Music	Organ Recital	Revue As National

FRIDAY, JULY 10

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Ballad Concert Organ Recital	Gram. Records	As London Reg.	
AFTERNOON	Gram. Records Restaurant Music	As Midland Reg. As Midland Reg.	Studio Orch. Cinema Orch.	Studio Orch.
1ST EVENING PROGRAMME	Talks Musical Comedy	Light Music Pianoforte Rec.	Mozart Hour Dance Music	As National As National
2ND EVENING PROGRAMME	Military Band Dance Music	Play Dance Music	As London Reg. As London Reg. (till 11 p.m.)	Studio Orch. As National

SATURDAY, JULY 11

	NATIONAL	LONDON REG.	MIDLAND REG.	NORTHERN REG.
MORNING	Cinema Orch.	As National		Studio Orch.
AFTERNOON	Disarmament Meeting, Speeches by political leaders	Orch. Concert	Dance Music	As National
1ST EVENING PROGRAMME	Talks Vaudeville	Light Music String Orch.	Light Music Military Band	Talks As National
2ND EVENING PROGRAMME	Light Music Dance Music	Musical Comedy Dance Music	As London Reg.	Revue As National

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A RADIO FOR THE MILLION RECEIVER

(Daventry)

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SUNDAY (JUNE 21st)

- 10.30 a.m.—Shipping Forecast. 3.0 p.m.—Church Cantata (No. 9) (Bach). Es ist das Heil uns kommen her (Behold, Salvation is at hand). 3.45 p.m.—For the Children. 4.0 p.m.—Missionary Talk. "A Mission of Friendship in Bombay." Miss Evelyn C. Gedge. 4.15 p.m.—An Orchestral Concert. Yvonne Arnaud (Pianoforte). The B.B.C. Orchestra, conducted by Sir Henry Wood. 5.30 p.m.—A Recital by Joan Cross (Soprano). 6.0—6.15 p.m.—Bible Reading. 6.30—8.0 p.m.—A Religious Service in Welsh. 8.0 p.m.—Primitive Methodist Annual Conference Service. 8.45 p.m.—The Week's Good Cause. Appeal on behalf of The Fellowship of St. Michael and All Angels, by Lady Maud Hoare, D.B.E. 8.50 p.m.—"The News." Weather Forecast, General News Bulletin; Shipping Forecast. 9.5 p.m.—Albert Sandler and The Park Lane Hotel Orchestra. Dorothy Bennett (Soprano). 10.30 p.m.—Epilogue.

MONDAY (22nd)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"The Romance of Everyday Things"—VII. Mrs. Leakey: "Coffee." 12 noon.—A Light Classical Concert. Phyllis Edmundson (Soprano). The Ronald Good String Quartet. 1.15 p.m.—An Orchestral Concert. National Orchestra of Wales. (Leader, Louis Levitus), conducted by Warwick Braithwaite. 2.0 p.m.—Gramophone Records. 2.30 p.m.—For the Schools. History. Miss Rhoda Power: "Children of Other Days"—VIII. 3.0 p.m.—Interval. 3.5 p.m.—Story for Younger Pupils. Miss Rhoda Power: "The Seven Haughty Sisters." During the period 3.20—5.15 p.m.—Lawn Tennis at Wimbledon. Programmes may be broken into for Running Commentaries. 3.20 p.m.—Jack Payne and his B.B.C. Dance Orchestra. 3.45 p.m.—A Sonata Recital. Helen Gaskell (Oboe), Kathleen Murray (Pianoforte). 4.15 p.m.—Light Music. Moschetto and his Orchestra. 5.15 p.m.—The Children's Hour. 6.0 p.m.—"The First News." 6.30 p.m.—Lawn Tennis at Wimbledon. 6.40 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 7.0—7.20 p.m.—"New Books." Mr. Desmond MacCarthy. 7.25 p.m.—"The Progress of English Prose"—VI. Sir Henry Newbolt, C.H., Litt.D. 7.45 p.m.—Gramophone Records. 8.30 p.m.—"La Boheme" (Puccini).

(Northern)

626 kc/s (479.2 m.) (70 kW.)

SUNDAY (JUNE 21st)

- 3.0 p.m. (London).—The Ernest Leggett London Octet. Betty Bannerman (Contralto), Ruth Gourley (Pianoforte). 3.0 p.m. (Midland).—The Midland Studio Orchestra. 3.0 p.m. (Northern).—Sonata. R. J. Forbes (Pianoforte), and Henry Holst (Violin). 3.30 p.m. (Northern).—The City of Sheffield Police Band, conducted by Harry W. Tait. Arthur Wilkes (Tenor). 4.15 p.m. (London and Midland).—A Recital. Parry Jones (Tenor), Marjorie Hayward (Violin). 5.0—5.30 p.m.—"The History of the Bible"—V. The Rev. C. H. Dodd: "The Gospels." 7.50 p.m. (Midland).—A Religious Service from St. Chad's Cathedral, Birmingham. 8.0 p.m. (London).—A Roman Catholic Service, from The Church of Our Lady of Victories, Kensington. 8.0 p.m. (Northern).—A Religious Service from The Central Hall, Manchester. 8.45 p.m.—Daventry National Programme. 8.50 p.m.—"The News." Weather

NATIONAL PROGRAMME

(June 21—27)

- Act I. Relayed from The Royal Opera House, Covent Garden. 9.5 p.m.—"The Second News." Weather Forecast, Second General News Bulletin. 9.25 p.m.—"Russia in the Melting Pot"—V. Dr. B. Moust Jones, D.S.O., Principal of the Manchester College of Technology. 9.45 p.m.—An Orchestral Concert. Doris Vane (Soprano). The B.B.C. Orchestra, conducted by Joseph Lewis. 11.0 p.m.—12 midnight.—Dance Music.

TUESDAY (23rd)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"Meals in Summer"—I. Professor and Mrs. V. H. Mottram. 12 noon.—Quintin Maclean at the Organ. 1.0 p.m.—Light Music. Leonardo Kemp and his Piccadilly Hotel Orchestra. 1.55 p.m.—Experimental Transmission for the Radio Research Board by the Fulgraph Process. 2.5 p.m.—For the Schools. Nature Study. Mr. Eric Parker: "Out of Doors Week by Week"—VIII. 2.25 p.m.—Interval. 2.30 p.m.—Music. Sir Walford Davies: Concert. Lesson. 3.30 p.m.—Interval. 3.35 p.m.—French. Monsieur E. M. Stéphan with Mademoiselle Couston: "Early Stages in French"—VIII. 4.0 p.m.—Interval. 4.5 p.m.—For Older Pupils. Mr. H. Wickham Steed: "Great Moments in Modern History"—VIII, Can we Disarm? 4.25 p.m.—Interval. 4.30—5.15 p.m.—Lawn Tennis at Wimbledon. 4.30 p.m.—The Prince of Wales Cinema Orchestra, conducted by Frank Westfield. 5.15 p.m.—The Children's Hour. 6.0 p.m.—"The First News." 6.30 p.m.—Mr. Frank Prewett: "Country Life." 6.45 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 7.0—7.20 p.m.—"The Cinema." Mr. Francis Birrell. 7.25 p.m.—"Unemployment."—VI. Sir William Beveridge, K.C.B., D.Sc. (Econ.): "Remedies and their Price." 7.45 p.m.—The Wireless Military Band. Conductor, B. Walton O'Donnell. Leon Zighera (Violin). 8.0—8.30 p.m.—"Living Religions of the East."—VI. The Rev. Sydney Cave, D.D.: "The Moral Idea." 8.30 p.m.—Band (contd.). 9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin. 9.15 p.m.—Shipping Forecast; New York Stock Market Report. 9.20 p.m.—"The Progress of Music."—XI. Dr. G. Dyson: "Wagner."

- 9.45 p.m.—"The Fairy Queen." An Opera by Henry Purcell. The Drama taken from Shakespeare's "A Midsummer Night's Dream." Presented by E. J. King Bull. 11.0 p.m.—12 midnight.—Dance Music.

WEDNESDAY (24th)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"The Week in Westminster." The Countess of Iveagh, M.P. 12 noon.—Gramophone Records. 12.45 p.m.—An Organ Recital by R. Arnold Grier. 1.30 p.m.—Light Music. Frascati's Orchestra, directed by Georges Haeck. 2.30 p.m.—For the Schools. Biology and Hygiene. Professor Winifred Cullis, C.B.E.: "Your Body Every Day"—VII. 2.55 p.m.—Interval. 3.0 p.m.—English Literature. Sir Philip Hartog, K.B.E.: "Thinking and Writing"—VII. 3.25 p.m.—Interval. 3.30 p.m.—Address by the Most Reverend and Rt. Hon. the Lord Archbishop of Canterbury, relayed from Westminster Abbey. 4.0 p.m.—London Regional Programme.

TIME SIGNALS (Greenwich)

- Sunday: 10.30 a.m., 3.0 p.m., 9.0 p.m. Weekdays: 10.30 a.m., 1.0 p.m., 4.45 p.m., 6.30 p.m., 9.0 p.m., 11.30 p.m.

- 4.45—5.15 p.m.—Lawn Tennis at Wimbledon. 4.45 p.m.—Reginald New at the Organ. 5.15 p.m.—The Children's Hour. 6.0 p.m.—"The First News." 6.30 p.m.—Lawn Tennis at Wimbledon. 6.40 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 7.0—7.20 p.m.—Talks on Farming—XIII. Sir Daniel Hall, K.C.B., F.R.S., Chief Scientific Adviser, Ministry of Agriculture. 7.25 p.m.—"Chemistry in Industry."—VI. Dr. W. H. Hatfield: "The War against Rust." 7.45 p.m.—Vaudeville. 9.0 p.m.—"The Second News." 9.15 p.m.—Shipping Forecast; New York Stock Market Report. 9.20 p.m.—Mr. C. Leonard Woolley: "The Latest Excavations at Ur." 9.40 p.m.—Chamber Music. Claire Croiza (Mezzo-Soprano), The West Regional Trio: Frank Thomas (Violin), Ronald Harding (Violoncello), Hubert Pengelly (Pianoforte). 11.5 p.m.—12 midnight.—Dance Music.

THURSDAY (25th)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"Is School worth While?"—VIII. A Summing Up, by Miss L. M. Faithful, C.B.E. 12 noon.—Reginald New at the Organ. 1.0—2.0 p.m.—A Concert. Theresa Gordon (Soprano), Etcheverria (Baritone), Agnes Mill (Pianoforte). 2.5 p.m.—For the Schools. For Senior Pupils. Commander Stephen King-Hall: "Tracing History Backwards—VIII, Disarmament." 2.25 p.m.—Interval. 2.30 p.m.—English Speech. Mr. A. Lloyd James: "A Talk about the English-speaking World." 2.50 p.m.—Interval. 3.0 p.m.—Evensong from Westminster Abbey. 3.45—5.15 p.m.—Lawn Tennis at Wimbledon. 3.45 p.m.—Jack Payne and his B.B.C. Dance Orchestra. 4.30 p.m.—Light Music. The Grosvenor House Orchestra, directed by Joseph Meuss. 5.15 p.m.—The Children's Hour. 6.0 p.m.—"The First News." 6.35 p.m.—Lawn Tennis at Wimbledon. 6.40 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 7.0—7.20 p.m.—"This Surprising World."—Mr. Gerald Heard. 7.30 p.m.—"The World and Ourselves"—XII. "Czechoslovakia." A Discussion between His Excellency the Czechoslovak Minister to Great Britain, Mr. Jan Masaryk, C.B.E., and Mr. Evelyn Wrench. 8.10 p.m.—"Au Lapin Qui Saut." A Cabaret. Produced by John Watt. 9.0 p.m.—"The Second News." 9.15 p.m.—Shipping Forecast; New York Stock Market Report. 9.20 p.m.—"Idle Thoughts." The Rt. Hon. Lord Ponsonby. 9.35 p.m.—The Gershwin Parkington Quintet. Emilia Conti (Soprano). 10.30 p.m.—12 midnight.—Dance Music. 12 midnight—12.5 a.m. (Friday).—Experimental Transmission for the Radio Research Board by the Fulgraph Process.

FRIDAY (26th)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"Drama and Music"—IV. Miss Mary Kelly: "Play Producing"—II. 12 noon.—A Ballad Concert. Alison Stewart (Soprano), Franklyn Tilton (Baritone). 12.30 p.m.—Organ Music by Leonard H. Warner. Margery Bevan (Soprano). 1.30 p.m.—Gramophone Records. 2.30 p.m.—For the Schools. Rural Science. Mr. D. Ward Cutler. 2.55 p.m.—Interval. 3.0 p.m.—Travel Talk. "Peoples and Lands of the British Empire"—VIII. Mr. Ernest Young: "Life on the Malabar Coast." 3.20 p.m.—Interval.

- 3.30 p.m.—Concert to Schools. The Sybil Eaton Quartet. 4.15—5.15 p.m.—Lawn Tennis at Wimbledon. 4.15 p.m.—Light Music. Moschetto and his Orchestra. 5.15 p.m.—"The Children's Hour." 6.0 p.m.—"The First News." 6.30 p.m.—Lawn Tennis at Wimbledon. 6.40 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 7.0—7.20 p.m.—Mr. Adrian C. Boulton: "Music in Coming Programmes." 7.25 p.m.—"India"—XII. Sir Francis Younghusband, K.C.S.I., K.C.I.E., D.Sc.: "Summing-up." 7.45 p.m.—"Tilly of Bloomsbury." A Comedy by Ian Hay. Adapted for Broadcasting by Howard Rose. Produced by Howard Rose. 9.10 p.m.—"The Second News." 9.25 p.m.—Shipping Forecast; New York Stock Market Report. 9.30 p.m.—"The Way of the World." Mr. Vernon Bartlett. 9.45 p.m.—An Orchestral Concert. Marie Wilson (Violin), Edward Walker (Flute), Maurice Cole (Pianoforte). The B.B.C. Orchestra, conducted by Victor Hely-Hutchinson. 11.0 p.m.—12 midnight.—Dance Music.

SATURDAY (27th)

- 10.15 a.m.—The Daily Service. 10.30 a.m.—Shipping Forecast. 10.45—11.0 a.m.—"Up-to-Date Poultry Keeping"—II. Mr. W. R. Kerr, M.R.C.V.S. 1.0 p.m.—Light Music. The Commodore Grand Orchestra, directed by Joseph Muscant. 2.0 p.m.—Lawn Tennis at Wimbledon. 2.30 p.m.—The Royal Air Force Display, relayed from The Royal Air Force Station, Hendon. 4.20 p.m.—Lawn Tennis at Wimbledon. 4.50 p.m.—Royal Air Force Display (continued). 5.15 p.m.—The Children's Hour. 6.0 p.m.—"The First News." 6.25 p.m.—England v. New Zealand. An Eye-Witness Account of the Test Match by Howard Marshall, relayed from Lord's Cricket Ground. 6.40 p.m.—The Foundations of Music. Bach's Sons' Music, played by Leonard Isaacs. 6.55 p.m.—Interval. 7.0 p.m.—Mr. G. C. Taylor: "The Week in the Garden." 7.15 p.m.—Topical Talk. 7.30 p.m.—"The Tea-Time Four." 7.50 p.m.—Vaudeville of the Streets. A Special Programme of Kerbstone Entertainers. 9.0 p.m.—"The Second News." 9.15 p.m.—Shipping Forecast. 9.20 p.m.—"Escape"—IV. Mr. E. H. Jones. 9.40 p.m.—Jack Payne and his B.B.C. Dance Orchestra, and an Item from The London Palladium. 10.30 p.m.—12 midnight.—Dance Music.

REGIONAL PROGRAMMES

(Midland)

752 kc/s (398.9 m.) (38 kW.)

(London) 842 kc/s (356.3 m.) (70 kW.)

- Forecast, General News Bulletin; Regional News. 9.5 p.m. (London and Midland).—Chamber Music. 9.5 p.m. (Northern).—Daventry National Programme. 10.30 p.m.—Epilogue. Note.—Programmes may be broken into for running commentaries on the All-England Lawn Tennis Club meeting at Wimbledon on each weekday.

MONDAY (22nd)

- 10.15 a.m. (London and Northern).—The Daily Service. 10.30 a.m.—(London and Northern).—Daventry National Programme. 11.0—11.30 a.m. (London).—Experimental Television Transmission by the Baird Process (356.3 m. Vision; 261.3 m. Sound). 12 noon (London and Midland).—Gramophone Records. 1.0 p.m.—(London and Midland).—Light Music. Leonardo Kemp and his Piccadilly Hotel Orchestra. 2.0—3.0 p.m. (London and Midland).—The Regal Orchestra, conducted by Ernest Parsons. 2.30 p.m. (Northern).—Daventry National Programme.

- 3.20 p.m. (Northern).—The Northern Studio Orchestra. 3.20 p.m. (London).—Daventry National Programme. 5.15 p.m. (London).—Jack Payne and his B.B.C. Dance Orchestra. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.15 p.m.—"The First News." 6.40—8.0 p.m. (London).—The Victor Olof Sextet. 6.40 p.m. (Midland).—The Songs of Landon Ronald. Mary Pollock (Soprano). 6.40 p.m. (Northern).—The Studio Orchestra. 7.0 p.m. (Midland).—The Band of the 7th Queen's Own Hussars, conducted by F. Spencer. 7.0—8.0 p.m. (Northern).—"Helen with the High Hand." A Play in three Acts by Richard Pryce. 8.0 p.m. (London and Midland).—French Talk. A dialogue between Monsieur E. M. Stéphan and Mademoiselle Camille Vierre. 8.30 p.m. (London and Midland).—Regional News. 8.30 p.m. (Northern).—Sheffield Chamber of Commerce. An Address on "Business Conditions in

- the United States of America," by Sir Arthur Balfour. 8.35 p.m. (London and Midland).—A Pianoforte Recital by Pouishnoff. 9.0 p.m.—Vaudeville. 10.15 p.m.—"The Second News." 10.30 p.m. (Northern).—Regional News. 10.30—11.0 p.m. (Midland).—As London. 10.30 p.m.—12 midnight (London).—Dance Music. 10.35 p.m.—12 midnight.—As London.

TUESDAY (23rd)

- 10.15 a.m. (London and Northern).—The Daily Service. 10.30—11.0 a.m. (London and Northern).—Daventry National Programme. 11.0—11.30 a.m. (London).—Experimental Television Transmission by the Baird Process (356.3 m. Vision; 261.3 m. Sound). 12 noon (London and Midland).—An Instrumental Concert. 12 noon (Northern).—The Studio Orchestra. Evelyn Barrow (Pianoforte). 1.0 p.m. (London and Midland).—Reginald New at the Organ. 1.0—2.0 p.m. (Northern).—Gramophone Records.

- 2.0—3.0 p.m. (London and Midland).—The Midland Studio Orchestra. 2.5—4.30 p.m. (Northern).—Daventry National Programme. 4.30 p.m. (London).—Daventry National Programme. 4.30 p.m. (Northern).—The Studio Orchestra. 5.15 p.m. (London).—Clive Erard and his Band, from the Amateur Dancers' Club. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.15 p.m.—"The First News." 6.40 p.m. (London).—The Serge Krish Septet. 6.40—7.0 p.m. (Northern).—Daventry National Programme. 6.40—7.15 p.m. (Midland).—The Midland Studio Chorus. 7.0 p.m. (Northern).—Mr. F. A. Rush: "Northern Folk through a Northerner's Eyes." 7.15—8.30 p.m. (Midland).—The Studio Orchestra. Bertram Newstead (Baritone). 7.25 p.m. (Northern).—Daventry National Programme. 7.45—9.0 p.m. (Northern).—The Whitby Municipal Orchestra, conducted by Frank Gomez.

Regional Programmes—(Cont.)

8.0-8.30 p.m. (London).—An Organ Recital by Herbert Dawson. 8.30-9.30 p.m. (London and Midland).—"Gianni Schicchi" (Puccini). Relayed from The Royal Opera House, Covent Garden. 9.0 p.m. (Northern).—Davertry National Programme. 9.15 p.m. (Northern).—North of England News. 9.20-9.45 p.m. (Northern).—Davertry National Programme. 9.20 p.m. (London).—The Parkinson Quintet. 9.20 p.m. (Midland).—The Regal Orchestra, conducted by Ernest Parsons. 9.40-11.0 p.m. (Northern).—"The Fairy Queen." An Opera by Henry Purcell. 10.15 p.m. (London and Midland).—"The Second News." 10.30 p.m. (London and Midland).—Regional News. 10.35 p.m.—12 midnight (London).—Dance Music. 10.35-11.10 p.m. (Midland).—As London. 11.10 p.m.—12 midnight (Northern).—As London. 12 midnight-12.30 a.m. (Wednesday) (London).—Experimental Television Transmission by the Baird Process (356.3 m. Vision; 261 m. Sound).

WEDNESDAY (24th)

10.15 a.m. (London and Northern).—The Daily Service. 10.30 a.m. (London and Northern).—Davertry National Programme. 11.0-11.30 a.m. (London).—Experimental Television Transmission by the Baird Process (356.3 m. Vision; 261.3 m. Sound). 12 noon (London and Midland).—Quentin Maclean at the Organ. 12.45 p.m. (London and Midland).—The Studio Orchestra. 1.45 p.m. (London and Midland).—Gramophone Records. 2.15-3.0 p.m. (London and Midland).—A Ballad Concert. 2.55 p.m. (Northern).—A Running Commentary on The Northumberland Plate by Mr. R. C. Lyle. 3.30 p.m. (London and Northern).—Symphony Concert. The Bourne-mouth Municipal Orchestra. Conductors, Montague Birch and

Charles Hoby. (Soloist, Mary Abbott). 4.0 p.m. (Northern).—The Studio Orchestra. 4.45 p.m. (London).—Davertry National Programme. 5.15 p.m. (London).—Jack Payne and his B.B.C. Dance Orchestra. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.15 p.m.—"The First News." 6.40-8.0 p.m. (London).—The J. H. Squire Celeste Octet. 6.40-7.0 p.m. (Midland).—The Flint Concertina Quartet. 6.40-8.0 p.m. (Northern).—The Studio Orchestra. 7.0-8.0 p.m. (Midland).—Dance Music. St. Dunstan's Dance Band. 8.0 p.m. (London and Midland).—Otto Sippmann: German Talk. 8.0-9.15 p.m. (Northern).—An Organ Recital by Dr. Marchant. 8.30 p.m. (London and Midland).—Regional News. 8.35 p.m. (London).—Concerts of Contemporary Music. VI—Manuel de Falla. The B.B.C. Orchestra (Leader, Arthur Catterall), conducted by Sir Henry Wood and Manuel de Falla. 8.35 p.m. (London).—The Studio Orchestra. Horace Priestley (Tenor). 9.15 p.m. (Northern).—Regional News. 9.20-10.15 p.m. (Northern).—Vaudeville. 9.45 p.m. (London and Midland).—Dance Music. 10.15 p.m. (London and Midland).—"The Second News." 10.30 p.m.—12 midnight (London and Northern).—Dance Music. 10.30 p.m. (Midland).—Experimental Transmission for the Radio Research Board by the Fultograph Process. 10.35-11.5 p.m. (Midland).—As London.

THURSDAY (25th)

10.15 a.m. (London and Northern).—The Daily Service. 10.30 a.m. (London and Northern).—Davertry National Programme. 11.0-11.30 a.m. (London).—Experi-

mental Television Transmission by the Baird Process (356.3 m. Vision; 261.3 m. Sound). 12 noon.—A Ballad Concert. 1.0 p.m. (London and Midland).—The Shepherd's Bush Pavilion Orchestra, conducted by Louis Levy. 2.0 p.m. (London and Midland).—The Midland Studio Orchestra. 2.5-3.45 p.m. (Northern).—Davertry National Programme. 3.0 p.m. (London).—Davertry National Programme. 3.45-4.30 p.m. (Northern).—Studio Orchestra. 4.30-5.15 p.m. (Northern).—Davertry National Programme. 5.15 p.m. (London).—Jack Payne and his B.B.C. Dance Orchestra. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.15 p.m.—"The First News." 6.30 p.m. (Northern).—Market Prices for Northern English Farmers. 6.35-9.15 p.m. (Northern).—Davertry National Programme. 6.40 p.m. (London).—Fred Adlington's New Octet. 6.40 p.m. (Midland).—The Studio Orchestra. George Dawkins (Baritone). 7.45 p.m. (London and Midland).—The Wireless Military Band (Conductor, B. Walton O'Donnell). 8.40 p.m. (London and Midland).—Regional News. 8.45 p.m. (London and Midland).—The Fairy Queen, an Opera by Henry Purcell. 9.15 p.m. (Northern).—North of England News. 9.20 p.m. (Northern).—Davertry National Programme. 9.35-10.30 p.m. (Northern).—A Chamber Concert. The Edward Maude String Quartet. 10.15-10.30 p.m. (London and Midland).—"The Second News." 10.30 p.m.—12 midnight (London and Northern).—Dance Music.

FRIDAY (26th)

10.15 a.m. (London and Northern).—The Daily Service. 10.30 a.m. (London and Northern).—Davertry National Programme. 11.0-11.30 a.m. (London).—Experimental Television Transmission

by the Baird Process (356.3 m. Vision; 261.3 m. Sound). 12 noon (London and Midland).—Gramophone Records. 1.0 p.m. (London and Midland).—The Studio Orchestra. Alfred Butler (Baritone). 2.15-3.0 p.m. (London and Midland).—The Regal Orchestra, conducted by Ernest Parsons. 2.30-4.15 p.m. (Northern).—Davertry National Programme. 4.15 p.m. (London).—Davertry National Programme. 4.15 p.m. (Northern).—The Studio Orchestra. 5.15 p.m. (London).—Jack Payne and his B.B.C. Dance Orchestra. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.15 p.m.—"The First News." 6.40-9.25 p.m. (Northern).—Davertry National Programme. 6.40 p.m. (London and Midland).—Jack Payne and his Orchestra. 7.25-7.45 p.m. (London).—The Southampton Male Voice Choir. 7.25-7.45 p.m. (Midland).—A Harpsichord Recital by Fred Dunnill. 7.45-8.45 p.m. (London).—Reginald King and his Orchestra. 7.45 p.m. (Midland).—Studio Chorus. 8.15-9.30 p.m. (Midland).—Studio Orchestra. 8.45-9.30 p.m. (London).—A Recital by John Thorne (Baritone). Michael Doré (Violin). 9.25 p.m. (Northern).—Regional News. 9.30-9.45 p.m. (Northern).—Davertry National Programme. 9.30 p.m. (London and Midland).—"Au Lapin qui Saute." A Really French Cabaret. Produced by John Watt. 9.45-11.0 p.m. (Northern).—Studio Orchestra and The Briercliffe Glee Union. Conducted by W. Shepherd. 10.15-10.35 p.m. (London and Midland).—"The Second News" and Regional News. 10.35 p.m.—12 midnight (London).—Dance Music. 10.35-11.0 p.m. (Midland).—As London. 11.0 p.m.—12 midnight (Northern).—As London. 12 midnight-12.30 a.m. (Saturday).—(London).—Experimental Televi-

sion Transmission by the Baird Process (356.3 m. Vision; 261.3 m. Sound). **SATURDAY (27th)** 10.15 a.m. (London and Northern).—The Daily Service. 10.30-11.0 a.m. (London and Northern).—Davertry National Programme. 12 noon-1.0 p.m. (Northern).—Studio Orchestra. Charles Rawnsley (Bass). 1.0-2.0 p.m. (London).—Davertry National Programme. 2.0-5.15 p.m. (Northern).—Davertry National Programme. 3.30 p.m. (London).—Sydney Baynes' Band. Dorothy Bennett (Soprano). 3.30 p.m. (Midland).—The Ritz Players. 4.45 p.m. (London and Midland).—Reginald New at the Organ. 5.15 p.m. (London).—Jack Payne and his B.B.C. Orchestra. 5.15 p.m. (Midland and Northern).—Children's Hour. 6.0 p.m. (Midland and Northern).—As London. 6.25-7.45 p.m. (London).—The Leslie Bridgewater Quintet. Thorpe Bates (Baritone). 6.25 p.m. (Midland).—Organ and Violin Recital. Gilbert Mills (Organ). Herbert Y. Templeman (Violin). 7.0-8.0 p.m. (Midland).—The City of Birmingham Police Band, conducted by Richard Wassell. Irene Bonas (Soprano). 7.0 p.m. (Northern).—Mr. W. E. Shewell-Cooper: "The Northern Garden." 7.15 p.m. (Northern).—Miss Phyllis Bentley: "Northopolis-on-Sea." 7.30 p.m.—12 midnight (Northern).—Davertry National Programme. 7.45-8.50 p.m. (London).—The Wireless Military Band. Patricia Rossborough (Pianoforte). 8.0-8.50 p.m. (Midland).—Musical Comedy Programme. 8.50-10.15 p.m. (London and Midland).—"Tilly of Bloomsbury."—A Comedy by Ian Hay. 10.15 p.m. (London and Midland).—"The Second News" and Regional News. 10.35 p.m.—12 midnight (London).—Dance Music. 10.35-10.40 p.m. (Midland).—Experimental Transmission for the Radio Research Board by the Fultograph Process.

PROGRAMMES FOR SUNDAY

(June 21)

The Frequencies and Wavelengths given in the following programmes are those published by the stations in question. For more accurate measurements, readers are referred to our Table of Frequencies and Wavelengths.

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME.

ALGIERS (N. Africa) 82.5 kc/s (363.4 m.); 13 kW. 12.30 p.m.—Gramophone Records. 8.0 p.m.—Dance Music. 8.30 p.m.—Pianoforte Recital. 8.45 p.m.—Song Recital. 9.0 p.m.—Orchestral and Vocal Concert. 11.0 p.m.—Operatic Arias. 11.30 p.m.—Gramophone Records. **BARCELONA (Spain)** Radio-Barcelona (EAJ1). 860 kc/s (340 m.); 8 kW. 8.30-9.30 a.m.—Topical Review. 12 noon.—Chimes and Weather. 2.0 p.m.—Sextet Selections and Gramophone Records. 3.15 p.m.—Film Review, followed by Concert. 4.0 p.m.—Programme for Hospitals and Benevolent Institutions, with Gramophone Records. 5.0-6.30 p.m.—Interval. 6.30 p.m.—Gramophone Records. 7.0 p.m.—Orchestral Concert. 7.30 p.m.—Tenor Song Recital. 8.0 p.m.—Agricultural Talk in Catalan. 8.10 p.m.—Dance Music from the Ritz Hotel. 9.2 p.m.—Vocal and Orchestral Concert. 10.0 p.m. (approx.).—Close Down. **BERLIN (Germany)** Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW. Transmits at intervals from 6.30 a.m. (Witzleben Relay). 11.0 a.m.—"The Beginning of Summer." 11.30 a.m.—3.30 p.m.—See Berlin (Witzleben). 3.30 p.m.—Talk on the Poet Johannes Schlaf. 4.0-6.45 p.m.—See Berlin (Witzleben).

6.45 p.m.—Talk by Dr. Hoffmann-Harnisch. 7.25 p.m.—Talk: Between Madagascar and Corsica. 8.0 p.m.—See Berlin (Witzleben). 9.0 p.m.—See Vienna. 10.30 p.m.—News Bulletin. 10.45 p.m. (approx.).—See Berlin (Witzleben). 12.30 a.m. (Monday).—Close Down. **BERLIN (Germany)** Witzleben. 716 kc/s (418 m.); 1.7 kW. Transmits at intervals from 6.30 a.m. (Cymnastics). 10.45 a.m.—Service for Free Thinkers. 11.30 a.m.—See Leipzig. 12 noon.—Talk for Parents: Technical Schools as Centres of Training for Careers. 12.30 p.m.—See Breslau. 2.0 p.m.—Fairy Tales for Young People. 2.30 p.m.—Soloist Concert. 3.30 p.m.—Talk: Oriental Fairy-Tale Princes. 4.0 p.m.—Part Relay of the Berlin Jubilee Rowing Regatta from Grünau. 4.30 p.m.—Wind Instrument Concert. 6.0 p.m.—See Vienna. 6.45 p.m.—Part Relay of the Festival Concert by the Berlin-Brandenburg Choral Society from the Stadium of the Aerodrome in Potsdam. 7.15 p.m.—Sports Notes. 7.25 p.m.—Gramophone Records from Russia. 8.0 p.m.—Talk by Ludwig Hardt. 8.30 p.m.—Concert of Fantasia and Potpourris. Fantasia from "Tiefeland" (d'Albert). Fantasia on Famous "Cello Melodies for Cello and Orchestra (Seidler-Winkler). Fantasia from "Cavalleria rusticana" (Mascagni). Faust-Fantasia for Violin and Orchestra (Wieniawsky). Potpourri of "The Gipsy Baron" (Strauss). Potpourri of "Die Dreigroschenoper" (Kurt Weill).

9.10 p.m. (in the interval).—News. 10.15 p.m.—Second News. 10.30 p.m. (approx.).—Dance Music. 12.30 a.m. (Monday).—Close Down. **BEROMÜNSTER (Schweizerischer Landessender) (Switzerland)** 653 kc/s (459 m.); 77 kW. 10.30 a.m. (Berne).—Sermon. 11.10 a.m. (Zürich).—Orchestral Concert. 12.15 p.m. (Berne).—Time, Weather and Gramophone Records. 1.15 p.m. (Berne).—Orchestral Concert. 2.15-3.0 p.m.—No Transmission. 3.0 p.m.—Running Commentary on the International Handball Match, Germany v. Switzerland, relayed from the Letzigrund Sports Ground. 5.0 p.m. (Zürich).—Dance Music. 5.30-6.30 p.m.—No Transmission. 6.30 p.m. (Berne).—Chess Lesson. 7.0 p.m. (Berne).—Chamber Music. 7.30 p.m. (Berne).—Talk. 8.0 p.m.—See Sottens. **BORDEAUX-LAFAYETTE (France)** (PTT). 986 kc/s (304 m.); 35 kW. 12 noon.—Concert relayed from Paris (Ecole Supérieure), 671 kc/s; (447.1 m.). 2.0 p.m.—Relay from Paris, or Relay of a Local Festival. 6.20 p.m.—Sports Results. 6.30 p.m.—Radio Journal. 8.10 p.m.—Results of the Prize Draw. 8.15 p.m.—Charades. 8.30 p.m.—Two One-Act Comedies: (a) "La Nuit de Février" (Gendreau), (b) "On purge Bébé" (Feydau). After the Programme, Amusement Guide and Time Signal. **BRATISLAVA (Czechoslovakia)** 1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 7.0 a.m. 7.0 p.m.—Slovakian Popular Music.

7.55 p.m.—See Prague. 10.15 p.m.—Announcements. 10.20 p.m.—Relay from Teplice. **BRESLAU (Germany)** 923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.). Transmits at intervals from 7.0 a.m. (Concert from Gleiwitz). 12.10 p.m.—Wireless Report on a Demonstration in Sankt-Annaberg, 1.10 p.m.—Concert. 2.30 p.m.—News Bulletin. 2.35 p.m.—Concert by the Silesian Choral Society relayed from the Stadium. 3.45 p.m.—Guessing Competition. 3.55 p.m.—Chess Lesson. 4.10 p.m.—The Rhymed Unrhymed by Traugott Conrad. 4.25 p.m.—Talk: Horso-breeding. 4.40 p.m.—Talk on Economics. 4.55 p.m.—Orchestral Concert. 6.0 p.m.—Concert relayed from the Jahrhunderthalle. 6.30 p.m.—Weather for Farmers, followed by Orchestral Selections. 7.0 p.m.—Werner Finck reads his own Verse. 7.35 p.m.—Weather Forecast, followed by Baritone Song Recital. 8.0 p.m.—See Vienna. 8.30 p.m.—See Berlin (Witzleben). 10.15 p.m.—Time and News. 10.40 p.m.—See Berlin (Witzleben). 12.30 a.m. (Monday).—Silent Night. **BRNO (Czechoslovakia)** 878 kc/s (342 m.); 3 kW. Transmits at intervals from 7.0 a.m. 7.0 p.m.—See Prague. 7.30 p.m.—Two Radio Sketches. (a) "How to make Acquaintance." (b) "A Commercial Letter." 7.50 p.m.—See Prague. 10.15 p.m.—Announcements. 10.20 p.m.—See Prague. **BRUSSELS (Belgium)** Radio-Belgique. 590 kc/s (509 m.); 20 kW. Transmits at intervals from 5.0 a.m. (Pigeon Flying Notes). 5.0 p.m.—Religious Talk. 5.10 p.m.—Orchestral Concert. 5.45 p.m.—Gramophone Records. 6.0 p.m.—Orchestral Concert.

6.30 p.m.—Gramophone Records. 7.30 p.m.—Le Journal Parlé. 8.0 p.m.—Vocal and Orchestral Concert of Russian Music. 8.45 p.m.—"Briffart et Polochon"—Comedy in One Act (Mouezyeon). 9.0 p.m.—Concert (contd.). 10.0 p.m.—Le Journal Parlé. **BRUSSELS No. 2 (Belgium)** 887 kc/s (338.2 m.); 20 kW. Programme in Flemish. 5.0 p.m.—Religious Talk: St. Lutgardis. 5.10 p.m.—Orchestral Concert. 6.30 p.m.—Gramophone Records. 7.30 p.m.—Le Journal Parlé. 8.0 p.m.—See Brussels, No. 1. 8.45 p.m.—Talk by M. Leroux. 9.0 p.m.—Orchestral Concert. 10.0 p.m.—Le Journal Parlé. **BUCHAREST (Romania)** Radio-Bucarest. 761 kc/s (394 m.); 16 kW. 10.0 a.m.—Programme for Children. 10.30 a.m.—Religious Reading. 10.45 a.m.—Choral Selections. 11.0 a.m.—Orchestral Concert. 12 noon.—Gramophone Records. 12.45 p.m.—News and Time Signal. 1.0 p.m.—Gramophone Records. 3.0 p.m.—Programme for Peasants. 4.0 p.m.—Orchestral Concert. 5.0 p.m.—News and Time Signal. 5.15 p.m.—Variety Programme. 5.30 p.m.—Orchestral Concert. 6.0 p.m.—Gramophone Records. 7.0 p.m.—Talk (to be announced). 7.15 p.m.—Gramophone Records. 7.40 p.m.—Educational Talk. 8.0 p.m.—"The Barber of Seville"—Opera in Three Acts (Rossini). **BUDAPEST (Hungary)** 545 kc/s (550 m.); 23 kW. 9.0 a.m.—News and Beauty Hints. 10.0 a.m.—Catholic Service Relay. 11.15 a.m.—Evangelical Service, followed by Time Signal and Orchestral Concert. In the interval, Wireless Review. 2.0 p.m.—Gramophone Records. 3.0 p.m.—Programme for Children. 3.30 p.m.—Agricultural Talk. 4.10 p.m.—Orchestral Concert. 5.10 p.m.—Programme by Herr Krasnay.

Programmes for Sunday—(Cont.)

5.40 p.m.—Hungarian Folk Songs.
6.50 p.m.—Humorous Talk.
7.20 p.m.—Orchestral Concert.
8.40 p.m.—"The Woman and the Fools"—Sketch (Szaba), followed by Tzigane Concert from the Café Ernye.

COLOGNE (Germany)
Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme.

COPENHAGEN (Denmark)
1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).

Transmits at intervals from 8.30 a.m. (Gymnastics).
12 noon.—Wind Instrument Concert.
2.0 p.m.—Divine Service Relay.
3.25 p.m.—Instrumental Concert and Songs to the Lute.

5.10 p.m.—Gramophone Records.
5.30 p.m.—Programme for Children.
6.0 p.m.—Accordion Recital.
6.20 p.m. (from the Odense Studio).—Talk: Finnish Dialect.

6.50 p.m.—Weather and News.
7.15 p.m.—Time; Sports Notes.
7.30 p.m.—Talk: The Moral Development of the Child.
8.0 p.m.—Concert from the Works of Hartmann and Gade.

10.0 p.m.—Reading (Kleist).
10.25 p.m.—News Bulletin.
10.35 p.m.—March and Waltz Concert.

11.5 p.m.—Dance Music from the Arena Establishment.
12 midnight.—Town Hall Chimes.
12.30 a.m. (Monday).—Close Down.

CORK (Ireland)
(6CK). 1,337 kc/s (225 m.); 1.5 kW.
8.30—11.0 p.m.—See Dublin.

DUBLIN (Ireland)
(2RN). 725 kc/s (413 m.); 1.5 kW.
8.30 p.m.—Vocal and Instrumental Concert.
11.0 p.m.—Time, News, Weather and Close Down.

FRANKFURT-am-MAIN (Germany)
770 kc/s (390 m.); 1.7 kW. Relayed by Cassel, 1,220 kc/s (246 m.).

Transmits at intervals from 7.0 a.m. (Hamburg Relay).
9.15 a.m.—Choral Concert.

11.0 a.m.—Microphone Report on the Laying of the Foundation Stone at the Erlenbruch Sports Grounds.

11.15 a.m.—Clocks and Jewellery—Microphone Report from an Exhibition.
11.30 a.m.—See Leipzig.

12 noon.—Gutenberg Memorial Programme, relayed from Mainz. Music and Address.
12.30 p.m.—Gramophone Concert.

1.50 p.m.—Talks arranged by the Wiesbaden Board of Agriculture.
2.0 p.m.—Rural Programme—Two Talks.
3.0 p.m.—Programme for Children.

4.0—6.0 p.m.—See Mühlacker.
6.0 p.m.—Talk by Dr. Gundersheimer.
6.25 p.m.—Talk: The German Attitude to Life from 1870—1900.

6.50 p.m.—Talk by Alfons Paquet: Summer in Sweden.
7.15 p.m.—Weather for Farmers.
7.25 p.m.—Reading (Joachim Maass).

7.50 p.m.—See Mühlacker.
8.40 p.m.—Orchestral Concert.
9.30 p.m.—Old Dance Music.
10.40 p.m.—Time and News.
11.0 p.m.—Dance Music.

12 midnight (approx.).—Close Down.
HAMBURG (Germany)
Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.).

Transmits at intervals from 7.0 a.m. (Hamburg Harbour Hour).
10.0 a.m. (from Kiel).—Opening of the Baltic Exhibition "The Modern Popular Library"—Addresses and Tour through the Exhibition.

10.45 a.m.—Reading (Emma Droese).
10.55 a.m. (from Kiel).—Divine Service in the University Church.
11.30 a.m.—See Leipzig.

12.15 p.m.—Music and Recitations about Workers.
1.0 p.m.—Weather Report.
1.5 p.m.—Orchestral Concert.

2.30 p.m.—The World through Poets' Eyes—Recitations and Explanatory Notes.
3.15 p.m.—Programme for Children.
4.0 p.m. (from Hanover).—Gala Con-

cert on the Centenary of the United North German Glee Societies.
5.0 p.m.—"Celebrating Sunday"—Humorous Radio Sketches (A. Müller-Förster).

6.0 p.m. (from Hanover).—Gala Concert from the Opera House. Prelude to "Parsifal" (Wagner). Das Liebesmahl der Apostel—a Biblical Scene for Male Voice Choir and Orchestra (Wagner).

7.30 p.m.—Sports Notes and Weather.
7.50 p.m.—International Football Match, Germany v. Norway—Second Half, relayed from Oslo.
8.50 p.m.—Vocal and Orchestral Concert.

10.0 p.m.—News Bulletin.
10.20 p.m.—Topical Programme.
10.30 p.m.—Dance Music.

HEILSBERG (Germany)
1,085 kc/s (276.5 m.); 75 kW. Relayed by Danzig, 662 kc/s (453 m.).

Transmits at intervals from 6.0 a.m. (Concert).
11.30 a.m.—See Leipzig.
12 noon.—Talk: Love Letters of Famous Women.

12.25 p.m.—Orchestral Concert.
2.5 p.m.—Chess Talk.
2.30 p.m.—Talk for Young People.
2.55 p.m.—Choral Concert.

3.20 p.m.—Talk: The Protection of Nature.
3.45 p.m.—Relay from the Insterburg Summer Tournament.
4.30 p.m.—Operetta Concert from the Zoppot Kurgarten. In the interval, Talk on Riding.

6.0 p.m. (from Röttha).—Organ Recital from St. George's Church.
6.45 p.m.—Song Recital.
7.10 p.m. (from Danzig).—Short Stories (Theodor Storm), with Commentary.

7.50 p.m.—Sports Notes.
8.0 p.m.—Orchestral Concert.
10.10 p.m.—News Bulletin.
10.30 p.m.—See Berlin (Witzleben).
12.30 a.m. (Monday).—Close Down.

HILVERSUM (Holland)
1,004 kc/s (298 m.); 8.5 kW.
8.10—11.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.).
8.10 a.m.—Gymnastics.
8.25 a.m.—Football Notes and Pigeon Flying Report.

8.40 a.m.—Talk by Mr. Lantinga.
9.10 a.m.—Orchestral Concert.
9.40 a.m.—Recitations,
10.0 a.m.—Concert (contd.).

10.40 a.m.—Talk by Mr. Zwertbroek.
11.0 a.m.—Concert (contd.).
11.40 a.m.—4.40 p.m.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).

11.40 a.m.—Gramophone Records.
11.55 a.m.—Octet Concert.
12.40 p.m.—Talk on the Films.
1.10 p.m.—Concert (contd.).
1.40 p.m.—Weekly Book Talk.

2.10 p.m.—Orchestral Concert.
3.40 p.m.—Talk: Humour in Music.
4.10 p.m.—Gramophone Records. Sports Results in the interval.
4.40—5.40 p.m.—V.A.R.A. Programme.

4.40 p.m.—Programme for Children.
5.10 p.m.—Organ Recital.
5.40—7.40 p.m.—V.P.R.O. Programme.
5.40 p.m.—Talk: Spinoza, and Vocal Quartet Selections.

6.40 p.m.—Talk by Dr. Gorter.
7.40 p.m. till Close Down.—A.V.R.O. Programme.
7.40 p.m.—Time and News.

7.55 p.m.—Orchestral Concert. Prelude, "Le Déluge" (Saint-Saëns). Little Serenade, Op. 55 (R. Trunk). Two Waltzes (Dvorak). Two Melodies: (a) Norwegian Air, (b) Erstes Begegnen (Grieg).
8.25 p.m.—Gramophone Records.

8.40 p.m.—Concert (contd.). Overture, "Phèdre" (Massenet). Soprano Solo: Caro nome from "Rigoletto" (Verdi). Dance of the Hours from "La Gioconda" (Ponchielli).

9.10 p.m.—Gramophone Records.
9.20 p.m.—Performance of a Play.
9.45 p.m.—Concert (contd.). Marche des Petits Soldats de Plomb (Pierné). Flower Waltz from "Romeo and Juliet" (Gounod). Soprano Solo from "La Traviata" (Verdi). Le Pas des Fleurs from "Naila" (Delibes).

10.10 p.m.—Gramophone Records.
10.15 p.m.—Concert (contd.). Overture, "William Tell" (Rossini). Parla Waltz (Arditi). Florentine Serenade (Godard). Marche nuptiale d'une poupée (Lecocq).
10.40 p.m.—Gramophone Records.
11.40 p.m. (approx.).—Close Down.

HUIZEN (Holland)
160 kc/s (1,875 m.); 8.5 kW.
8.10 a.m.—9.10 a.m.—Programme of the Catholic Radio Society (K.R.O.) Morning Benediction.

9.30 a.m.—Programme of the Christian Radio Society (N.C.R.V.). Divine Service from the Reformed Church, The Hague West.
11.40 a.m.—5.40 p.m.—K.R.O. Programme.

11.40 a.m.—Sextet Concert.
1.10 p.m.—Talk by Mr. Jonkergouw.
1.40 p.m.—Literary Talk.
2.10 p.m.—Choral Concert.
3.40 p.m.—Gramophone Records.

4.0 p.m.—Relay from Wuppertal (Elberfeld) of the Football Match between Catholic Germany and Catholic Holland.
5.40 p.m.—N.C.R.V. Programme. Divine Service from the Reformed Church at Strijen.

7.25 p.m. till Close Down. K.R.O. Programme.
7.25 p.m.—Address by the Rev. H. Mulder.
7.50 p.m.—Sports Notes.

7.55 p.m.—Orchestral and Choral Concert.
10.20 p.m.—Choral Epilogue.
10.40 p.m. (approx.).—Close Down.

KALUNDBORG (Denmark)
Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW. See Copenhagen Programme.

KÖNIGSBERG (Germany)
Ostmarken Rundfunk. 1,382 kc/s (217 m.); 1.7 kW. See Heilsberg Programme.

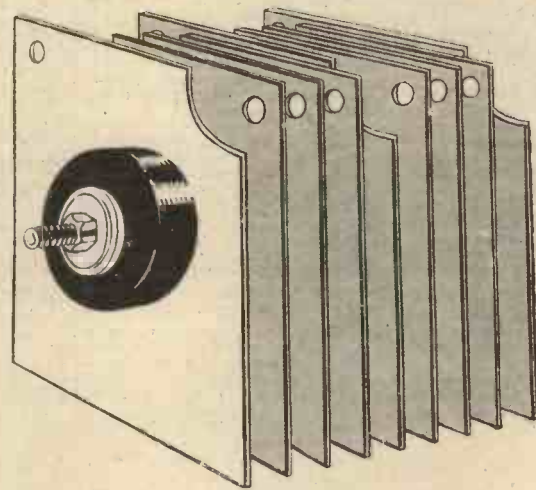
LANGENBERG (Germany)
Westdeutscher Rundfunk. 635 kc/s (473 m.); 1.7 kW. Relayed by Aachen, Cologne and Münster, 1,310 kc/s (227 m.).

Transmits at intervals from 7.0 a.m. (Hamburg Relay).
11.30 a.m.—See Leipzig.
12 noon.—Talk: A Tour through an Aquarium.
12.20 p.m.—Talk on Industrial Towns: Aachen.

12.40 p.m.—Talk: Post-War European Novels.
1.0 p.m.—Orchestral Concert.
2.30 p.m.—Talk on Chess.
2.50 p.m.—Dialogue for Girls.
3.25 p.m.—Agricultural Talk.
3.45 p.m.—Talk: Music for Workers.
4.5 p.m.—The World on Gramophone Records: Up the Volga.
4.30 p.m.—See Mühlacker.
5.10 p.m.—Sports Relay, Germany v. Holland, from Wuppertal-Elberfeld.

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Programmes for Sunday—(Cont.)

6.15 p.m.—Talk: Westphalian Engravers.
6.40 p.m.—Living Authors—Max Halbe.
7.10 p.m.—Talk: Technique and Industry.
7.40 p.m.—Sports Notes.
7.45 p.m.—Orchestral Concert. Prelude to "The Mastersingers" (Wagner). Concerto in E Flat Major for Piano and Orchestra (Liszt). Interlude: "Des Knaben Wunderhorn," with Explanatory Notes. 1812 Overture (Tchaikovsky). Suite from "The Swan Lake" (Tchaikovsky).
9.30 p.m.—Second Half of the International Football Match, Germany v. Norway, on Gramophone Records.
10.15 p.m.—News and Concert.
11.0 p.m.—Dance Music Relay.
12 midnight (approx.)—Close Down.

LEIPZIG (Germany)
1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.).
Transmits at intervals from 6.30 a.m. (Witzleben Relay)
11.30 a.m.—"Ach Herr, mich armen Sünder"—Cantata for the Third Sunday after Trinity (J. S. Bach).
12 noon.—Great Speeches: Jacob Grimm on Wilhelm Grimm.
12.30 p.m.—See Breslau.
2.0 p.m.—Weather, Topical Talk and Agricultural Hints.
2.30 p.m.—Esperanto Lesson.
3.0 p.m.—Musical Programme for Children.
3.45 p.m.—Reading from the Works of Hilaire Belloc.
4.15 p.m.—Gramophone Song Recital of Favourite Operatic Arias.
4.45—5.45 p.m.—"Outward Bound"—a Wireless Play (Sutton Vane).
6.0 p.m.—Organ Recital from St. George's Church, Rötha.
6.45 p.m.—See Vienna.
10.30 p.m.—News Bulletin.
10.45 p.m. (approx.)—Dance Music.
12 midnight (approx.)—Close Down.

LJUBLJANA (Yugoslavia)
522 kc/s (574.7 m.); 2.8 kW.
Transmits at intervals from 9.0 a.m.
5.0 p.m.—Popular Programme.
8.0 p.m.—Song Recital.
8.30 p.m.—Dance Music relayed from Bled.
10.0 p.m.—Quartet Concert.

LWÓW (Poland)
788 kc/s (371 m.); 2r kW.
Transmits at intervals from 10.0 a.m.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.35 p.m.—Humorous Talk.
7.55 p.m.—See Warsaw.
12 midnight (approx.)—Close Down.

MADRID (Spain)
Union Radio (EAJ7). 707 kc/s (424 m.); 2 kW.
Transmits at intervals from 9.0 a.m.
8.30 p.m.—Chimes and Dance Music.
9.30—11.0 p.m.—Interval.
11.0 p.m.—Chimes, Time and Concert.
1.30 a.m. (Monday)—Close Down.

MILAN (Italy)
Ente Italiano Audizioni Radiofoniche. 509 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.).
Transmits at intervals from 10.0 a.m.
12.30—2.0 p.m.—Light Music. In the interval at 1.0 p.m.—Time and News.
4.0 p.m.—Sports Notes.
4.5 p.m.—Concert. In the interval, Automobile Grand Prix Report.
5.15 p.m.—Relay from the San Siro Racecourse of the Milan Grand Prix.
5.30 p.m.—Dance Music Relay.
6.30 p.m.—Giornale Radio; Sports Notes.
6.50 p.m. (from Turin)—Variety Programme.
7.5 p.m.—Light Music.
7.40 p.m.—Announcements.
7.50 p.m.—Gramophone Records.
8.0 p.m. (in the interval)—Time and Announcements.
8.40 p.m.—Talk on the following transmission.
8.45 p.m.—"La Gioconda"—Opera (Ponchielli). In the intervals, Talk, Review of Art and Giornale Radio. News after the Programme.

MORAVSKÁ-OSTRAVA (Czechoslovakia)
1,130 kc/s (263 m.); 11 kW.
Transmits at intervals from 7.0 a.m.
4.0 p.m.—Orchestral Concert.
5.30 p.m.—See Prague.
7.30 p.m.—Violin and Pianoforte Recital.
8.0 p.m.—See Prague.

10.15 p.m.—Announcements.
10.20 p.m.—See Prague.
MOTALA (Sweden)
221.9 kc/s (1,352 m.); 40 kW. See Stockholm Programme.

MÜHLACKER (Germany)
Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.). Transmits at intervals from 7.0 a.m. (Hamburg Relay).
10.15 a.m.—Catholic Service.
11.0 a.m.—Friedrich Silcher Memorial Service, relayed from the Schlossgarten, Karlsruhe.
11.30 a.m.—See Leipzig.
12 noon.—(from Mannheim)—Pianoforte Duets.
12.30 p.m.—Gramophone Concert.
1.0 p.m. (in an interval)—Topical Talk.
2.30 p.m. (from Karlsruhe)—Choral Concert.
3.0 p.m.—See Frankfurt.
4.0 p.m.—Orchestral Concert.
5.30 p.m. (from Mannheim)—Quintet Concert.
6.15 p.m.—Karl Heinz Wahl reads from his own Works.
6.30 p.m.—English Literature and Songs by Lillian Harrison (Speaker) and John Armstrong (Tenor). The Snowy-breasted Pearl (Old Irish, arr. Sir A. Somervell). The Devon Maid (Sir Hamilton Harty). The Pibroch (Sir Charles Stanford). Reading: The Ballad of Reading Gaol (O. Wilde). Songs (Peter Warlock): (a) Sweet and Twenty, (b) The Fox, (c) Chopcherry, (d) Mourn no more.
7.10 p.m.—Sports Notes.
7.25 p.m.—See Frankfurt.
7.50 p.m.—Second Half of the International Football Match, Germany v. Norway, relayed from Oslo.
8.40 p.m.—12 midnight.—See Frankfurt.

MUNICH (Germany)
563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.); and Nürnberg, 1,256 kc/s (239 m.).
Transmits at intervals from 10.0 a.m.
11.30 a.m.—See Leipzig.
12 noon.—Orchestral Concert.
1.5 p.m.—Time, Weather and Programme Announcements.
1.15 p.m.—Agricultural Talk.
1.35 p.m.—Gramophone Concert.
2.30 p.m.—Talk on Chess.
3.15 p.m.—Play for Children.
3.45 p.m.—(from Nürnberg)—Talk: The Domlescht—a Swiss Landscape on the Rhine.
4.5 p.m.—Orchestral Concert.
5.25 p.m.—Talk: Geography, Legend and History.
5.50 p.m.—Sacred Music by St. Gabriel's Church Choir.
6.30 p.m.—Variety Programme.
7.20 p.m.—Weather; Sports Notes.
7.30 p.m.—Introductory Talk to the following transmission;—Lyric Drama in Three Acts (Puccini), relayed from the National Theatre, in the Second Interval, Report on the International Football Match, Germany v. Norway in Oslo.
10.20 p.m.—Time and News.
10.45 p.m.—"From Wave to Wave"—Relay of Foreign Stations—under Prof. Baumgartner's Direction.
12 midnight (approx.)—Close Down.

OSLO (Norway)
Kringkastingsselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hanar, 511 kc/s (587 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453 m.); and Rjukan, 671 kc/s (447.1 m.).
9.0 a.m.—Special Service for Peasants, relayed from the Cathedral, Bergen, 608 kc/s (493.4 m.).
10.50 a.m.—Chimes and Service from the Military Church.
5.0 p.m.—Orchestral Concert.
5.50 p.m.—Chimes and Service from St. Saviour's Church.
7.15 p.m.—Weather and News.
7.30 p.m.—Talk: Kristofer Janson.
8.0 p.m.—Time Signal.
8.2 p.m.—Relay of an Opera from the National Theatre. In the interval, Weather, News and Topical Talk.

PARIS (France)
Eiffel Tower (FLE). 207 kc/s (1,445 m.); 15 kW. Time Signals (on 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals).
6.45 p.m.—Le Journal Parlé.
8.20 p.m.—Meteorological Forecast.
8.30 p.m.—Gramophone Concert.
PARIS (France)
Poste Parisien. 914 kc/s (329 m.); 1.2 kW.
9.0 a.m.—Picture Transmission.

8.25 p.m.—Gramophone Records, Talk and News.
9.0 p.m.—Concert. Overture, "Béatrice et Bénédict" (Berlioz). Élégie for Cello and Orchestra (Faure); Second Suite from "Carmen" (Bizet). Lyric Suite (Brahms). Ballet Music from "Philémon et Baucis" (Gounod). Caprice (Dvorák). Cossack Dance, Hopak (Tchaikovsky).

PARIS (France)
Radio-Paris (CFR). 174 kc/s (1,725 m.); 17 kW.
7.45 a.m.—Gramophone Records.
8.0 a.m.—News and Press Review.
8.30 a.m.—Physical Culture Lesson.
11.0 a.m.—Advanced Book-keeping Lesson.
12 noon.—Religious Address by the Reverend Father Lhande.
12.30 p.m.—Concert of Sacred Music for Choir and Organ, under the direction of M. l'Abbé Brun. Final Chorus from "Judas Maccabæus" (Handel). Imperatrix angelorum (Orlando di Lasso). Ave verum (Mozart). Song: Ave Maria (de la Presle). Omnes gentes (Abbé Brun).
12.45 p.m.—News Bulletin.
1.0 p.m.—Gramophone Records. In the interval at 1.15 p.m.—Bilboquet as a Slater.
2.0 p.m.—Concert of Decca Records.
4.0 p.m.—Gramophone Concert.
7.0 p.m.—Agricultural Talk.
7.15 p.m.—Economic and Social Notes and News.
8.0 p.m.—Radio-Paris Café Concert. In the interval at 8.30 p.m.—News Bulletin.
9.15 p.m.—Press Review, News and Time Signal.

PRAGUE (Czechoslovakia)
Strasnice. 617 kc/s (487 m.); 5.5 kW.
Transmits at intervals from 7.0 a.m.
10.0 a.m.—Talk: Summer Hygiene.
10.15 a.m.—Talk for Workers.
10.25 a.m.—Gramophone Records.
11.0 a.m.—One-Act Play.
11.30 a.m.—See Leipzig.
12 noon.—Time, News and Chimes.
12.5 p.m.—Orchestral Concert.
1.30 p.m.—Agricultural Report.
1.50 p.m.—Talk: Insurance.
2.0 p.m.—Social Report.
3.40 p.m.—Sokol Programme.
3.50 p.m.—Chess Corner.
4.0 p.m.—See Moravská-Ostrava.
5.30 p.m.—Talk for Workers.
5.50 p.m.—Topical Talk.
6.0 p.m.—German Transmission: Concert by the German Academy of Music. News in the intervals.
7.0 p.m.—Jazz for Pianoforte.
7.30 p.m.—See Brno.
7.50 p.m.—Brass Band Concert.
8.55 p.m.—Sports Notes.
9.0 p.m.—Time and News and Orchestral Concert.
10.0 p.m.—Time, News and Sports Notes.
10.10 p.m.—Report on the Horse Racing at Chuchle.
10.15 p.m.—Announcements.
10.20 p.m.—Tzigane Music from the Manes Restaurant.

RADIO-SUISSE ROMANDE (SOTTENS) (Switzerland)
743 kc/s (403 m.); 32 kW.; Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.).
9.55 a.m. (from Geneva)—Chimes from St. Peter's Cathedral and Protestant Service Relay.
11.0 a.m. (from Lausanne)—Gramophone Records.
12 noon.—1.30 p.m.—Orchestral Concert.
6.30 p.m. (from Lausanne)—Religious Address.
7.0 p.m. (from Lausanne)—Vocal and Instrumental Concert.
7.50 p.m. (from Geneva)—Sports Notes.
8.0 p.m.—Orchestral Concert.
8.30 p.m. (from Lausanne)—Choral Concert.
9.0 p.m. (from Geneva)—Concert of Swiss Music.
10.0 p.m.—News Bulletin.
10.15 p.m. (approx.)—Close Down.

RIGA (Latvia)
Radio Riga. 572 kc/s (525 m.); 13 kW.
Transmits at intervals from 9.0 a.m.
5.0 p.m.—Orchestral Concert.
6.0 p.m.—Agricultural Talk.
6.30 p.m.—Talk: Lithuanian Art.
7.0 p.m.—Meteorological Report.
7.3 p.m.—Orchestral Concert Relay. Overture, "Rienzi" (Wagner). Dance Suite (Schreker). Waltz from "Der Rosenkavalier" (Strauss). Serenade in D Minor for Cello (Volkmann). Tarantella (Liszt). Rapsody, Midsommarvaka (Alfven). Selection from "Tiefand" (d'Albert). Prelude to Act III of "Lakmé" (Delibes). Pictures of the South (Nicodé).

In the interval at 8.0 p.m. (approx.)—News.
9.0 p.m.—Meteorological Report.
9.30 p.m.—Dance Music.
11.0 p.m. (approx.)—Clôture Down.

ROME (Italy)
Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.), and 3RO, 11,810 kc/s (25.4 m.).
10.0 a.m.—Bible Reading.
10.15 a.m.—Gramophone Records of Sacred Music.
10.45 a.m.—Sports Notes and Amusement Guide.
11.0 a.m.—German Lesson, on Gramophone Records.
1.0—2.15 p.m.—Light Music. In the interval at 1.30 p.m.—Time and Announcements.
4.30 p.m. (from Naples)—Programme for Children, followed by Weather and Sports Notes.
5.0—6.30 p.m.—Variety Concert with "L'Amore ricama"—One-Act Comedy (Lucio d'Ambra).
7.55 p.m. (from Naples)—Shipping Notes.
8.0 p.m.—News Bulletin.
8.10 p.m.—Gramophone Records.
8.30 p.m.—Time and Announcements.
9.0 p.m.—"The Girl in the Taxi"—Operetta in Three Acts (Gilbert). In the interval, Topical Review.
10.55 p.m. (approx.)—News, Reading of a Short Story and Review of Reviews.

SCHENECTADY (U.S.A.)
General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kW. Relayed at intervals by W2XAF on 9,530 kc/s (31.48 m.); and by W2XAD on 15,340 kc/s (19.56 m.).
Transmits at intervals from 1.0 p.m.
11.0 a.m.—4.15 a.m. (Monday)—New York Relay. In the interval at 2.0 a.m.—Talk: Our Government, from Washington, D.C.
4.15 a.m.—Muriel and Vec.
4.30 a.m.—New York Relay.
5.30 a.m.—The Hotel Kenmore Orchestra, Albany, N.Y.
6.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)
Radiojästjänst (SASA). 689 kc/s (4307 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.).
11.0 a.m.—Divine Service.
12.45 p.m.—Weather Report.
1.20 p.m.—The Changing of the Guard at the Royal Castle, with Concert.
2.15 p.m.—Gramophone Records.
2.50 p.m.—Report on the Horse Racing at Solvalla.
3.45 p.m.—Choral Concert relayed from Karlstad.
5.0 p.m.—Children's Programme.
5.55 p.m.—Town Hall Chimes.
6.0 p.m.—Divine Service.
7.10 p.m.—Weather Report.
7.15 p.m.—Concert and Reading.
8.30 p.m.—"A Midsummer Night's Dance"—Play (Moberg).
9.40 p.m.—Military Band Concert from "Liseberg." In the interval, Reading.
11.0 p.m. (approx.)—Close Down.

STRASBOURG (France)
Radio-Strasbourg (PTT.). 869 kc/s (345 m.); 15 kW.
10.45 a.m.—Protestant Service.
11.30 a.m.—Catholic Service.
12 noon.—Gramophone Records.
1.0 p.m.—Time Signal.
1.2 p.m.—News in French and German.
1.15 p.m.—Gramophone Records.
2.0 p.m.—Talk in French: Cancer.
2.15 p.m.—Relay of Addresses at the National Ex-Service-men's Congress at Obernai.
3.0 p.m.—Talk in German: The League of Nations.
3.15 p.m.—Choral Concert.
4.30 p.m.—Talk in German.
4.45 p.m.—Talk in French: The English Tourist in Normandy.
5.0 p.m.—Orchestral Concert.
5.45 p.m.—Medical Talk in French.
6.0 p.m.—Orchestral Concert. Overture, "The Golden Cross" (Brüll). Song, Selection from "Madame Butterfly" (Puccini). Selection from "Die Puppenfee" (Bayer). Selection from "Rose Marie" (Friml).
6.45 p.m.—Sports Results.
6.50 p.m.—Sports Talk in French.
7.0 p.m.—Orchestral Concert.
7.30 p.m.—Time Signal.
7.32 p.m.—News in French and German.
7.45 p.m.—Literary and Musical Programme.
8.45 p.m.—Operetta Selection: "Les Cloches de Corneville" (Planquette).

10.30 p.m.—Dance Music from the Niederbrom-les-Bains Casino.
12 midnight (approx.)—Close Down.

TOULOUSE (France)
Radiophonie du Midi. 779 kc/s (385 m.); 8 kW.
10.0 a.m.—Relay from Castelsarrasin of the Opening of the Ex-Service-men's Congress.
12.45 p.m.—Catholic Service.
1.15 p.m.—Humorous Programme.
1.30 p.m.—Protestant Service.
1.45 p.m.—Agricultural Report.
3.0 p.m.—Relay from Lourdes of a Concert in honour of the Sixtieth Anniversary of the Lourdes Wind Instrument Society.
5.0 p.m.—Musical Programme.
5.30 p.m.—News Bulletin.
5.45 p.m.—Dance Music.
6.0 p.m.—Kolster Brandes Concert.
6.30 p.m.—News Bulletin.
6.45 p.m.—Concert (continued).
7.30 p.m.—News Bulletin.
8.0 p.m.—Vocal and Instrumental Concert.
9.0 p.m.—Concert of Military Music, relayed from Castelsarrasin.
10.0 p.m.—Gramophone Dance Records.
10.30 p.m.—News Bulletin.
10.40 p.m.—Concert arranged by the Vocalion Gramophone Company of Hayes.
11.15 p.m.—North African News.
11.30 p.m.—Chansonnettes.
12 midnight.—Weather and Announcements.

VIENNA (Austria)
Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.).
10.0 a.m.—Modern Organ Music—IX. Choral Preludes (Max Reger).
10.30 a.m.—Scientific Talk: Research Work in the Seas.
11.5 a.m.—Concert by the Vienna Symphony Orchestra. Symphony No. 17 in G Major (Mozart). Pianoforte Concerto in E Flat Major (Liszt). String Music (D. Thomas). Two Intermezzi (G. von Westerman). Overture, "The Flying Dutchman" (Wagner).
1.5 p.m.—Time and Announcements.
1.10 p.m.—Gramophone Concert. Two Thousand Years of Music, with Commentary.
3.0 p.m.—Concert by Pupils of Dr. Hirtlsch's Country Orphan Asylum.
3.30 p.m.—Talk: Paraguay and its Inhabitants.
4.0 p.m.—Chamber Music.
4.30 p.m.—Dramatic Criticism.
4.50 p.m.—Talk: Austrian Scenery.
5.20 p.m.—Talk: On all Highroads.
5.50 p.m.—Time and Programme Notes.
6.0 p.m.—Austrian Towns—"Innsbruck"—a Radio Sequence.
8.0 p.m.—"Midsummer"—Vocal and Instrumental Concert of Folk Music.
9.0 p.m.—Midsummer Beacon Fires on the Mountains—on Hafelekar.
9.15 p.m.—News Bulletin.
9.25 p.m.—Orchestral Concert.

WARSAW (Poland)
Polskie Radio. 212 kc/s (1,411 m.); 158 kW.
10.15 a.m.—Service from Łódź.
11.58 a.m.—Time Signal and Bugle Call from the Tower of St. Mary's Church at Cracow.
12.5 p.m.—Programme Announcements.
12.10 p.m.—Gramophone Records.
1.10 p.m.—Weather Report.
1.20 p.m.—Musical Interlude.
1.40 p.m.—Talk: Mickiewicz and his Native Land.
2.0 p.m.—Musical Selections. In the interval at 2.10 p.m.—The Letter Box.
2.35 p.m.—Talk relayed from Cracow, 959 kc/s (312.8 m.).
2.50 p.m.—Musical Programme and Agricultural Talks.
4.40 p.m.—Programme for Children.
5.15 p.m.—Topical Talk.
5.30 p.m.—Gramophone Records.
5.40 p.m.—Vocal and Orchestral Concert.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.40 p.m.—Wireless Notes.
7.55 p.m.—Weather Report.
8.0 p.m.—Talk (to be announced).
8.15 p.m.—Concert by the Warsaw Philharmonic Orchestra, with Songs. In the interval, Reading and Theatre Review.
10.0 p.m.—Reading.
10.15 p.m.—Programme Announcements.
10.20 p.m.—Bass Solos (Moniuszko).
10.50 p.m.—Police and Sports Notes.
11.0 p.m.—Dance Music and Light Music.
12 midnight (approx.)—Close Down.

PROGRAMMES FOR MONDAY (June 22)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME.

ALGIERS (N. Africa) 825.3 kc/s (363.4 m.); 13 kW. Transmits at intervals from 1.30 p.m. to 9.45 p.m. — Film Review. 8.30 p.m. — Solo Selections. 8.55 p.m. — News Bulletin. 9.0 p.m. — Talk for Housewives. 9.15 p.m. — Songs from Operas. 9.30 p.m. — Military Band Music. 9.45 p.m. — Orchestral and Vocal Concert.

BARCELONA (Spain) Radio-Barcelona (EAT). 860 kc/s (349 m.); 8 kW. Transmits at intervals from 12.0 noon. 8.0 p.m. — Gramophone Records. 9.45 p.m. — Sports Notes. 10.0 p.m. — Chimes, Weather and Exchange. 10.5 p.m. — Humorous Review of the Week's Events in Verse. 10.20 p.m. — Orchestral Selections. 10.50 p.m. — Concert of Sardanas by the Cobla Barcelona. 11.0 p.m. — News Bulletin. 11.5 p.m. — Astronomical Talk. 12.0 p.m. — Catalan Composers — José Sancho Marraco Concert, the Composer conducting. 1.0 a.m. (Tuesday). — Close Down.

BERLIN (Germany) Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW. Transmits at intervals from 5.45 a.m. (Hamburg Relay). 4.30 p.m. — See Berlin (Witzleben). 5.10 p.m. — Talk: From the Minstrel to the Musician in an Orchestra, with Gramophone Illustrations. 6.0 p.m. — Talk by the Rev. D. Thom. 6.30 p.m. — Talk: Christianity and Spiritual Life. 6.55 p.m. — Weather for Farmers. 7.0 p.m. — Elementary English Lesson. 7.25 p.m. — Agricultural Talk. 7.45 p.m. — Weather Report, followed by Wireless Technical Talk. 8.0 p.m. — Concert of Dance Music and Light Music. 8.50 p.m. — News Bulletin. 9.15 p.m. — See Munich. 10.0 p.m. — See Berlin (Witzleben).

BERLIN (Germany) Witzleben. 716 kc/s (418 m.); 1.7 kW. Transmits at intervals from 6.30 a.m. (Exercises). 4.30 p.m. — Soloist Concert. 5.30 p.m. — Talk for Young People: Camping. 5.50 p.m. — Review of Books: Travels in Germany. 6.5 p.m. — Sociological Review. 6.30 p.m. — Talk: Summer Trips in Saxony and Silesia. 6.55 p.m. — Labour Market Report. 7.0 p.m. — Concert of Light Music and Dance Music. 8.50 p.m. — News; Sports Notes. 9.0 p.m. — Topical Talk. 9.25 p.m. — Sonata Recital. 10.0 p.m. — General News. 10.15 p.m. (approx.). — Concert of Light Music.

BEROMÜNSTER (Schweizerischer Landessender) (Switzerland) 653 kc/s (459 m.); 77 kW. Transmits at intervals from 12.30 p.m. 6.30 p.m. (Berne). — Gramophone Records. 7.0 p.m. (Berne). — Agricultural Talk. 7.25 p.m. — Time and Weather. 7.30 p.m. (Berne). — Dialect Reading. 8.0 p.m. (Zürich). — Soloist and Orchestral Concert. 9.0 p.m. (approx.). — A Musical Holiday Trip. 10.0 p.m. — Weather, News and Close Down.

BORDEAUX-LAFAYETTE (France) (PTT). 986 kc/s (304 m.); 35 kW. Transmits at intervals from 12.45 p.m. 7.30 p.m. — News Bulletin. 7.40 p.m. — Sports Talk. 7.55 p.m. — Results of the Prize Draw. 8.0 p.m. — Programme for Children. 8.15 p.m. — Charades. 8.25 p.m. — News Bulletin. 8.30 p.m. — Gramophone Records. 9.0 p.m. — "L'Etoile" — Operetta in Three Acts (Chabrier). After the Programme, Amusement Guide and Time Signal.

BRESLAU (Germany) 923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.). Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics).

6.20 p.m. — French Lesson. 6.35 p.m. — English Lesson. 6.50 p.m. — Weather for Farmers, followed by Orchestral Concert. 8.0 p.m. — Weather and Talk on Economics. 8.30 p.m. — Recital on Two Pianofortes. 9.0 p.m. — News Bulletin. 9.10 p.m. — "Brigade Exchange" — Radio Play (Johannsen). 10.10 p.m. — Time and News. 10.20 p.m. — Police Notes. 10.35 p.m. — Answers to Technical Queries. 10.50 p.m. (approx.). — Silent Night.

BRNO (Czechoslovakia) 878 kc/s (342 m.); 3 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m. — See Prague. 7.30 p.m. — "The Ghost of the Marquis of Appelsdorf" — Play after the Novel (Jerome K. Jerome). 8.0 p.m. — See Prague. 9.0 p.m. — Old Czech Music. 10.0 p.m. — See Prague. 10.10 p.m. — Announcements. 10.15 p.m. — See Moravská-Ostrava.

BRUSSELS (Belgium) Radio-Belgique. 590 kc/s (509 m.); 20 kW. 5.0 p.m. — Auguste de Boeck Concert, with Introductory Talk. 6.15 p.m. — Talk: Mariemont and the Château de Trazegnies. 6.30 p.m. — Gramophone Records. 7.15 p.m. — Talk for Workers. 7.30 p.m. — Review of International Events. 8.0 p.m. — Programme dedicated to Summer, with Recitations from the Works of Victor Hugo, Brizeux, Emile Verhaeren, Albert Guiraud and Paul Souchoy. Selection from "A Midsummer Night's Dream" (Mendelssohn). Recitation. Soir d'été (Fourdrain). Lied d'été (Strens). Recitation. Sommerfest (Siede). Recitation. Waltz, Soir d'été (Kufferath). Recitation. Suite, Summer Days (Coates). 9.0 p.m. — Dance Music. 10.0 p.m. — Le Journal Parlé.

BRUSSELS No. 2 (Belgium) 887 kc/s (338.2 m.); 20 kW. Programme in Flemish. Transmits at intervals from 5.0 p.m. 6.0 p.m. — Orchestral Concert. Overture, "Martha" (Flotow). Selection from "Romeo and Juliet" (Gounod). 6.15 p.m. — Book Review. 6.30 p.m. — Gramophone Records. 7.15 p.m. — Economic Notes. 7.30 p.m. — Le Journal Parlé. 8.0 p.m. — Orchestral Concert of Spanish Music. Danzas fantasticas (Turina). Spanish Caprice and Two Spanish Dances for Piano-forte (Granados). Chants d'Espagne (Albeniz). Dances (de Falla). 8.45 p.m. — Recitations from the Works of Adama Van Scheltema. 9.0 p.m. — Concert. Spain in the Works of Foreign Composers. Spanish Fantasia (Gevacrt). Spanish Symphony for Violin (Lalo). Spanish Serenade (Glazounoff). Entr'acte from "Carmen" (Bizet). Spanish Dances (Moszkowsky). 10.0 p.m. — Le Journal Parlé.

BUCHAREST (Romania) Radio-Bucarest. 761 kc/s (394 m.); 16 kW. Transmits at intervals from 12 noon. 7.0 p.m. — Gramophone Records. 7.40 p.m. — Educational Talk. 8.0 p.m. — Serenade for Trio (Beethoven). 8.30 p.m. — Talk. 8.45 p.m. — Anecdotes. 9.15 p.m. — Quartet in B Flat (Mozart). 9.45 p.m. — News Bulletin.

BUDAPEST (Hungary) 545 kc/s (550 m.); 23 kW. Transmits at intervals from 9.15 a.m. 5.25 p.m. — Military Band Concert. 6.40 p.m. — Programme by Herr Lauprath. 7.20 p.m. — "Zigane" Concert. 8.20 p.m. — Orchestral Concert, followed by "Zigane" Concert from the Café Ostende.

COLOGNE (Germany) Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme.

COPENHAGEN (Denmark) 1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 7.30 a.m. (Gymnastics). 7.0 p.m. — News Bulletin. 7.15 p.m. — Time Signal. 7.30 p.m. — Talk: The League of Nations General Secretariat. 8.0 p.m. — "Violin Recital. Air on the G String (J. S. Bach). Rondu in

G Major (Mozart-Kreisler). Adagio from the Concerto for Violin, Op. 4 (Koppel). Tambourin chinois (Kreisler). 8.20 p.m. — "On the Suicide Bridge" — Radio Sketch (Arcady Avertschenko). 8.30 p.m. — Pictures from Russian Folk Life. Musical Programme. 9.5 p.m. — "Pickpockets in an Express Train" — Detective Farce (Wilhelm Lichtenberg). 9.25 p.m. — Song Recital. 9.45 p.m. — News Bulletin. 10.0 p.m. — Famous Orchestral Serenades. Selections from the Haffner Serenade (Mozart). Movements from the Serenade for Strings in C Major (Tchaikovsky). Movements from the Serenade, Op. 11, in D Major (Brahms). 11.0 p.m. (approx.). — Close Down.

CORK (Ireland) (GCK). 1,337 kc/s (225 m.); 1.5 kW. 6.0 — 10.30 p.m. — See Dublin.

DUBLIN (Ireland) (ZRN). 725 kc/s (413 m.); 1.5 kW. 1.30 — 2.0 p.m. — Time, Weather and Gramophone Concert. 6.0 p.m. — Gramophone Records. 6.15 p.m. — Programme for Children. 7.0 p.m. — Gramophone Records. 7.20 p.m. — News Bulletin. 7.30 p.m. — Time and Irish Lesson. 7.45 p.m. — Peg Wallace (Recitations). 8.0 p.m. — Concert by the Station Sextet with Mme. K. McCaffery (Soprano). 8.30 p.m. — "La Bohème" — Opera (Puccini), relayed from the Royal Opera House, Covent Garden. 9.10 p.m. — The Station Sextet with Carmel Turner (Pianist) and Mary Maguire (Soprano). 10.30 p.m. — Time, News, Weather and Close Down.

FRANKFURT-am-MAIN (Germany) 770 kc/s (390 m.); 1.7 kW. Relayed by Cassel, 1,220 kc/s (240 m.). Transmits at intervals from 5.55 a.m. 7.10 p.m. — Time and News. 7.15 p.m. — English Language Lesson. 7.45 p.m. — "The Other One" — Drama in Three Acts with an Epilogue (M. de Unamuno). 9.15 p.m. — Local and Orchestral Concert with Introductory Talk. Invention for Small Orchestra (E. Pepping). Seven Little Serenades for Song and Twelve Instruments, Op. 4 (V. Ullmann). Orchestral Suite for Radio (H. Eisler). 10.30 p.m. — Time and News. 10.50 p.m. — Dance Music. 12 midnight (approx.). — Close Down.

HAMBURG (Germany) Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Hensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.). Transmits at intervals from 5.45 a.m. (Time and Weather). 6.20 p.m. — Gerhard Moerner Memorial Programme — Songs and Recitations, with Introductory Talk. 7.0 p.m. — See Königs Wusterhausen. 7.30 p.m. (from Kiel). — Talk for Workers: Children's Holidays. 7.50 p.m. — Exchange, Market Prices and Weather. 8.0 p.m. (from Bremen). — Concert. March of the Priests and Isis Chorus from "The Magic Flute" (Mozart). Drinking Song from "Hamlet" (Thomas). Bell Aria with Flute Obligato from "Lakmé" (Delibes). Capriccio à la mode (Kreisler). Duets from "Rigoletto" and "Il Trovatore" (Verdi) and Aria from "A Masked Ball" (Verdi). Salus intransibitibus. The Mad Scene from "Lucia di Lammermoor" (Donizetti). Aria from "André Chénier" (Giordano). Cavatina from "The Barber of Seville" (Rossini). Potpourri of Folk Songs (Kolmanek). 9.20 p.m. — Symphony No. 6 — the Pastoral Symphony (Beethoven), with Introductory Talk. 10.10 p.m. — Weather and News. 10.30 p.m. — Topical Programme. 10.40 p.m. — Café Wallhof Concert.

HELLSBERG (Germany) 1,085 kc/s (276.5 m.); 75 kW. Relayed by Danzig, 662 kc/s (453 m.). Transmits at intervals from 6.0 a.m. (Gymnastics). 6.10 p.m. — Market Prices. 6.30 p.m. — Talk: The 50th Anniversary of the Birth of Von Boyen (Minister of War).

6.55 p.m. — Weather Report. 7.0 p.m. — Talk: Modern Engravings. 7.30 p.m. — See Berlin (Witzleben). 9.0 p.m. (from Danzig). — "The Lehmanns go to Venice" — Wireless Play (Mejerle von Mühfeld and Hans Winand). 10.0 p.m. — See Berlin (Witzleben). 10.15 p.m. — News Bulletin. 10.30 p.m. — Concert and Dance Music from the Park Hotel, Königsberg. 12 midnight (approx.). — Close Down.

HILVERSUM (Holland) 1,004 kc/s (298 m.); 8.5 kW. 7.40 a.m. till Close Down. — Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 7.40 a.m. — Time and Gramophone Records. 9.40 a.m. — Daily Service. 9.55 p.m. — Pianoforte Recital. 10.20 a.m. — Organ Recital with Soprano and Bass Solos. 11.40 a.m. — Time Signal. 11.41 a.m. — Quartet Concert. 2.15 p.m. — Chamber Music: Trio in F Minor, Op. 65 (Dvorák). 2.40 p.m. — Military Band Concert. March. Treue Waffengefährten (Blankenburg). Overture, "Rollon" (Pares). Waltz, Roses of the South (Joh. Strauss). Egyptian March (Joh. Strauss). Moroccan Patrol (Jessel). Exotischer Marsch (Heinecke). Gramophone Records. March. Metropol (Lincke). Selection from "The Flying Dutchman" (Wagner). 4.10 p.m. — Programme for Children. 5.10 p.m. — Orchestral Concert. 6.40 p.m. — Literary Talk. 7.10 p.m. — Orchestral Concert. Serenade, Op. 10 (Kurt Thomas). Dutch Suite (Appeldoorn). Turkish March (Algra). 7.40 p.m. — Time and Gramophone Records. 7.55 p.m. — Vocal and Orchestral Concert. 9.40 p.m. — Weather and News. 9.50 p.m. — Orchestral Concert. 10.40 p.m. — Gramophone Records. 11.40 p.m. (approx.). — Close Down.

HUIZEN (Holland) 160 kc/s (1,875 m.); 8.5 kW. Transmits at intervals from 7.40 a.m. 12.15 p.m. till Close Down. — Programme of the Christian Radio Society (N.C.R.V.). 12.10 p.m. — Organ Recital from Amsterdam. 1.25 p.m. — Symphony Concert. 2.55 p.m. — Dressmaking Lesson. 3.25 p.m. — Programme to be announced. 3.40 p.m. — Service for Hospitals. 4.40 p.m. — Vocal and Instrumental Concert. 6.10 p.m. — Talk for Young People. 6.40 p.m. — Talk: What is Life Insurance? 7.10 p.m. — Police Notes. 7.25 p.m. — Gramophone Records. 7.55 p.m. — Mozart Concert by the Utrecht Christian Oratorio Society. Symphony No. 4 in G Major for Soprano and Orchestra (Mahler). Kyrie and Agnus Dei for Choir and Soprano. Et incarnatus est from the Mass in C Minor for Soprano and Orchestra. Vesperae solennes de confessoro for Choir, Soprano and Orchestra. 9.55 p.m. — News Bulletin. 10.5 p.m. — Gramophone Records. 11.10 p.m. (approx.). — Close Down.

KALUNDBORG (Denmark) Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW. See Copenhagen Programme.

KÖNIGSBERG (Germany) Ostnarkern Rundfunk. 1,382 kc/s (217 m.); 1.7 kW. See Heilsberg Programme.

LANGENBERG (Germany) Westdeutscher Rundfunk. 635 kc/s (473 m.); 1.7 kW. Relayed by Aachen, Cologne and Münster. 1,319 kc/s (227 m.). Transmits at intervals from 6.45 a.m. (Exercises). 7.0 p.m. — Weather and News. 7.10 p.m. — Dialogue between Berlin and the Country (Erik Reger and Hannes Küpper). 7.30 p.m. — Talk: Technical Progress and Safety in the Ruhr Mining Industry. 7.55 p.m. — News Bulletin. 8.0 p.m. — Concert. Prelude and Serenade (Korngold). Selections from "Der Stier von Olivera" (d'Albert). Dance of the Odalisque (Niemann). Der Streit zwischen Frau Tschung und Frau Tschang (Niemann). Waltz, Secrets of the Adige (Carena). Selections from "The Gipsy Baron" (Joh. Strauss).

8.45 p.m. — "Medi-Zynisches" — Radio Fun (Erna Feld); followed by News and Concert. 11.0 p.m. — Dance Music Relay. 12 midnight (approx.). — Close Down.

LEIPZIG (Germany) 1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.). Transmits at intervals from 6.30 a.m. (Witzleben Relay). 7.0 p.m. — Talk: Modern Penal Law. 7.30 p.m. — "Vagabonds" — Third Part of the Cycle "Uprooted" (F. and E. Augustin). 9.0 p.m. — Beethoven Concert by the Leipzig Symphony Orchestra. Overture, "The Ruins of Athens." Turkish March from "The Ruins of Athens." Rondu for Piano-forte and Orchestra in B Flat Major. Music zu einem Ritterballett. The Eighth Symphony in F Major, Op. 93. 10.10 p.m. — News Bulletin. 10.25 p.m. (approx.). — Dance Music from the Linkesche Bad, Dresden. 11.30 p.m. (approx.). — Close Down.

LWÓW (Poland) 788 kc/s (381 m.); 21 kW. Transmits at intervals from 11.58 a.m. 7.0 p.m. — Miscellaneous Items. 7.20 p.m. — See Warsaw. In the interval at 8.15 p.m. — Wireless Technical Talk. 12.25 a.m. (Tuesday). — Close Down.

MADRID (Spain) Union Radio (EAT). 707 kc/s (424 m.); 2 kW. Transmits at intervals from 12.45 p.m. 8.30 p.m. — Chimes, Exchange, Market Prices and Sports Notes. 9.0 p.m. — News Bulletin. 9.15 p.m. — Bull-fighting Notes. 9.30 — 11.0 p.m. — Interval. 11.0 p.m. — Chimes, Time and Programme in Celebration of the Republic. 1.0 a.m. (Tuesday). — Chimes and News. 1.30 a.m. (approx.). — Close Down.

MILAN (Italy) Ente Italiano Audizioni Radiofoniche. 590 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.). Transmits at intervals from 8.15 a.m. 7.0 p.m. — Agricultural Notes and Report of the Royal Geographical Society. 7.15 p.m. — Light Music. 7.40 p.m. — Announcements. 7.45 p.m. — Gramophone Records. 8.0 p.m. (in the interval). — Time and News. 8.45 p.m. — Scientific Talk. 9.0 p.m. — Variety Concert. 10.0 p.m. — Talk on Music. 10.10 p.m. — Chamber Music. Piano Solos: (a) Allegro from the Sonata in F Major (Mozart), (b) Andante in F Major (Beethoven), (c) Old Minuet (Scambati), (d) Waltz, Op. 34 (Chopin). Quartet in A (Kreisler). 11.0 p.m. — Giornale Radio and Relay of Music. 11.55 p.m. (approx.). — News.

MORAVSKÁ-OSTRAVA (Czechoslovakia) 1,139 kc/s (263 m.); 11 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m. — See Prague. 7.5 p.m. — Brass Band Concert. 8.0 p.m. — See Prague. 9.0 p.m. — See Brno. 10.0 p.m. — See Prague. 10.10 p.m. — Announcements. 10.15 p.m. — Orchestral Concert.

MOTALA (Sweden) 221.9 kc/s (1,352 m.); 40 kW. See Stockholm Programme.

MÜHLACKER (Germany) Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.). Transmits at intervals from 5.55 a.m. (Time and Weather). 7.0 p.m. — Time Signal. 7.15 p.m. — 12 midnight. — See Frankfurt. 10.45 p.m. (in the interval). — Programme Notes and News. 12 midnight (approx.). — Close Down.

MÜNICH (Germany) 563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.); and Nürnberg, 1,256 kc/s (239 m.). Transmits at intervals from 6.45 a.m. (Gymnastics). 7.5 p.m. — Talk: The Workers' Olympiad. 7.30 p.m. — Orchestral Concert. 8.45 p.m. — Oskar Gluth reads from his own Works.

Programmes for Monday--(Cont.)

9.15 p.m.—Chamber Music by the South German Trio. Soloist: C. Bronsgest (Baritone). Pianoforte Trio (Pizzetti). Three Ballads (Loewe): (a) St. Francis, (b) Tom the Rhymer, (c) Prince Eugene. Pianoforte Trio, No. 4 (Haydn). 10.0 p.m.—Report on Film Topics. 10.20 p.m.—Time and News.

OSLO (Norway) Kringkastingsselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamar, 511 kc/s (587 m.); Nottodden, 671 kc/s (447.1 m.); Porsgrunn, 662 kc/s (453 m.); and Rjukan, 671 kc/s (447.1 m.). Transmits at intervals from 11.5 a.m. 6.30 p.m.—Talk by Mme. Audhild Krohn. 7.0 p.m.—Announcements. 7.15 p.m.—Weather and News. 7.30 p.m.—Recitations. 8.0 p.m.—Time Signal. 8.2 p.m.—Soloist Concert. 9.0 p.m.—Review of Foreign Politics. 9.35 p.m.—Weather and News. 9.50 p.m.—Topical Talk. 10.5 p.m.—Accordion Recital. 10.35 p.m. (approx.)—Close Down.

PARIS (France) Eiffel Tower (FLE). 207 kc/s (1,445 m.); 15 kW. Time Signals (on 2,650 m.), at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals). 6.45 p.m.—Le Journal Parlé. 8.20 p.m.—Meteorological Forecast. 8.30 p.m.—Symphony Concert, conducted by M. Edouard Flament. Symphony No. 2 (Beethoven-Salabert). Songs (Koechlin), accompanied by the Composer: (a) Minuet, (b) Le Colibri, (c) Chanson d'amour. Violin Solo. Songs (Koechlin), accompanied by the Composer: (a) N'est-ce-pas? (b) Au temps des fêtes. In the Steppes of Central Asia (Borodin-Mouton). Four Poems (Huré), by Mme. Jeanne Rameau and Edouard Flament. Pastels chantants (Ed. Flament).

PARIS (France) Poste Parisien. 914 kc/s (329 m.); 1.2 kW. 9.0 a.m.—Picture Transmission. 8.25 p.m.—Gramophone Records, Talk and News. 7.0 p.m.—Concert. Overture, "I love you" (Fourdrain). Retour à l'endroit familier (Florent Schmitt). Selection from "The Geisha" (Jones). Maud (Massenet). Selection from "Les dragons de Villars" (Maillart). Quintet for Pianoforte and Strings (Fauré). Selection from "La Rose de St. Flour" (Offenbach). Canzonetta (Donneddu). Selection from "La petite mariée" (Lecocq). Comme dansait les fées (Pesse). March, El capitán (Sousa).

PARIS (France) Radio-Paris (CFR). 174 kc/s (1,725 m.); 17 kW. Transmits at intervals from 6.45 a.m. (Physical Culture). 12.30 p.m.—Gramophone Concert. In the intervals at 1.0 p.m. and 1.30 p.m.—Exchange Quotations. 2.0 p.m.—Exchange; Market Prices. 3.30 p.m.—Exchange Quotations. 5.55 p.m.—Exchange Quotations. 6.0 p.m.—Gramophone Records. 6.30 p.m.—Agricultural Report and Racing Results. 7.0 p.m.—Film Review. 7.10 p.m.—Literary Review: Nietzsche. 7.30 p.m.—Spanish Lesson. 7.45 p.m.—Commercial Prices, Economic and Social Notes and News. 8.0 p.m.—Literary Readings: From Tarascon to Algiers with Tartarin. 8.30 p.m.—News, Sports Results and Weather. 8.40 p.m.—Talk. 8.45 p.m.—Concert. Prélude, Marine and Chanson for Harp, Flute, Violin, Cello and Viola (Ropartz). Selections from "Frauenliebe und leben" (Schumann). Preludes and Fugues from "Das wohltemperirte Klavier" (Bach) in (a) B Flat Major, No. 21, (b) B Flat Minor, No. 22, (c) B Major, No. 23, (d) B Minor, No. 24. Two Corsican Melodies (Tomasi). Selections (Fauré): (a) Nell, (b) Notre amour. Ständchen (Strauss). Suite for Harp, Flute, Violin, Viola and Cello (d'Indy). In the interval at 9.15 p.m.—Press Review and Time Signal.

PRAGUE (Czechoslovakia) Strasnice. 617 kc/s (487 m.); 5.5 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—News Bulletin. 7.5 p.m.—Accordion Music. 7.30 p.m.—See Bryno. 8.0 p.m.—Dance Music. 8.55 p.m.—News Bulletin. 9.0 p.m.—Time, News and Introductory Talk to the following Transmission. 9.5 p.m.—Romantic Songs (Mahler). 9.30 p.m.—Violin Recital. 10.0 p.m.—Time, News and Sports Notes. 10.10 p.m.—Announcements. 10.15 p.m.—See Moravská-Ostrava. 11.0 p.m.—Time, News and Chimes. RADIO-SUISSE ROMANDE (SOTTENS) (Switzerland) 743 kc/s (403 m.); 32 kW. Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.). Transmits at intervals from 12.28 p.m. 7.0 p.m.—Concert.—Gramophone Concert (from Lausanne).—News. 7.40 p.m.—(from Geneva).—Hawaiian Guitar Recital. 8.30 p.m.—(from Geneva).—Topical Talk. 8.40 p.m.—Orchestral Concert. 10.0 p.m.—News Bulletin. 10.15 p.m. (approx.)—Close Down. ROME (Italy) Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.), and 3RO, 11,810 kc/s (25.4 m.). Transmits at intervals from 8.15 a.m. (Giornale Radio). 7.35 p.m.—(from Naples).—Shipping Report and Sports Notes. 7.40 p.m.—News Bulletin. 8.10 p.m.—Gramophone Records. 8.30 p.m.—Time and Announcements. 9.0 p.m.—Variety Concert and One-Act Comedy. In the intervals, Announcements, and Topical Talk. 10.55 p.m.—News Bulletin. SCHENECTADY (U.S.A.) General Electric Company (WGY). 700 kc/s (370.5 m.); 50 kW. Relayed at intervals by W2XAF on 9,530 kc/s (31.48 m.); and by W2XAD on 15,340 kc/s (19.56 m.). Transmits at intervals from 11.45 a.m. 11.31 p.m.—The Hotel Kenmore Orchestra, Albany, N.Y. 11.55 p.m.—Baseball Scores. 11.59 p.m.—Weather Report.

12 midnight. New York Relay. 12.15 a.m. (Tuesday).—Three Gondoliers. 12.30 a.m.—WGY Players. 1.0 a.m.—WGY Agricultural Programme. 1.30 a.m.—New York Relay. In the interval at 3.0 a.m.—Musical Programme. 4.0 a.m.—The Hotel DeWitt Clinton Orchestra, Albany, N.Y. 4.30 a.m.—Organ Recital from Proctor's Theatre, Albany, N.Y. 5.0 a.m.—Gordic Randall's Orchestra. 5.30 a.m.—The Hotel Kenmore Orchestra, Albany, N.Y. 6.0 a.m. (approx.)—Close Down. STOCKHOLM (Sweden) Radiotjänst (SASA). 680 kc/s (436 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 8.0 a.m. 6.30 p.m.—Concert by a Mandoline Orchestra and Reading. 7.30 p.m.—Talk: Reminiscences of Africa. 8.0 p.m.—Choral Concert. 8.25 p.m.—Soloist Concert. 9.0 p.m.—Reading: "Anacreon" (Ernst). 9.40 p.m.—Talk on Sport. 10.0 p.m.—Light Music. 11.0 p.m. (approx.)—Close Down. STRASBOURG (France) Radio-Strasbourg (PTT). 869 kc/s (345 m.); 15 kW. Transmits at intervals from 11.30 a.m. 6.0 p.m.—Orchestral Concert. 6.45 p.m.—Talk in French: Painters and Sculptors of Alsace-Lorraine. 7.0 p.m.—Orchestral Music. 7.30 p.m.—Time Signal. 7.32 p.m.—News in French and German. 7.45 p.m.—Gramophone Records. 8.30 p.m.—Chamber Music relayed from the Conservatoire of Music, Metz. In the interval, Talk. 10.30 p.m. (approx.)—Close Down. TOULOUSE (France) Radiophonie du Midi. 779 kc/s (385 m.); 8 kW. Transmits at intervals from 12.45 p.m. 7.0 p.m.—Gramophone Records. 7.30 p.m.—News Bulletin.

7.45 p.m.—Musical Programme. 8.30 p.m.—The Seventh Symphony (Beethoven). 8.45 p.m.—Song Recital. 9.0 p.m.—Orchestral Concert from the Café des Américains. 10.30 p.m.—News Bulletin. 10.45 p.m.—Concert (continued). 11.0 p.m.—Musical Selections. 11.15 p.m. (in the interval).—North African News. 12 midnight.—Weather and Announcements. VIENNA (Austria) Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.). Transmits at intervals from 9.20 a.m. 7.20 p.m.—Time, Weather and News. 7.30 p.m.—"The Gymnastic Lesson"—a Radio Humoresque (T. Alfeld). 7.45 p.m.—Two Young People discuss Contemporary Youth. 8.45 p.m.—"From Vienna's Happy Past"—Quartet Selections. 9.15 p.m.—Yugoslavian Concert. Songs, Pianoforte Solos and Quartet Selections. 10.20 p.m.—Weather and News. 10.30 p.m.—Orchestral Concert from the Hotel Krantz-Ambassador. WARSAW (Poland) Polskie Radio. 212 kc/s (1,411 m.); 158 kW. Transmits at intervals from 11.40 a.m. 6.0 p.m.—Concert from the Gastronomia Restaurant. 7.0 p.m.—Miscellaneous Items. 7.20 p.m.—Reading. 7.35 p.m.—Gramophone Records. 7.40 p.m.—Agricultural Programme. 7.55 p.m.—Weather Forecast. 8.0 p.m.—Radio Journal. 8.15 p.m.—Wireless Technical Talk. 8.30 p.m.—Introductory Talk to the following transmission. 8.45 p.m.—"Flis"—Opera (Moniuszko) by the Warsaw Philharmonic Orchestra, Choir and Soloists. 9.55 p.m.—Theatre Review. 10.0 p.m.—Radio Journal. 10.5 p.m.—A Revue from the Morskie Oko Theatre. In the interval, Programme Announcements. 12.15 a.m. (Tuesday).—Police and Sports Notes.

8.0 p.m.—Variety Concert. 10.0 p.m.—Le Journal Parlé. BUCHAREST (Romania) Radio-Bucarest. 761 kc/s (394 m.); 16 kW. Transmits at intervals from 12 noon. 6.10 p.m.—Orchestral Selections. 6.45 p.m.—Talk. 7.0 p.m.—Gramophone Records. 7.40 p.m.—Educational Talk. 8.0 p.m.—Orchestral Selections. 8.30 p.m.—Talk. 8.45 p.m.—Song Recital. 9.15 p.m.—Orchestral Selections. 9.45 p.m.—News Bulletin. BUDAPEST (Hungary) 545 kc/s (550 m.); 23 kW. Transmits at intervals from 9.15 a.m. 5.40 p.m.—Tzigane Concert. 6.45 p.m.—Programme by Herr K. E. Elemer. 7.5 p.m.—Gramophone Records. 8.0 p.m.—Military Band Concert. Overture, "Tannhäuser" (Wagner). Selection from "Der Rosenkavalier" (Strauss). Selection from "Othello" (Verdi). Hungarian Overture (Lanyi). Wedding Waltz from "Pierrette's Veil" (Dohnanyi). Hungarian Fantasia No. 1 in F Minor (Liszt). Selection from "The Land of Smiles" (Lehár). 9.30 p.m.—Chamber Music, followed by Tzigane Concert from the Hotel Gellért. COLOGNE (Germany) Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme. COPENHAGEN (Denmark) 1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 7.30 a.m. (Gymnastics). 7.0 p.m.—News Bulletin. 7.15 p.m.—Time Signal. 7.30 p.m.—Talk, arranged by the Danish Red Cross. 8.0 p.m.—Concert of Classical Music for Strings. String Concerto, No. 6 (Rameau). Four Selections

PROGRAMMES FOR TUESDAY

(June 23)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME

ALGIERS (N. Africa) 825.3 kc/s (363.4 m.); 13 kW. Transmits at intervals from 1.30 p.m. 8.30 p.m.—Violin and Cello Selections. 8.55 p.m.—News Bulletin. 9.0 p.m.—Waltzes. 9.15 p.m.—Reading. 9.50 p.m.—Accordion Solos. 10.0 p.m.—Oriental Music. 11.30 p.m.—Light Music. BARCELONA (Spain) Radio-Barcelona (EAI). 860 kc/s (349 m.); 8 kW. Transmits at intervals from 8.30 a.m. 8.0 p.m.—Gramophone Records. 9.30 p.m.—Elementary English Lesson. 10.0 p.m.—Chimes, Weather and Exchange. 10.5 p.m.—Orchestral Selections. 11.0 p.m.—Modern Dance Music. 11.0 p.m.—News Bulletin. 11.5 p.m.—Press Review. 11.20 p.m.—Orchestral Selections and Gramophone Records. 1.0 a.m. (Wednesday).—Close Down. BERLIN (Germany) Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW. Transmits at intervals from 5.45 a.m. (Hamburg Relay). 4.30 p.m.—See Leipzig. 5.30 p.m.—Talk: An Introduction to Modern Music. 6.0 p.m.—Talk on Modern Architectural Technique. 6.30 p.m.—Educational Talk: The Idea of Universalism in History. 6.55 p.m.—Weather for Farmers. 7.0 p.m.—Elementary French Lesson. 7.30 p.m.—Talk on Political Economy. 7.55 p.m.—Weather for Farmers. 8.0 p.m.—See Oslo. 9.35 p.m.—See Hamburg. 10.5 p.m.—See Oslo.

BERLIN (Germany) Witzleben. 716 kc/s (418 m.); 1.7 kW. Transmits at intervals from 6.30 a.m. (Gymnastics). 7.0 p.m.—Concert of Light Music. 8.0 p.m.—See Breslau. 9.0 p.m.—News and Sports Notes. 9.10 p.m.—Orchestral Concert, conducted by Dr. Hermann Scherchen. Concerto for Pianoforte and Orchestra in A Major (Liszt). Symphony in D Major, Op. 10 (Lendvai). 10.15 p.m.—General News. BERMÜNSTER (Schweizerischer Landessender) (Switzerland) 653 kc/s (459 m.); 77 kW. Transmits at intervals from 12.30 p.m. 6.30 p.m.—(from Basle).—Gramophone Records. 7.0 p.m.—(from Basle).—Talk for Women. 7.28 p.m.—Time and Weather. 7.36 p.m.—(from Basle).—Talk: Animals as Spreaders of Disease. 8.0 p.m.—(from Berne).—Orchestral Concert. 8.30 p.m.—(from Berne).—Hebrew Music. 9.0 p.m.—(from Berne).—Selections from "Faust" (Gounod). 10.0 p.m.—Weather, News and Close Down. BORDEAUX-LAFAYETTE (France) (PTT). 986 kc/s (304 m.); 35 kW. Transmits at intervals from 12 noon. 7.30 p.m.—News Bulletin. 7.40 p.m.—Spanish Lesson. 7.55 p.m.—Results of the Prize Draw. 8.0 p.m.—Advanced Spanish Lesson. 8.15 p.m.—News Bulletin. 8.30 p.m.—Gramophone Records, followed by Amusement Guide and Time Signal. BRATISLAVA (Czechoslovakia) 1,076 kc/s (279 m.); 14 kW. Transmits at intervals from 11.0 a.m. 7.0 p.m.—See Prague. 10.15 p.m.—Announcements. 10.20 p.m.—See Prague. BRESLAU (Germany) 923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.). Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics). 6.55 p.m.—Weather for Farmers, followed by Johann Strauss Concert, by the Silesian Philharmonic Orchestra. 7.40 p.m.—Weather, followed by Talk: Midsummer Day in Folk Tradition. 8.0 p.m.—"Midsummer Night"—Poem (Schneck) set to Music by Edmund Nick. 9.0 p.m.—News Bulletin. 9.10 p.m.—"Czar and Carpenter"—Comic Opera in Three Acts (Lortzing). 10.10 p.m.—Time and News. 10.25 p.m.—Talk: Workers' Sports Day. 10.50 p.m. (approx.)—Silent Night. BRNO (Czechoslovakia) 878 kc/s (342 m.); 3 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—See Prague. 10.15 p.m.—Announcements. 10.20 p.m.—See Prague. BRUSSELS (Belgium) Radio-Belgique. 590 kc/s (509 m.); 20 kW. Transmits at intervals from 5.0 p.m. 6.15 p.m.—Readings (Bryant). 6.30 p.m.—Gramophone Dance Records. 7.15 p.m.—Report of the Belgian Catholic Radio Society. 7.30 p.m.—Talk for Women. 8.0 p.m.—Orchestral Concert. Overture, "Le Roi d'Ys" (Lalo). The Seasons from "Sicilian Vespers" (Verdi). Baritone Solos: (a) Aria from "Panurge" (Massenet), (b) Serenade from "The Damnation of Faust" (Berlioz). Rhapsody of Langueoed (Delcroix). Talk: Catholic Art and Literature. Suite funambulesque (Messager). Baritone Solos: (a) Träume (Wagner), (b) Caro mio ben (Tomasi). Suite, In the Forest (Popper). 10.0 p.m.—Le Journal Parlé. BRUSSELS No. 2 (Belgium) 887 kc/s (338.2 m.); 20 kW. Programme in Flemish. Transmits at intervals from 5.0 p.m. 6.15 p.m.—Gramophone Records. 7.15 p.m.—Art Talk: Interior Decoration. 7.30 p.m.—Le Journal Parlé.

8.0 p.m.—Variety Concert. 10.0 p.m.—Le Journal Parlé. BUCHAREST (Romania) Radio-Bucarest. 761 kc/s (394 m.); 16 kW. Transmits at intervals from 12 noon. 6.10 p.m.—Orchestral Selections. 6.45 p.m.—Talk. 7.0 p.m.—Gramophone Records. 7.40 p.m.—Educational Talk. 8.0 p.m.—Orchestral Selections. 8.30 p.m.—Talk. 8.45 p.m.—Song Recital. 9.15 p.m.—Orchestral Selections. 9.45 p.m.—News Bulletin. BUDAPEST (Hungary) 545 kc/s (550 m.); 23 kW. Transmits at intervals from 9.15 a.m. 5.40 p.m.—Tzigane Concert. 6.45 p.m.—Programme by Herr K. E. Elemer. 7.5 p.m.—Gramophone Records. 8.0 p.m.—Military Band Concert. Overture, "Tannhäuser" (Wagner). Selection from "Der Rosenkavalier" (Strauss). Selection from "Othello" (Verdi). Hungarian Overture (Lanyi). Wedding Waltz from "Pierrette's Veil" (Dohnanyi). Hungarian Fantasia No. 1 in F Minor (Liszt). Selection from "The Land of Smiles" (Lehár). 9.30 p.m.—Chamber Music, followed by Tzigane Concert from the Hotel Gellért. COLOGNE (Germany) Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme. COPENHAGEN (Denmark) 1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 7.30 a.m. (Gymnastics). 7.0 p.m.—News Bulletin. 7.15 p.m.—Time Signal. 7.30 p.m.—Talk, arranged by the Danish Red Cross. 8.0 p.m.—Concert of Classical Music for Strings. String Concerto, No. 6 (Rameau). Four Selections

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Programmes for Tuesday—(Cont.)

HAMBURG (Germany)

Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.). Transmits at intervals from 5.45 a.m. (Time and Weather). 6.0 p.m.—Variety Programme. 7.0 p.m. (from Kiel).—Agricultural Talk. 7.25 p.m.—Talk: North Africa, the Land of Contrasts. 7.50 p.m.—Exchange, Market Prices and Weather. 8.0 p.m.—See Oslo. 9.35 p.m.—News Bulletin. 9.55 p.m.—Topical Programme. 10.5 p.m.—See Oslo.

HEILSBURG (Germany)

1,085 kc/s (276.5 m.); 75 kW. Relayed by Danzig, 662 kc/s (453 m.). Transmits at intervals from 6.0 a.m. (Weather and Gymnastics). 6.10 p.m.—Market Prices. 6.25 p.m. (from Danzig).—Talk by Dr. Rosenwald. 7.0 p.m.—Talk: The Wireless Programme and the Working Listener. 7.25 p.m.—Choral Concert. 7.50 p.m.—Labour Market Report. 7.55 p.m.—Weather Report. 8.0 p.m.—See Breslau. 9.10 p.m.—Accordion Recital. 9.20 p.m. (from Danzig).—Variety Programme.

HILVERSUM (Holland)

1,004 kc/s (298 m.); 8.5 kW. 7.40 a.m. till Close Down.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 7.40 a.m.—Time and Gramophone Records. 9.40 a.m.—Daily Service. 9.55 a.m.—Gramophone Records. 10.25 a.m.—Soloist Concert. 10.55 a.m.—Reading (London). 11.25 a.m.—Gramophone Records. 11.40 a.m.—Time and Quartet Concert. 2.10 p.m.—Gramophone Records. 2.40 p.m.—Programme for Women. 3.40 p.m.—Musical Programme. 4.10 p.m.—Choral Concert. 4.40 p.m.—Orchestral Concert. 6.40 p.m.—Talk on Music. 7.10 p.m.—Talk. 7.40 p.m.—Time and Orchestral Concert. Overture, "Mignon" (Thomas). Ballet Suite from "Le Cid" (Massenet). Swiss Festival Overture (Naef). Styrian Dances (Lanner). Adam Potpourri (arr. Urbach). Gramophone Records. Turkish Patrol (Michaelis). Rocooco Love Song (Meyer-Helmund). Serenade (Toselli). Parade of the Tin Soldiers (Jessel). Waltz, The Flowers (Waldteufel). Und Pepita tanz (Gutzeit). Streiflichter (Morena). Schönau, mein Paradies (Kutschera). Einmal sagt man sich Adieu (Schmidt-Gentner). Achtung, wir gehen voran (Recktenwald). In the intervals at 8.10 p.m.—Literary Talk, and at 9.40 p.m.—Weather and News.

HILVERSUM (Holland)

1,004 kc/s (298 m.); 8.5 kW. 7.40 a.m. till Close Down.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 7.40 a.m.—Time and Gramophone Records. 9.40 a.m.—Daily Service. 9.55 a.m.—Gramophone Records. 10.25 a.m.—Soloist Concert. 10.55 a.m.—Reading (London). 11.25 a.m.—Gramophone Records. 11.40 a.m.—Time and Quartet Concert. 2.10 p.m.—Gramophone Records. 2.40 p.m.—Programme for Women. 3.40 p.m.—Musical Programme. 4.10 p.m.—Choral Concert. 4.40 p.m.—Orchestral Concert. 6.40 p.m.—Talk on Music. 7.10 p.m.—Talk. 7.40 p.m.—Time and Orchestral Concert. Overture, "Mignon" (Thomas). Ballet Suite from "Le Cid" (Massenet). Swiss Festival Overture (Naef). Styrian Dances (Lanner). Adam Potpourri (arr. Urbach). Gramophone Records. Turkish Patrol (Michaelis). Rocooco Love Song (Meyer-Helmund). Serenade (Toselli). Parade of the Tin Soldiers (Jessel). Waltz, The Flowers (Waldteufel). Und Pepita tanz (Gutzeit). Streiflichter (Morena). Schönau, mein Paradies (Kutschera). Einmal sagt man sich Adieu (Schmidt-Gentner). Achtung, wir gehen voran (Recktenwald). In the intervals at 8.10 p.m.—Literary Talk, and at 9.40 p.m.—Weather and News.

HUIZEN (Holland)

160 kc/s (1,875 m.); 8.5 kW. Transmits at intervals from 7.45 a.m. 11.55 a.m. till Close Down.—Programme of the Catholic Radio Society (K.R.O.). 11.55 a.m.—Trio Concert. 1.25 p.m.—Gramophone Records. 1.45 p.m.—Programme for Women. 2.40—3.10 p.m.—Gramophone Records. 3.40 p.m.—Gramophone Records. 4.40 p.m.—Instrumental Concert. 6.10 p.m.—Gramophone Records. 6.40 p.m.—Talk by Prof. Carp. 7.10 p.m.—Police Notes. 7.25 p.m.—Talk (to be announced). 7.40 p.m.—Orchestral Concert. Overture, "William Tell" (Rossini). Intermezzo from "Cavalleria rusticana" (Mascagni). The Second Hungarian Rhapsody (Liszt). Ave Maria (Bach-Gounod). Selection from "Die Fledermaus" (Joh. Strauss). Overture, "Orpheus in the Underworld" (Offenbach). Waltz, "Wienerblut" (Strauss); Selection from "A Waltz Dream" (O. Straus). Overture, "Maritana"

KALUNDBORG (Denmark)

Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW. See Copenhagen Programme. KÖNIGSBERG (Germany) Ostmarken Rundfunk. 1,382 kc/s (217 m.); 1.7 kW. See Heilsberg Programme. LANGENBERG (Germany) Westdeutscher Rundfunk. 635 kc/s (473 m.); 17 kW. Relayed by Aachen, Cologne and Münster, 1,319 kc/s (227 m.). Transmits at intervals from 6.45 a.m. (Exercises). 6.40 p.m.—French Conversation. 7.0 p.m.—Weather and News. 7.15 p.m.—Wireless Notes. 7.30 p.m.—Talk: Technique and Industry. 7.55 p.m.—News Bulletin. 8.0 p.m.—Midsummer Festival Programme, relayed from Malhøgen near Lillehammer in Norway. 10.0 p.m. (approx.).—News and Silent Night. LEIPZIG (Germany) 1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.). Transmits at intervals from 6.30 a.m. (Witzleben Relay). 4.30 p.m.—Orchestral Concert. Overture, "The Taming of the Shrew" (Goetz). Variations on a Folk-Song of the Erz Gebirge (Büttner). Music to "Sleeping Beauty" (Humperdinck). Slavonic Rhapsody in A Flat Major, Op. 45, No. 3 (Dvorak). 5.30 p.m.—Weather, Time and Economic Report. 6.5 p.m.—Talk for Women. 6.30 p.m.—French Language Lesson. 6.50 p.m.—Economic Report. 7.0 p.m.—Humorous Songs of the Baroque Period, with Introductory Talk. 8.0 p.m.—See Oslo. 9.30 p.m.—Talk: With the Ice-Breaker "Krasin" to Siberia. 10.0 p.m.—News Bulletin. 10.15 p.m. (approx.).—See Oslo. LWÓW (Poland) 788 kc/s (381 m.); 21 kW. Transmits at intervals from 11.58 a.m. 7.0 p.m.—Miscellaneous Items. 7.20 p.m.—Talk on Ferns. 7.35 p.m.—See Warsaw. 12 midnight (approx.).—Close Down. MADRID (Spain) Union Radio (E.A.J.7). 707 kc/s (424 m.); 2 kW. Transmits at intervals from 9.0 a.m. 8.30 p.m.—Chimes, Exchange, Market Prices and International Express. News. 8.50 p.m.—Shooting and Fishing Notes. 9.0 p.m.—News Bulletin. 9.10 p.m.—Talk: Mountaineering. 9.30—11.0 p.m.—Interval. 11.0 p.m.—Chimes, Time and Exchange Quotations, followed by Opera Selection: "Il Trovatore" (Verdi) on Gramophone Records. 1.0 a.m. (Wednesday).—Chimes, Time and News, and "Il Trovatore" (continued). 1.30 a.m. (approx.).—Close Down. MILAN (Italy) Ente Italiano Audizioni Radiofoniche. 599 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.). Transmits at intervals from 8.15 a.m. 7.0 p.m.—Agricultural Report. 7.10 p.m.—Light Music. 7.40 p.m.—Announcements. 7.45 p.m.—Gramophone Records. 8.0 p.m. (in the interval).—Time and News. 8.30 p.m.—English Lesson on Gramophone Records. 8.45 p.m.—Talk. 9.0 p.m.—A Comedy in Three Acts (Ossip Feynle). After the Comedy, Relay of Music. 11.0 p.m.—Giornale Radio and Results of the Trotting Races at the San Siro Race-course.—News. 11.55 p.m. (approx.).—News. MORAVSKÁ-OSTRAVA (Czechoslovakia) 1,139 kc/s (263 m.); 11 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—See Prague. 10.15 p.m.—Announcements. MOTALA (Sweden) 221.9 kc/s (1,352 m.); 49 kW. See Stockholm Programme.

MUNICH (Germany)

563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.) and Nürnberg 1,256 kc/s (239 m.). Transmits at intervals from 6.45 a.m. (Gymnastics). 7.5 p.m.—Cultural Pictures of Frankish Towns—a Relay from Würzburg. 7.35 p.m.—Programme Notes and Introductory Talk to the following Transmission. 7.40 p.m.—Tenth Würzburg Mozart Festival—Orchestral Concert, relayed from the Residenz. Serenata notturna for Two Small Orchestras. Recitative and Aria, Popoli di Tessaglia, for Soprano and Orchestra. Concerto in B Flat Major for Pianoforte and Orchestra with Cadences to the First and Third Movement by H. Zilcher. Trio for Soprano, Tenor, Bass and Orchestra: Mandina Amabile. Symphony in G Minor. 9.40 p.m.—English Literature and Songs by Lilian Harison (Speaker) and John Armstrong (Tenor). Recitative and Aria: Thy Hand, Belinda (Purcell). Scene I, Act II from "The School for Scandal" (Sheridan). Two Songs (Arne): (a) Come away, Death, (b) Phæbus sinketh in the West. Two Scenes from "Romeo and Juliet" (Shakespeare): (a) Scene between Juliet and the Nurse, Act II, Scene V, (b) Poisoning Scene, Act IV, Scene III. Two Songs (Delius): (a) Irmelin, (b) Spring, the Sweet Spring. 10.20 p.m.—Time and News. 12.30 a.m. (Wednesday).—Night Concert. (Munich and Zeelen, 31.38 m. only). I. Deum from Op. 59 for Organ (Reger). Sacred Sonata in D Minor in One Movement for Violin and Organ (Zielovsky). Andante in A Flat Major for Organ (Mozart). Fantasiestück for Cello and Organ (Enmerz). Prelude and Fugue in E Flat Major for Organ (Bach). 1.30 a.m. (Wednesday).—Close Down. OSLO (Norway) Kringkastingselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamar, 511 kc/s (587 m.); Norddalen, 671 kc/s (447.1 m.); and Rykan, 662 kc/s (447.1 m.). Transmits at intervals from 11.5 a.m. 6.0 p.m.—Talk: How to build a House. 6.30 p.m.—Talk for Housewives. 6.45 p.m.—Gramophone Records. 7.0 p.m.—Announcements and News. 7.30 p.m.—Hungarian Song Recital. 8.0 p.m.—Time Signal. 8.2 p.m.—Midsummer Festival, relayed from Malhøgen, near Lillehammer. Music and Speeches. 9.35 p.m.—Weather and News. 9.50 p.m.—Topical Talk, followed by Midsummer Festival (continued). 12 midnight (approx.).—Close Down. PARIS (France) Eiffel Tower (FLE). 267 kc/s (1,445 m.); 15 kW. Time Signals (at 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals). 6.45 p.m.—Le Journal Parlé. 8.20 p.m.—Meteorological Forecast.

MÜHLACKER (Germany)

Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.). Transmits at intervals from 5.55 a.m. (Time and Weather). 7.10 p.m.—Time Signal. 7.15 p.m.—Anecdotes. 7.30 p.m. (approx.).—Mozart Concert for the Würzburg Festival, relayed from the Residenz, Würzburg. Conductor: Dr. Hermann Zilcher. Serenata notturna. Recitative and Aria for Soprano. Pianoforte Concerto in B Flat Major. Vocal Trio with Orchestral accompaniment from "La Villanella rapita." Symphony in G Minor. 9.45 p.m.—Meyer-Helmund Concert, by the Stuttgart Philharmonic Orchestra, conducted by the Composer. Waldmärchen and Gnomentanz from "Der Berggeist." Soprano Solo: Wenn der Vogel naschen will. Baritone Solo: Ich schreite heim! Intermezzo, Wonnetraum. Soprano Solo: Seliges Erwachen! Baritone Solo: Liebesnacht. Reverie, Weltentrückelt. Soprano Solo: Einst in heiliger Nacht. Liebesbarcarole. Baritone Solo: Im Traum sah ich die Geliebte. Soprano Solo: Ein kleines Versehen. Baritone Solo: Das Fensterl. Soprano Solo: Ein Zwiesgespräch. Mazurka, Maschka. 10.30 p.m.—News Bulletin. 10.50 p.m.—Meyer-Helmund Concert (continued). 11.15 p.m. (approx.).—Close Down. MUNICH (Germany) 563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.) and Nürnberg 1,256 kc/s (239 m.). Transmits at intervals from 6.45 a.m. (Gymnastics). 7.5 p.m.—Cultural Pictures of Frankish Towns—a Relay from Würzburg. 7.35 p.m.—Programme Notes and Introductory Talk to the following Transmission. 7.40 p.m.—Tenth Würzburg Mozart Festival—Orchestral Concert, relayed from the Residenz. Serenata notturna for Two Small Orchestras. Recitative and Aria, Popoli di Tessaglia, for Soprano and Orchestra. Concerto in B Flat Major for Pianoforte and Orchestra with Cadences to the First and Third Movement by H. Zilcher. Trio for Soprano, Tenor, Bass and Orchestra: Mandina Amabile. Symphony in G Minor. 9.40 p.m.—English Literature and Songs by Lilian Harison (Speaker) and John Armstrong (Tenor). Recitative and Aria: Thy Hand, Belinda (Purcell). Scene I, Act II from "The School for Scandal" (Sheridan). Two Songs (Arne): (a) Come away, Death, (b) Phæbus sinketh in the West. Two Scenes from "Romeo and Juliet" (Shakespeare): (a) Scene between Juliet and the Nurse, Act II, Scene V, (b) Poisoning Scene, Act IV, Scene III. Two Songs (Delius): (a) Irmelin, (b) Spring, the Sweet Spring. 10.20 p.m.—Time and News. 12.30 a.m. (Wednesday).—Night Concert. (Munich and Zeelen, 31.38 m. only). I. Deum from Op. 59 for Organ (Reger). Sacred Sonata in D Minor in One Movement for Violin and Organ (Zielovsky). Andante in A Flat Major for Organ (Mozart). Fantasiestück for Cello and Organ (Enmerz). Prelude and Fugue in E Flat Major for Organ (Bach). 1.30 a.m. (Wednesday).—Close Down. OSLO (Norway) Kringkastingselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamar, 511 kc/s (587 m.); Norddalen, 671 kc/s (447.1 m.); and Rykan, 662 kc/s (447.1 m.). Transmits at intervals from 11.5 a.m. 6.0 p.m.—Talk: How to build a House. 6.30 p.m.—Talk for Housewives. 6.45 p.m.—Gramophone Records. 7.0 p.m.—Announcements and News. 7.30 p.m.—Hungarian Song Recital. 8.0 p.m.—Time Signal. 8.2 p.m.—Midsummer Festival, relayed from Malhøgen, near Lillehammer. Music and Speeches. 9.35 p.m.—Weather and News. 9.50 p.m.—Topical Talk, followed by Midsummer Festival (continued). 12 midnight (approx.).—Close Down. PARIS (France) Eiffel Tower (FLE). 267 kc/s (1,445 m.); 15 kW. Time Signals (at 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals). 6.45 p.m.—Le Journal Parlé. 8.20 p.m.—Meteorological Forecast.

8.30 p.m.—Political Review, followed by Andre Pascal Concert, with the collaboration of the Composer. Introductory Talk. Sonatinas for Two Violins and Piano. Berceuse. Spanish Serenade for Cello and Pianoforte. Chant sans paroles for Viola and Pianoforte. Deux Nocturnes de la mer: (a) Crépuscule lunaire, (b) Sur les touches blanches. Berceuse d'un soir d'hiver. Marche française for Pianoforte. Pastorals. Pantoum. Concertino for Violin and Pianoforte. Sonnet. Les Yeux. Contomancie. Three Songs from La Fontaine's Fables. String Quartet. PARIS (France) Poste Parisien. 914 kc/s (329 m.); 1.2 kW. 9.0 a.m.—Picture Transmission. 8.25 p.m.—Gramophone Records and News. 8.45 p.m.—Sports Talk, Gramophone Records and News. 9.0 p.m.—Concert. Prelude and Clair de lune from "Werther" (Massenet). Waltzes (Smetana). Le Paradou dans la vie, from "La Faute de l'abbé Mouret" (Bruneau). Slavonic Rhapsody, No. 1 (Dvorak). Concert Waltz (Glazounoff). Réverie (Hüe). Selection for Oboe and Orchestra: Highlanders' March from Scottish Scenes (Godard). PARIS (France) Radio Paris (CFR). 174 kc/s (1,725 m.); 17 kW. Transmits at intervals from 6.45 a.m. (Physical Culture). 12.30 p.m.—Gramophone Records. 1.0 p.m.—Exchange and News. 1.5 p.m.—Gramophone Concert. In the intervals at 1.30 and 2.0 p.m.—Exchange and Market Prices. 3.30 p.m.—Exchange Quotations. 5.55 p.m.—Exchange Quotations. 6.0 p.m.—Gramophone Records. 6.30 p.m.—Agricultural Report and Racing Results. 7.0 p.m.—Talk: The Colonial Exhibition. 7.30 p.m.—Elementary German Lesson. 7.45 p.m.—Commercial Prices, Economic and Social Notes and News. 8.0 p.m.—"Fortunio"—Opera (Messenger). In the intervals at 8.30 p.m.—Sports Results, Weather, Gastronomic Review and Talk, and at 9.15 p.m.—Press Review, News and Time Signal. PRAGUE (Czechoslovakia) Stranice. 617 kc/s (487 m.); 5.5 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—Talk for Workers. 7.5 p.m.—Talk. 8.55 p.m.—News Bulletin. 9.0 p.m.—Time, News, Chimes and Orchestral Concert. 10.0 p.m.—Time, News and Sports Notes. 10.10 p.m.—Announcements and Relay from the Exhibition at Pardubice. 10.15 p.m.—Announcements. 10.20 p.m.—Gramophone Records. 11.0 p.m.—Time, News and Chimes. RADIO-SUISSE ROMANDE (SOTTENS) 743 kc/s (403 m.); 32 kW. Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.). Transmits at intervals from 12.28 p.m. 7.0 p.m. (from Lausanne).—Cinema Organ. Recital from the Capitol Theatre. 7.40 p.m. (from Lausanne).—News. 8.0 p.m. (from Geneva).—International Report. 8.20 p.m.—Orchestral Concert. 9.30 p.m. (from Lausanne).—Flute Cello and Pianoforte Recital. Trio in G Major (Haydn). Sonata (Leclair). Impressions (Goossens). 10.15 p.m.—News Bulletin. 10.30 p.m. (approx.).—Close Down. RIGA (Latvia) Radio Riga. 572 kc/s (525 m.); 13 kW. Transmits at intervals from 11.0 a.m. 6.30 p.m.—Talk: The Ligo National Festival. 7.0 p.m.—Weather Report. 7.3—10.30 p.m.—Ligo National Festival Programme. 7.3 p.m.—Orchestral Concert. Dramatic Overture (Wihtols). Suite, Gods and Men (Medins). Two Parts of the Petite Suite (Valle). Solitude (Abele). Popular Ligo Songs. Overture, "The Mastersingers" (Wagner). Invitation to the Dance (Weber). Selections (Fibich): (a) Evening, (b) Poem. Symphonic Picture, Ligo (Wihtols). 9.0 p.m.—Weather Report. 9.30 p.m.—Humorous Songs of Ligo. 9.50 p.m.—Dance Music. 11.0 p.m. (approx.).—Close Down.

ROME (Italy)

Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.) and 3RO, 11,810 kc/s (25.4 m.). Transmits at intervals from 8.15 a.m. (Giornale Radio). 7.35 p.m. (from Naples).—Shipping Report and Sports Notes. 7.40 p.m.—News Bulletin. 8.10 p.m.—Gramophone Records. 8.30 p.m.—Time and Announcements. 8.35 p.m.—English Lesson on Gramophone Records. 8.50 p.m.—Talk by S. Mezza. 9.0 p.m.—Midsummer Eve's Concert. Old Roman Songs. Talk: St. John's Festival in Rome. Modern Songs. Recitations. In the interval, Announcements. 10.55 p.m.—News Bulletin. STOCKHOLM (Sweden) Radiotjänst (SASA). 680 kc/s (436 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Gäddede, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 8.0 a.m. 6.45 p.m.—Talk by Prince Wilhelm: Midsummer Celebrations at Malmköping. 7.20 p.m.—Weather Report, followed by Relay of the Midsummer Dance at "Skansen." 8.0 p.m.—Midsummer Eve Programme. Instrumental Music and Sketch. 9.40 p.m.—Swedish Midsummer Programme. 11.0 p.m.—Midsummer Wake at "Skansen." 12 midnight (approx.).—Close Down. STRASBOURG (France) Radio-Strasbourg (P.T.I.). 869 kc/s (345 m.); 15 kW. Transmits at intervals from 11.30 a.m. 6.0 p.m.—Orchestral Concert. Suite, La Féria (Lacôme). Emperor Waltz (Joh. Strauss). Song, Ballet de la cour (Pierné). Sérénade à l'amour (Fauchey). 6.45 p.m.—Talk in French: Auto-Suggestion. 7.0 p.m.—Orchestral Concert. 7.30 p.m.—Time Signal. 7.32 p.m.—News in French and German. 7.45 p.m.—Gramophone Records. 8.30 p.m.—Two Operas on Gramophone Records: (a) "I Pagliacci" (Leoncavallo), (b) "Cavalleria Rusticana" (Mascagni). 10.30 p.m. (approx.).—Close Down. TOULOUSE (France) Radiophonie du Midi. 779 kc/s (385 m.); 8 kW. Transmits at intervals from 12.45 p.m. 7.0 p.m.—Saxophone and Xylophone Solos. 7.15 p.m.—Vocal Tangos. 7.30 p.m.—News Bulletin. 7.45 p.m.—Dance Music. 8.0 p.m.—Songs from Opéra-Comique. 8.30 p.m.—Gramophone Records. 9.0 p.m.—Concert. 9.30 p.m.—Dance Music from the Sion. 10.30 p.m.—News Bulletin. 10.45 p.m.—Orchestral Selections. 11.0 p.m.—Chansonnettes. 11.15 p.m.—North African News. 11.30 p.m.—Violin Solos (Kochansky). 11.45 p.m.—Hawaiian Guitar Music. 12 midnight.—Weather and Announcements. VIENNA (Austria) Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.). Transmits at intervals from 9.20 a.m. 6.25 p.m.—Elementary English Lesson. 6.55 p.m.—Talk: Austrian Dialects—Central Bavarian. 7.25 p.m.—Reading from the Works of Maurice Reinhold v. Stern. 7.50 p.m.—Time and News. 8.0 p.m.—See Oslo. 9.30 p.m.—Weather and News. 9.40 p.m.—Orchestral Concert. WARSAW (Poland) Polskie Radio. 212 kc/s (1,411 m.); 158 kW. Transmits at intervals from 11.40 a.m. 6.0 p.m.—Orchestral Concert. 7.0 p.m.—Miscellaneous Items. 7.20 p.m.—Agricultural Report. 7.35 p.m.—Radio Journal. 7.50 p.m.—"A Night in Venice"—Operetta (Joh. Strauss), relayed from the Grand Theatre. In the interval, Radio Journal and Programme Announcements. After the Opera, Police and Sports Notes, followed by Musical Programme.

PROGRAMMES FOR WEDNESDAY (June 24)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME

ALGIERS (N. Africa)

825.3 kc/s (363.4 m.); 13 kW.
Transmits at intervals from 1.30 p.m.
8.30 p.m.—Song Recital.
8.45 p.m.—Tangos.
8.55 p.m.—News Bulletin.
9.0 p.m.—Orchestral and Vocal Concert.
9.30 p.m.—Review of Books.
9.45 p.m.—Orchestral Concert of Classical Music.
11.0 p.m.—Soloist Selections.
11.15 p.m.—Recitations.
11.40 p.m.—Gramophone Records.

BARCELONA (Spain)

Radio-Barcelona. (EAJI). 860 kc/s (349 m.); 8 kW.
Transmits at intervals from 8.30 a.m.
8.0 p.m.—Reading in Catalan.
8.10 p.m.—Orchestral and Gramophone Dance Music.
9.0 p.m.—Vocal and Orchestral Concert. Overture, "Anacreon" (Cherubini). Soprano and Baritone Duet: La canción del olvido (Serrano). Hindu Reverie (V. Staub and H. Oudine). Soprano and Baritone Duet from "La rosa del azafran" (Guerrero). Los bebedores de manzanilla (Turina). Duet from "La Traviata" (Verdi).
10.0 p.m.—Gramophone Records.
11.0 p.m.—Talk in Catalan: How a Comedy is produced.
11.20 p.m.—Gramophone Records.
1.0 a.m. (Thursday).—Close Down.

BERLIN (Germany)

Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW.
Transmits at intervals from 5.45 a.m. (Hamburg Relay).
4.30 p.m.—See Hamburg.
5.30 p.m.—Talk on Melodrama.
6.0 p.m.—Talk: The Destiny of Germans in America.
6.30 p.m.—Talk: The Political Inheritance of Freiherr vom Stein—Self-Government and Industry.
6.55 p.m.—Weather for Farmers.
7.0 p.m.—See Berlin (Witzleben).
7.30 p.m.—Talk for Civil Servants.
7.55 p.m.—Weather for Farmers.
8.0 p.m.—Concert from the Hotel Kaiserhof.
8.30 p.m.—Talk: The Agrarian Revolution in Soviet Russia.
9.0 p.m.—See Leipzig.
11.30 p.m. (approx.).—See Berlin (Witzleben).
12.30 a.m. (Thursday).—Close Down.

BERLIN (Germany)

Witzleben. 716 kc/s (418 m.); 1.7 kW.
Transmits at intervals from 6.30 a.m. (Gymnastics).
7.0 p.m.—Legal Talk.
7.25 p.m.—Review of Books: Travels in Germany.
7.40 p.m.—See Heilsberg.
8.30 p.m.—"Medea"—Drama (Euripides), arranged for Wireless by Heinz Lipmann.
10.0 p.m.—News Bulletin.
10.15 p.m. (approx.).—Dance Music from the Roof Garden of the Eden Hotel.
12.30 a.m. (Thursday).—Close Down.

BEROMÜNSTER (Schweizerischer Landessender) (Switzerland)

653 kc/s (459 m.); 77 kW.
Transmits at intervals from 12.30 p.m.
6.30 p.m. (Zürich).—Gramophone Records.
7.0 p.m. (Zürich).—Talk: Anonymous Letters.
7.28 p.m.—Time and Weather.
7.30 p.m. (Zürich).—Talk: The Fear of Loneliness.
8.0 p.m. (Berne).—Suppé Concert.
8.25 p.m. (Berne).—"Lottie's Birthday"—Musical Play (Thoma).
9.40 p.m. (Berne).—Operetta Waltzes.
10.0 p.m.—Weather and News.
10.10 p.m. (Berne).—Wireless Notes.
10.25 p.m. (approx.).—Close Down.

BORDEAUX-LAFAYETTE (France)

(PTT). 986 kc/s (304 m.); 35 kW.
Transmits at intervals from 12.45 p.m.
7.30 p.m.—News Bulletin.
7.40 p.m.—Dramatic Criticism.
7.55 p.m.—Results of the Prize Draw.
8.0 p.m.—Agricultural Talk.
8.15 p.m.—News Bulletin.
8.30 p.m.—Benjamin Godard Concert, with Introductory Talk. After the Programme, Amusement Guide and Time Signal.

BRATISLAVA (Czechoslovakia)

1,076 kc/s (279 m.); 14 kW.

Transmits at intervals from 11.0 a.m.

7.0 p.m.—See Prague.

10.10 p.m.—Programme Notes.

BRESLAU (Germany)

923 kc/s (325 m.); 1.7 kW.
Relayed by Gleiwitz, 1,184 kc/s (253 m.).
Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics).
7.0 p.m. (from Gleiwitz).—Talk on Summer.
7.25 p.m.—Weather, followed by Orchestral Concert.
8.30 p.m.—See Berlin (Witzleben).
10.0 p.m.—Time and News.
10.15 p.m.—Theatre Talk.
10.25 p.m.—Soloist and Orchestral Concert.
12 midnight (approx.).—Silent Night.

BRNO (Czechoslovakia)

878 kc/s (342 m.); 3 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—See Prague.
7.20 p.m.—Talk on the following transmission.
7.30 p.m.—"La Tosca"—Opera in Three Acts (Puccini), relayed from the Municipal Theatre.
10.0 p.m.—See Prague.
10.10 p.m.—Announcements.

BRUSSELS (Belgium)

Radio-Belgique. 590 kc/s (509 m.); 20 kW.
Transmits at intervals from 5.0 p.m.
6.15 p.m.—Talk: Viniculture in Hoeylaert.
6.30 p.m.—Gramophone Records.
7.15 p.m.—Talk: Nineteenth Century Belgian Painters.—Leys.
7.30 p.m.—Le Journal Parlé.
8.0 p.m.—Quartet, Op. 30 (Chausson).
8.35 p.m.—Jos. Jongen Song Recital. Chanson roumaine. Les cadrans. Bal des fleurs.
8.45 p.m.—Talk on the Belgian Writer, Omer Englebort, with Readings by the Author.
9.0 p.m.—Gramophone Records.
10.0 p.m.—Le Journal Parlé.

BRUSSELS No. 2 (Belgium)

887 kc/s (338.2 m.); 20 kW.
Programme in Flemish.
5.0 p.m.—"Tristan und Isolde"—Opera (Wagner), on Gramophone Records. In the interval at 6.15 p.m.—Talk: The Flemish Language.
7.15 p.m.—Talk: Sweden and Flanders.
7.30 p.m.—Le Journal Parlé.
8.0 p.m.—Concert relayed from Antwerp.
9.0 p.m.—Reading.
9.15 p.m.—Dance Music.
10.0 p.m.—Le Journal Parlé.

BUCHAREST (Romania)

Radio-Bucarest. 761 kc/s (394 m.); 16 kW.
Transmits at intervals from 12 noon.
6.10 p.m.—Orchestral Concert.
6.45 p.m.—Talk.
7.0 p.m.—Gramophone Records.
7.40 p.m.—Educational Talk.
8.0 p.m.—Violin Recital.
8.30 p.m.—Talk.
8.45 p.m.—Flute Recital. Concerto in D Major and Minuet (Mozart). Tarantelle (Demersseman).
9.15 p.m.—Pianoforte Recital of Romanian Music.
9.45 p.m.—News Bulletin.

BUDAPEST (Hungary)

545 kc/s (550 m.); 23 kW.
Transmits at intervals from 9.15 a.m.
6.25 p.m.—Programme by Herr Vador.
6.50 p.m.—Hungarian Folk Songs.
8.0 p.m.—"The Tragedy of Mankind"—Sketch (Madach), followed by Gramophone Concert.
11.0 p.m. (approx.).—Close Down.
COLOGNE (Germany)
Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW.
See Langenberg Programme.

COPENHAGEN (Denmark)

1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).
Transmits at intervals from 7.30 a.m. (Gymnastics).
7.0 p.m.—News Bulletin.
7.15 p.m.—Time Signal.
7.30 p.m.—Agricultural Talk (from the Nykøbing Studio).
8.0 p.m.—Talk on the following transmission.
8.15 p.m.—"A Waltz with Napoleon"—Operetta in Three Acts (Kollo), relayed from the New Theatre.
11.0 p.m.—News Bulletin.
11.15 p.m.—Dance Music from Lodberg's Restaurant.
12 midnight (in the interval).—Town Hall Chimes.
12.30 a.m. (Thursday).—Close Down.

CORK (Ireland)

(6CK). 1,337 kc/s (225 m.); 1.5 kW.
6.0—10.30 p.m.—See Dublin.

DUBLIN (Ireland)

(2RN). 725 kc/s (413 m.); 1.5 kW.
1.30—2.0 p.m.—Time, Weather and Gramophone Records.
6.0 p.m.—Gramophone Records.
6.15 p.m.—Programme for Children.
7.0 p.m.—Gramophone Records.
7.20 p.m.—News Bulletin.
7.30 p.m.—Time and Irish Lesson.
7.45 p.m.—German Lesson.
8.0 p.m.—Concert by the No. 1 Army Band, conducted by Colonel Fritz Brase.
9.0 p.m.—Selections by the Choir of the Convent Schools, Leeson Street.
9.20 p.m.—D. McLoughlin (Baritone).
9.30 p.m.—Sponsored Programme.
10.30 p.m.—Time, News, Weather and Close Down.

FRANKFURT-am-MAIN (Germany)

770 kc/s (390 m.); 1.7 kW.
Relayed by Cassel, 1,220 kc/s (246 m.).
Transmits at intervals from 5.55 a.m. (Weather and Gymnastics).
7.10 p.m.—Time, Weather and News.
7.15—10.0 p.m.—See Mühlacker.
10.0 p.m.—Negro Spirituals, with Introductory and Explanatory Notes.
10.45 p.m.—Time and News.

HAMBURG (Germany)

Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.).
Transmits at intervals from 5.45 a.m. (Time and Weather).
4.15 p.m.—Concert of Viennese Music. March, Hoch Habsburg (Kral). Selection from "Das süsse Mädel" (Reinhardt). Waltz on Motives from "Die drei Winde" (Ziehler). Overture, "Eine Vision" (Lehár). Mazurka, Ein Herz, ein Sinn (Joh. Strauss, Jun.). Waltz, Pikantier (Lehár). Overture, "Baron Trenck" (Albini). Potpourri on Motives from "Der Frauenfresser" (Eysler). Baislirenen (Lehár). Sport March (Ziehler).
5.30 p.m.—Talk: The Sculptor Hugo Lederer.
5.55 p.m.—Anecdotes in Hamburg Street Dialect.
6.20 p.m.—Variety Programme.
7.0 p.m.—Talk: Religious, Philosophical and Scientific Tendencies of the Nineteenth Century.
7.25 p.m.—Talk: The Hanseatic Civil Service.
7.50 p.m.—Exchange, Market Prices and Weather.
8.0 p.m.—See Langenberg.
10.0 p.m.—Weather and News.
10.30 p.m.—Topical Programme.
10.30 p.m. (from Hanover).—Concert from the Café Continental.
11.15 p.m.—Restaurant Ostermann Concert.

HEILSBURG (Germany)

1,085 kc/s (276.5 m.); 75 kW.
Relayed by Danzig, 662 kc/s (453 m.).
Transmits at intervals from 6.0 a.m. (Weather and Gymnastics).
6.10 p.m.—Agricultural Prices.
6.30 p.m.—Legal Talk.
7.0 p.m.—Radio Shorthand Competition.
7.30 p.m.—Orchestral Concert. Overture, "Phédre" (Massenet). Selection from "Pelles and Melisande" (Sibelius). Serenade for String Orchestra (Tchaikovsky). Folk Scene from "The Evangelist" (Kienzy). Spanish Dances (Moszkovsky). Tarifa—Elegy at Sunset, from the Moorish Rhapsody (Humperdinck). Two Military Marches (Leo Blech).
8.30 p.m.—See Berlin (Witzleben).
12 midnight (approx.).—Close Down.

HILVERSUM (Holland)

1,004 kc/s (298 m.); 8.5 kW.
6.25—9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.).
6.25—6.40 a.m. and 7.10—7.25 a.m.—Gymnastics.
7.40 a.m.—Gramophone Records.
9.10 a.m.—Organ Recital.
9.40 a.m.—Religious Programme of the Liberal Protestant Radio Society (V.P.R.O.).
9.55 a.m. till Close Down.—V.A.R.A. Programme.
9.55 a.m.—Talk by Mr. Kers.
10.40 a.m.—Gramophone Records.
10.45 a.m.—Talk by Mr. Thijse.

11.15 a.m.—Gramophone Records.

1.10—1.40 p.m.—Interval.

1.40 p.m.—Gramophone Records.

2.5 p.m.—Programme for Women.

2.55 p.m.—Gramophone Records.

3.0 p.m.—Talk (to be announced).

3.15 p.m.—Dressmaking Lesson.

4.5 p.m.—Gramophone Records.

4.10 p.m.—Programme for Children.

5.40 p.m.—Mandoline Concert.

6.40 p.m.—Talk by Mr. Brusse.

7.10 p.m.—A Wireless Play.

7.40 p.m.—Concert by Students of the Amsterdam Music School. Havnaisse for Violin (Saint-Saëns). Aria for Soprano from "The Seasons" (Haydn). Capriccio brillante, Op. 22, for Pianoforte (Mendelssohn). Concerto in F for Violin (Tchaikovsky).

8.55 p.m.—Talk (to be announced).

9.10 p.m.—"The Voice"—A Wireless Play (Gaston Revel).

9.35 p.m.—News Bulletin.

9.45 p.m.—Concert (contd.). Soprano Solo: Chanson triste (Duparc). Allegro from the Concerto for Cello (Dvorak). Concerto in E Flat Major for Pianoforte (Liszt).

10.40 p.m.—Gramophone Records.

11.40 p.m. (approx.).—Close Down.

HUIZEN (Holland)

160 kc/s (1,875 m.); 8.5 kW.
Transmits at intervals from 7.40 a.m.
12.10 p.m. till Close Down.—Programme of the Christian Radio Society (N.C.R.V.).
12.10 p.m.—Instrumental Concert.
1.40 p.m.—Gramophone Records.
2.10 p.m.—Reading.
2.40 p.m.—Bass-Baritone Song Recital and Recitations.
4.10 p.m.—Gramophone Records.
4.25 p.m.—Programme to be announced.
4.40 p.m.—Programme for Children.
5.40 p.m.—Agricultural Talk.
6.25 p.m.—Gramophone Records.
6.40 p.m.—Programme arranged by the Department of Buildings and Roads.
7.10 p.m.—Police Notes.
7.25 p.m.—Gramophone Records.
7.40 p.m.—Concert by a Boys' Choir.
8.40 p.m.—Talk by Mr. Bossenbroek.
9.10.—Soloist Concert from the English Church in Amsterdam.
9.40 p.m. (in the interval).—News.
10.40 p.m.—Gramophone Records.
11.10 p.m. (approx.).—Close Down.

KALUNDBORG (Denmark)

Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW.
See Copenhagen Programme.

KÖNIGSBERG (Germany)

Ostmarken Rundfunk. 1,382 kc/s (217 m.); 1.7 kW.
See Heilsberg Programme.

LANGENBERG (Germany)

Westdeutscher Rundfunk. 635 kc/s (473 m.); 17 kW. Relayed by Aachen, Cologne and Münster, 1,319 kc/s (227 m.).
Transmits at intervals from 6.45 a.m. (Exercises).
7.0 p.m.—News Bulletin.
7.10 p.m.—Talk: Technique and Industry.
7.35 p.m.—Talk on 8.0 p.m. Transmission.
7.55 p.m.—News Bulletin.
8.0 p.m.—"Gurre-Lieder"—for Soloists, Choir and Orchestra (Arnold Schönberg), relayed from the Opera House, Cologne. After the Programme, News.

LEIPZIG (Germany)

1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.).
Transmits at intervals from 6.30 a.m. (Witzleben Relay).
7.0 p.m.—Talk: The Economic Effects of the Decline of the Birth Rate.
7.30 p.m.—"A Summer's Eve"—Orchestral Concert.
8.30 p.m.—Max Halbe reads from his own works.
9.0 p.m.—Orchestral Concert. Overture, "Alfonso und Estrella" (Schubert). Serenade No. 2 in F Major, Op. 63 (Volkmann). Swedish Dances, Nos. 8-15, Op. 63 (Max Bruch). Three Selections (Reinecke): (a) Prelude to the Fifth Act of "King Manfred," (b) Dämmerung, (c) Tanz unter der Dorfhinde. Hungarian Rhapsody No. 14 (Liszt).
10.15 p.m.—News Bulletin.
10.30 p.m.—Third Act of "The Mastersingers"—Opera (Wagner).
11.30 p.m. (approx.).—Close Down.

LWÓW (Poland)

788 kc/s (381 m.); 21 kW.
Transmits at intervals from 11.58 a.m.

7.0 p.m.—Miscellaneous Items.

7.20 p.m.—Talk: Trades and Professional Training.

7.40 p.m.—See Warsaw.

12 midnight (approx.).—Close Down.

MADRID (Spain)

Union Radio. (EAJ7). 707 kc/s (424 m.); 2 kW.
Transmits at intervals from 9.0 a.m.
8.30 p.m.—Chimes, Exchange and Talk for Women.
9.0 p.m.—News Bulletin.
9.10 p.m.—Dance Music.
9.30—11.0 p.m.—Interval.
11.0 p.m.—Chimes, Time and Exchange Quotations, followed by "Macbeth"—Tragedy (Shakespeare) with Musical Interludes. In the interval at 1.0 a.m. (Thursday).—Chimes and News.
1.30 a.m. (approx.).—Close Down.

MILAN (Italy)

Ente Italiano Audizioni Radiofoniche. 599 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.).
Transmits at intervals from 8.15 a.m.
7.0 p.m.—Agricultural Report.
7.10 p.m.—Light Music.
7.25 p.m.—Announcements.
7.35 p.m.—Gramophone Records.
8.0 p.m. (in the interval).—Time and News.
8.30 p.m.—Medical Talk.
8.45 p.m.—"Quartetto vagabondo"—Operetta (Petri). In the intervals, Variety Item, Theatre Review and Giornale radio. After the Operetta, Relay of Music.
11.55 p.m. (approx.).—News.

MORAVSKÁ-OSTRAVA (Czechoslovakia)

1,139 kc/s (263 m.); 11 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—See Prague.
10.10 p.m.—Announcements.

MOTALA (Sweden)

221.9 kc/s (1,352 m.); 40 kW
See Stockholm Programme.

MÜHLACKER (Germany)

Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.).
Transmits at intervals from 5.55 a.m. (Time and Weather).
7.10 p.m.—Time Signal.
7.15 p.m.—Talk: St. Hildegard, a Naturalist of the Middle Ages.
7.45 p.m.—Reading: "The Murderer's Mother" (E. Gottgetreu).
8.0 p.m.—See Langenberg.
9.0 p.m.—Orchestral Concert. March Potpourri, Hals und Beinbruch (Morena). Overture to a Revue (Lincke). Trumpet Solo from "Die Herren vom Maxim" (Holländer). Waltz on Motives from "Vera Violetta" (Eysler). Marching Duet from "Der ersten Liebe goldne Zeit" (Gilbert). Song from "The Girl in the Taxi" (Gilbert). March Potpourri, Achtung! Wir gehen voran (Rechtenwald).
10.0 p.m.—See Frankfurt.
10.30 p.m.—News Bulletin.

MÜNICH (Germany)

563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.).
Transmits at intervals from 6.45 a.m. (Gymnastics).
7.10 p.m.—Relay from Ansbach—Vocal and Orchestral Selections from the Works of Kaspar Othmayer and Jakob Meiland, and a Verbal Tour of the Town.
8.10 p.m.—"The Spanish Nightingale"—Operetta in Three Acts (Fall); followed by Concert and Dance Music from the Café Maximilian.
10.20 p.m. (in an interval).—Time and News.
12 midnight (approx.).—Close Down.

OSLO (Norway)

Kringkastingselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamar, 511 kc/s (587 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (453 m.); and Rjukan, 671 kc/s (447.1 m.).
Transmits at intervals from 11.5 a.m.
6.15 p.m.—Programme for Girls.
6.40 p.m.—Talk: What to do in the Holidays.
7.0 p.m.—News Bulletin.
7.30 p.m.—Agricultural Talk: Pig Farming.
8.0 p.m.—Time Signal.
8.2 p.m.—Tchaikovsky Concert. Overture, "Hamlet." Symphony in B Minor, No. 6—the "Pathetic" Symphony.
9.0 p.m.—Sketch.

Programmes for Wednesday—(Cont.)

9.35 p.m.—Weather and News.
9.50 p.m.—Topical Talk.
10.5 p.m.—Trio Concert.
10.35 p.m.—Gramophone Dance Records.
12 midnight (approx.)—Close Down.
PARIS (France)
Eiffel Tower. (FLE). 207 kc/s (1,445 m.); 15 kW. Time Signals (on 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals).
6.45 p.m.—Le Journal Parlé.
8.20 p.m.—Meteorological Forecast.
8.30 p.m.—Programme for Young People.
9.0 p.m.—Symphony Concert conducted by M. Edouard Flament. Ballet Music from "Alceste" (Gluck-Labis). Violin Solo. Andante from "Lucas et Lucette" (Missa). Orientale (Dick). Abstractions (Blancfort-Salabert). Cello Solo. Waltz, Echo from the Mountains (Strauss). Kazachok (Dargomjisky).
PARIS (France)
Poste Parisien. 914 kc/s (329 m.); 1.2 kW.
9.0 a.m.—Picture Transmission.
8.25 p.m.—Gramophone Records, Talk and News.
9.0 p.m.—Concert. Songs (Debussy): (a) Le Balcon, (b) Les Cloches, (c) Harmonie du soir. Overture, "The Brewer of Preston" (Adam). Pianoforte Solo: Carillons dans la baie from "Soirs armoricains" (Vuillemin). Selection from "No, No, Nanette!" (Youmans). Ballet Air from the "Suite brève" (Aubert). Selection from "Mignon" (Thomas). Andante from the Quartet in F (Ravel). Selection from "Phi-Phi" (Christiné). Havana (Branga). Selection from "Die Teresina" (O. Strauss). Waltz, The Skaters (Waldeufel). March from the "Ballet russe" (Luigini).
PARIS (France)
Radio-Paris. (CFR). 174 kc/s (1,725 m.); 17 kW.
Transmits at intervals from 6.45 a.m. (Physical Culture).
12.30 p.m.—Gramophone Records.
1.0 p.m.—Exchange and News.
1.5 p.m.—Gramophone Concert of

Operetta and Sound Film Music. In the intervals at 1.30 and 2.0 p.m.—Exchange Quotations.
3.30 p.m.—Exchange Quotations.
5.55 p.m.—Exchange Quotations.
6.0 p.m.—Gramophone Records.
6.30 p.m.—Agricultural Report and Racing Results.
7.0 p.m.—Talk: Temperature and Frost.
7.30 p.m.—Medical Talk.
7.45 p.m.—Commercial Prices, Economic and Social Notes and News.
8.0 p.m.—Literary Readings.
8.30 p.m.—Sports Results and Weather.
8.35 p.m.—Fashion Review.
8.45 p.m.—"La Carrosse du Saint-Sacrement"—Play (Mérimee) by M. Denis d'Ines and his Company. In the interval at 9.15 p.m.—Press Review, News and Time Signal.
10.0 p.m.—Selections from "Carmen"—Opera (Bizet) on Gramophone Records.
PRAGUE (Czechoslovakia)
Strasnice. 617 kc/s (487 m.); 5.5 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—Announcements.
7.5 p.m.—Talk: Summer Hygiene.
7.20 p.m.—Talk on the following Transmission.
7.30 p.m.—"The Merry Wives of Windsor"—Comic Opera in Three Acts (Nicolai), relayed from the Municipal Theatre.
10.0 p.m.—Time, News and Chimes.
10.15 p.m.—Educational Programme.
10.20 p.m.—Announcements.
RADIO-SUISSE ROMANDE (SOTTENS) (Switzerland)
743 kc/s (403 m.); 32 kW.
Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.).
Transmits at intervals from 12.28 p.m.
7.0 p.m. (from Geneva).—Gramophone Records.
7.40 p.m. (from Lausanne).—News.
8.0 p.m. (from Lausanne).—Talk: Viniculture.
8.30 p.m. (from Geneva).—Old Music.
9.30 p.m. (from Lausanne).—Choral Concert.
10.0 p.m.—News Bulletin.
10.15 p.m. (from Geneva).—Dance Music.
11.0 p.m. (approx.).—Close Down.

RIGA (Latvia)
Radio Riga. 572 kc/s (525 m.); 13 kW.
Transmits at intervals from 9.0 a.m.
6.0 p.m.—Peterdels reads from his own Works.
6.30 p.m.—Song Recital.
7.0 p.m.—Weather Report.
7.3 p.m.—Ligo National Festival Concert Relay. Conductor: Janis Medins. Overture, "Tom Thumb" (Whitols). Suite, Aus dem Mittelalter (Glazounoff). Waltz from "Sleeping Beauty" (Tchaikovsky). Seven Popular Latvian Songs (Whitols). Ballad (Kalmns). Songs (Medins). Norwegian Dances (Grieg). Celestial Harmony (Alfvén). Suite No. 1 (Medins).
9.30 p.m.—Dance Music.
11.0 p.m. (approx.).—Close Down.
ROME (Italy)
Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.); and 3RO, 11,810 kc/s (25.4 m.).
Transmits at intervals from 8.15 a.m. (Giornale radio).
7.25 p.m. (from Naples).—Shipping Report.
7.30 p.m.—News Bulletin.
7.50 p.m.—Gramophone Records.
8.10 p.m.—News and Report of the International Institute of Agriculture (in Italian, French, English, German, and Spanish).
8.30 p.m.—Time, Announcements and Medical Talk.
9.0 p.m.—"Carmen"—Opera in Four Acts (Bizet). In the intervals, Announcements and Talk on Laughter. News after the Programme.
SCHENECTADY (U.S.A.)
General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kW. Relayed at intervals by W2XAF on 9,530 kc/s (31.48 m.) and by W2XAD on 15,340 kc/s (19.56 m.).
Transmits at intervals from 11.45 a.m.
11.44 p.m.—Weather Report.
11.45 p.m.—New York Relay.
12 midnight.—Time Signal.
12.1 a.m. (Thursday).—Play: Gipsies Play.
12.15 a.m.—New York Relay.
12.30 a.m.—DuPont Speed Blenders.
12.45 a.m.—Southern Flooring.
1.0 a.m.—New York Relay. In the intervals at 1.15 a.m.—Rice String

Quartet and at 4.30 a.m.—The Hotel DeWitt Clinton Orchestra, Albany, N.Y.
5.30 a.m.—The Hotel Kenmore Orchestra, Albany, N.Y.
6.0 a.m. (approx.).—Close Down.
STOCKHOLM (Sweden)
Radiotjänst. (SASA). 689 kc/s (436 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.).
Transmits at intervals from 8.0 a.m.
6.0 p.m.—Divine Service.
7.10 p.m.—Weather Report.
7.15 p.m.—"A Midsummer Night's Dream"—Comedy (Shakespeare), with Music by Mendelssohn.
9.40 p.m.—Concert. Festival Polonaise (Sjögren). Songs: (a) Prologue to "I Pagliacci" (Leoncavallo), (b) Aria from "Don Juan" (Mozart). Suite for Orchestra (Haquinus). Selection from "Valdemarskatten" (Hallén). Suite, Swedish Summer Nights (Svensson). Songs: (a) Ballad (Svedbom), (b) The Two Grenadiers (Schumann). Swedish Rhapsody, Mid-sommarvaka (Alfvén).
11.0 p.m. (approx.).—Close Down.
STRASBOURG (France)
Radio-Strasbourg (PTT). 869 kc/s (345 m.); 15 kW.
Transmits at intervals from 11.30 a.m.
6.0 p.m.—Orchestral Concert. Selections from (a) "Il Trovatore" (Verdi), (b) "Cavalleria Rusticana" (Mascagni), (c) "Faust" (Gounod), and (d) "La Sirène" (Auber).
6.45 p.m.—Talk in French: Through Lorraine.
7.0 p.m.—Operetta Music.
7.30 p.m.—Time Signal.
7.32 p.m.—News in French and German.
7.45 p.m.—Gramophone Records.
8.30 p.m.—Concert from Mulhouse.
11.0 p.m.—Gramophone Dance Records.
12 midnight (approx.).—Close Down.
TOULOUSE (France)
Radiophonie du Midi. 779 kc/s (385 m.); 8 kW.
Transmits at intervals from 12.45 p.m.
7.30 p.m.—News Bulletin.
7.45 p.m.—Musical Programme.
8.15 p.m.—Selections by an Argentine Orchestra.

8.30 p.m.—Concert by the Foix Choral Society. In the intervals, Talks on Ariège.
10.30 p.m.—News Bulletin.
10.45 p.m.—Orchestral Selections. Selection from "Rienzi" (Wagner). Overture, "Idomeneo" (Mozart).
11.0 p.m.—Musical Selections.
11.15 p.m. (in an interval).—North African News.
12 midnight.—Weather and Announcements.
VIENNA (Austria)
Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.).
Transmits at intervals from 9.20 a.m.
7.0 p.m.—Elementary French Lesson.
7.30 p.m.—Time, Weather and News.
7.40 p.m.—Song Recital. Aria from "The Girl of the Golden West" (Puccini). Two Arias from "La Bohème" (Leoncavallo). Romance from "The Queen of Sheba" (Goldmark). Aria from "L'Africaine" (Meyerbeer). Song, E canta il grillo (Billi). Song, Canta pe me (de Curtis).
8.20 p.m.—"Forest and Moorland"—Vocal and Instrumental Concert. Weather and News in an interval.
WARSAW (Poland)
Polskie Radio. 212 kc/s (1,411 m.); 158 kW.
Transmits at intervals from 11.40 a.m.
6.0 p.m.—Orchestral Concert.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.40 p.m.—Agricultural Notes.
7.55 p.m.—Weather Forecast.
8.0 p.m.—Radio Journal.
8.15 p.m.—Violin and Soprano Song Recital.
9.10 p.m.—Reading and Theatre Review.
9.25 p.m.—Quartet in A Major for Clarinet, Two Violins, Viola and Cello (Mozart).
10.0 p.m.—Reading.
10.15 p.m.—Radio Journal and Police Notes.
10.25 p.m.—Programme Announcements.
10.30 p.m.—Dance Music and Light Music.
12 midnight (approx.).—Close Down.

PROGRAMMES FOR THURSDAY (June 25)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME
ALGIERS (N. Africa)
825.3 kc/s (363.4 m.); 13 kW.
Transmits at intervals from 1.30 p.m.
8.25 p.m.—Exchange and News.
8.45 p.m.—Songs from Foreign Lands.
8.55 p.m.—News Bulletin.
9.0 p.m.—Songs and Humorous Dialogues.
9.15 p.m.—"La Bohème"—Opera (Puccini).
10.0 p.m.—Humorous Sketch in Dialect.
10.30 p.m.—Russian Music.
10.45 p.m.—Popular Songs.
11.0 p.m.—Gramophone Records.
BARCELONA (Spain)
Radio-Barcelona (EAJ1). 860 kc/s (349 m.); 8 kW.
Transmits at intervals from 8.30 a.m.
8.0 p.m.—Gramophone Records.
9.30 p.m.—Elementary English Lesson.
10.0 p.m.—Chimes, Weather and Exchange.
10.5 p.m.—Orchestral Concert.
11.0 p.m.—News Bulletin.
11.5 p.m.—"La Lolita"—Catalan Comedy in Three Acts (J. Millás Raurell).
12.40 a.m. (Friday).—Gramophone Records.
1.0 a.m. (approx.).—Close Down.
BERLIN (Germany)
Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW.
Transmits at intervals from 5.45 a.m. (Hamburg Relay).
4.30 p.m.—See Berlin (Witzleben).
5.30 p.m.—Chamber Music.
6.0 p.m.—Talk for Business Men.
6.30 p.m.—Talk: Botanical Hints for Holiday-Time.
6.55 p.m.—Weather Report.
7.0 p.m.—Advanced English Lesson.
7.30 p.m.—Agricultural Talk.
7.50 p.m.—Weather Report.
8.0 p.m.—See Langenberg.
12 midnight (approx.).—Close Down.
BERLIN (Germany)
Witzleben. 716 kc/s (418 m.); 1.7 kW.

Transmits at intervals from 6.30 a.m. (Exercises).
4.30 p.m.—Soloist Concert.
5.30 p.m.—Talk: Are the German Towns deeply in debt?
5.55 p.m.—Musical Programme for Young People.
6.20 p.m.—Talk: Seventy-Five Years of the Work of German Engineers.
6.50 p.m.—Choral Concert from the Bismarck Festsälen, Spandau.
7.10 p.m.—Labour Market Report.
7.15 p.m.—Concert from the Hotel Adlon.
7.40 p.m.—Topical Programme.
8.0 p.m.—Extracts from the Works of Ludwig Thoma.
9.0 p.m.—News; Sports Notes.
9.15 p.m.—Freiherr von Stein Festival by the Westphalian Society, on the Centenary of his Death, relayed from the Reichstag. Address by the President of the Westphalian Society, Dr. Forckenbeck. Address by Dr. Brüning, Reichskanzler. Address by Dr. Karl Severing, Minister of the Interior. The Westphalian Song.
10.0 p.m.—News Bulletin.
10.15 p.m. (approx.).—Dance Music.
12.30 a.m. (Friday).—Close Down.
BEROMÜNSTER (Schweizerischer Landessender) (Switzerland)
653 kc/s (459 m.); 77 kW.
Transmits at intervals from 12.30 p.m.
6.30 p.m. (Berne).—Gramophone Records.
7.0 p.m. (Berne).—Talk.
7.25 p.m.—Time and Weather.
7.30 p.m. (Berne).—Reading.
8.0 p.m. (Basle).—Concert of Old Music.
9.0 (Basle).—Reading.
9.20 p.m. (Zürich).—Orchestral Concert.
10.0 p.m.—Weather, News and Close Down.
BORDEAUX-LAFAYETTE (France)
(PTT). 986 kc/s (304 m.); 35 kW.
Transmits at intervals from 12.45 p.m.
7.30 p.m.—News Bulletin.
7.40 p.m.—Talk: Children in the Film Industry.
7.55 p.m.—Results of the Prize

Draw and the Charade Competitions.
8.0 p.m.—Talk on Wine.
8.15 p.m.—News Bulletin.
8.30 p.m.—"Le roman d'un jeune homme pauvre"—Play in Five Acts (Feuillet), followed by Amusement Guide and Time Signal.
BRATISLAVA (Czechoslovakia)
1,076 kc/s (279 m.); 14 kW.
Transmits at intervals from 11.0 a.m.
7.0 p.m.—See Prague.
10.10 p.m.—Programme Notes.
10.15 p.m.—See Prague.
BRESLAU (Germany)
923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.).
Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics).
6.50 p.m.—Radio Report from the Friedrich Wilhelm University, Breslau.
7.50 p.m.—Talk for Workers.
8.20 p.m.—Orchestral Concert of Operetta Music.
9.15 p.m.—See Berlin (Witzleben).
10.0 p.m.—Time and News.
10.15 p.m.—Talk: The Riesen Gebirge.
10.30 p.m.—Old and New Dance Music.
12.30 a.m. (Friday).—Silent Night.
BRNO (Czechoslovakia)
878 kc/s (342 m.); 3 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—See Prague.
10.10 p.m.—Announcements.
10.15 p.m.—See Prague.
BRUSSELS (Belgium)
Radio-Belgique. 590 kc/s (509 m.); 20 kW.
Transmits at intervals from 5.0 p.m.
6.15 p.m.—Talk: Women and Unemployment.
6.30 p.m.—Gramophone Concert.
7.15 p.m.—Talk by M. Delsinne.
7.30 p.m.—Theatre Review.
8.0 p.m.—"Lohengrin"—Opera (Wagner), on Gramophone Records, with Commentary.
10.0 p.m.—Le Journal Parlé.
BRUSSELS No. 2 (Belgium)
887 kc/s (338.2 m.); 20 kW. Programme in Flemish.

Transmits at intervals from 5.0 p.m.
6.15 p.m.—Talk by the Rev. Fr. Perquy.
6.30 p.m.—"One Act of 'I Pagliacci'"—Opera (Leoncavallo), on Gramophone Records.
7.15 p.m.—Talk: The "Rerum Novarum" Festival in Rome.
7.30 p.m.—Le Journal Parlé.
8.0 p.m.—Orchestral and Vocal Concert. In the interval, Talk: "The Pope and Catholic Life."
10.0 p.m.—Le Journal Parlé.
BUCHAREST (Romania)
Radio-Bucarest. 761 kc/s (394 m.); 16 kW.
Transmits at intervals from 12 noon.
7.0 p.m.—Gramophone Records.
7.40 p.m.—Educational Talk.
8.0 p.m.—Song Recital.
8.30 p.m.—Beethoven Concert. Overture, "Coriolanus." Concerto for Pianoforte and Orchestra. Seventh Symphony.
9.0 p.m. (in the interval).—Talk.
9.45 p.m.—News Bulletin.
BUDAPEST (Hungary)
545 kc/s (550 m.); 23 kW.
Transmits at intervals from 9.15 a.m.
6.10 p.m.—Grieg Concert. In Autumn. Selection from "Peer Gynt." Selection from "Sigurd Jorsalfar." Lyric Suite.
7.25 p.m.—Programme by Dr. Toth.
7.50 p.m.—Choral Concert.
8.30 p.m.—Concert. Cello Sonata (Triclier). Songs: (a) Aria from "The Queen of Sheba" (Goldmark), (b) Aria (Händel). Violin Sonata (Händel). Passacaglia (Halvorsen). Selections (Strauss): (a) Allerseele, (b) Empfehlung. Valse intermède (Merkler-Hubay). Piège incine Schwalbe (Remenyi). Little Russian Fantasia (Pepper). After the Programme, Tzigane Concert and Dance Music from the Spolarich Restaurant on the Margaretinsel.
COLOGNE (Germany)
Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme.
COPENHAGEN (Denmark)
1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.).

Transmits at intervals from 7.30 a.m.
7.0 p.m.—News Bulletin.
7.15 p.m.—Time Signal.
7.30 p.m.—Talk: Barley Groats.
8.0 p.m.—Concert of Modern French Music. Overture, "Le Roi d'Ys" (Lalo). Sicilienne and Sarabande (Chausson). Two Selections (Debussy): (a) Prélude à l'après-midi d'un faune, (b) La cathédrale engloutie. Piece for Oboc and Orchestra (Pierne). Bourrée and Pastorale from "Petites musiques" (Schmitt). Three Selections from "Children's Corner" (Debussy).
9.0 p.m.—"Walpurgis Night"—Wireless Play (Aage Dons).
9.35 p.m.—Danish Song Recital.
10.0 p.m.—News Bulletin.
10.15 p.m.—Concert of Light Music.
10.55 p.m.—Dance Music from the Arena Establishment.
12 midnight (in the interval).—Town Hall Chimes.
12.30 a.m. (Friday).—Close Down.
CORK (Ireland)
(6CK). 1,337 kc/s (225 m.); 1.5 kW. 6.0—10.30 p.m.—See Dublin.
DUBLIN (Ireland)
(2RN). 725 kc/s (413 m.); 1.5 kW. 1.30—2.0 p.m.—Time, Weather and Gramophone Concert.
6.0 p.m.—Gramophone Records.
6.15 p.m.—Programme for Children.
7.0 p.m.—Gramophone Records.
7.10 p.m.—News Bulletin.
7.30 p.m.—Time and French Lesson.
7.45 p.m.—Talk on Literature and the Drama.
8.0 p.m.—Operatic Ballad Concert. The Station Sextet: Selections from Sullivan, Cellier and German. W. J. Hobbs (Tenor): Balfé Songs. T. W. Hall (Bass): Wallace Songs.
9.0 p.m.—Concert. May Fogarty and M. Joyce: Violin and Vocal Recital. The Station String Orchestra. Vocal and Instrumental Selections.
10.30 p.m.—Time, News, Weather and Close Down.
FRANKFURT-am-MAIN (Germany)
770 kc/s (390 m.); 1.7 kW. Relayed by Cassel, 1,220 kc/s (246 m.).

PROGRAMMES FOR FRIDAY (June 26)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME

ALGIERS (N. Africa)
825.3 kc/s (363.4 m.); 13 kW.
Transmits at intervals from 1.30 p.m.
8.30 p.m.—Songs from Opera.
8.45 p.m.—Violin Recital.
8.55 p.m.—News Bulletin.
9.0 p.m.—Twenty-five Years of Popular Tunes.
10.0 p.m.—Orchestral Concert.
11.0 p.m.—Accordion and Banjo Music.
11.15 p.m.—Vocal Tangos.
11.30 p.m.—Gramophone Records.

BARCELONA (Spain)
Radio-Barcelona (E.A.J. 1). 860 kc/s (349 m.); 8 kW.
Transmits at intervals from 8.30 a.m.
8.0 p.m.—Gramophone Records.
9.30 p.m.—Elementary French Lesson.
10.0 p.m.—Chimes, Weather and Exchange.
10.5 p.m.—Theological Talk.
10.20 p.m.—Orchestral Concert.
11.0 p.m.—News Bulletin.
11.5 p.m.—Vicente Diez de Tejada reads one of his own Stories.
11.20 p.m.—Concert by a Mandoline Orchestra. Intermezzo (d'Ambrosio). Ballet Music from "Rosamunde" (Schubert). Moorish Legend (Chavari). Selection from "Cavalleria Rusticana" (Mascagni). Barcarolle (Tchaikovsky). Gavotte (Godard). Spanish Serenade (Planás). Sardana, La Santa Espina (Morera).

12.30 a.m. (Saturday).—Gramophone Records.
1.0 a.m. (approx.).—Close Down.

BERLIN (Germany)
Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW.
Transmits at intervals from 5.45 a.m. (Hamburg Relay).
4.30 p.m.—See Leipzig.
5.30 p.m.—Talk: Self Portraits.
6.0 p.m.—Talk: Unemployment and Settlements.
6.30 p.m.—Educational Talk: Research into Breeding Questions, its Results and Economic Importance.
6.55 p.m.—Weather Report.
7.0 p.m.—Talk for Veterinary Surgeons.
7.30 p.m.—Dialogue between two Young Workers.
7.55 p.m.—Weather Report.
8.0 p.m.—See Leipzig.
8.30 p.m.—See Berlin (Witzleben).
12.30 a.m. (Saturday).—Close Down.

BERLIN (Germany)
Witzleben. 716 kc/s (418 m.); 1.7 kW.
Transmits at intervals from 6.30 a.m. (Gymnastics).
7.5 p.m.—Review of Books.
7.15 p.m.—Bass Song Recital. Prologue, "Mephistopheles" (Boito). Aria from "Sicilian Vespers" (Verdi). Aria from "Moses," and Aria from "The Barber of Seville" (Rossini).
7.35 p.m.—Week-end Hints: Central Germany.
8.0 p.m.—The Interview of the Week.
8.25 p.m.—Practical Hints for Week-end Hikers.
8.30 p.m.—"Das schönste Mädchen im Städtchen"—Comic Opera (Conradi).
10.15 p.m.—News Bulletin.
10.30 p.m. (approx.).—Dance Music with Vocal Refrains.
12.30 a.m. (Saturday).—Close Down.

BERMÜNSTER (Schweizerischer Landessender) (Switzerland)
653 kc/s (450 m.); 77 kW.
Transmits at intervals from 12.30 p.m. 6.30 p.m. (Basle).—Gramophone Records.
7.0 p.m. (Basle).—Dialogue.
7.28 p.m.—Time and Weather.
7.30 p.m. (Basle).—Talk for Anglers.
8.0 p.m.—Choral Concert from a Church in Lucerne.
10.0 p.m.—Weather, News and Close Down.

BORDEAUX-LAFAYETTE (France)
(PTT). 986 kc/s (304 m.); 35 kW.
Transmits at intervals from 12 noon. 6.0 p.m.—Literary Programme.
7.30 p.m.—News Bulletin.
7.40 p.m.—Gramophone Records.
8.5 p.m.—Results of the Prize Draw.
8.10 p.m.—News Bulletin.
8.20 p.m.—Charades.
8.30 p.m.—Vocal and Orchestral

Concert, followed by Amusement Guide and Time Signal.

BRATISLAVA (Czechoslovakia)
1,076 kc/s (279 m.); 14 kW.
Transmits at intervals from 11.0 a.m. 7.0 p.m.—See Prague.
10.10 p.m.—Gramophone Records and Announcements.
10.15 p.m.—See Moravská-Ostrava.

BRESLAU (Germany)
923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.).
Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics).
7.5 p.m. (approx.).—Gramophone Records by the Comedian Harmonists.
7.25 p.m.—Surprise Programme.
7.50 p.m.—Weather Report.
7.55 p.m.—Gramophone Records from the Works of Lehár.
8.20 p.m.—Vocal and Instrumental Concert.
9.10 p.m.—A Topical Review.
9.30 p.m.—"August Kopsich," Radio Sequence (Emil Maxis).
10.20 p.m.—News Bulletin.
10.35 p.m.—The Forty-Fifth Silesian Rowing Regatta.
11.0 p.m.—Weekly Sound News from the Ufa Theatre.
11.15 p.m. (approx.).—Close Down.

BRNO (Czechoslovakia)
878 kc/s (342 m.); 3 kW.
Transmits at intervals from 11.30 a.m. 7.0 p.m.—See Prague.
7.5 p.m.—"Septima"—Wireless Sketch (Rypar).
8.0 p.m.—See Prague.
10.10 p.m.—Announcements.
10.15 p.m.—See Moravská-Ostrava.

BRUSSELS (Belgium)
Radio-Belgique. 590 kc/s (509 m.); 20 kW.
Transmits at intervals from 5.0 p.m. 6.15 p.m.—Talk: Education and Peace.
6.30 p.m.—Gramophone Records.
7.30 p.m.—Music Review.
8.0 p.m.—Orchestral Concert. Marche aux flambeaux (Meyerbeer). La voix des cloches (Luigini). Wedgwood Blue (Kettelbey). Liebestraum (Liszt). Aria from "Aida" (Verdi). Suite (Saint-Saëns).
8.45 p.m.—Educational Talk.
9.0 p.m.—Concert (continued). Le chernin du Paradis (Heymann). Selections (Van Oost): (a) Marche de l'Industrie. (b) La danse des tulipes. (c) Le pont d'amour. Aria from "Hérodiade" (Masset). Selection from "La Bohème" (Leoncavallo). Serenade for Wind Instrument Quartet (Pierné). Rhapsody No. 14 (Liszt). March of the Cadets (Souza).
10.0 p.m.—Le Journal Parlé.

BRUSSELS No. 2 (Belgium)
887 kc/s (338.2 m.); 20 kW. Programme in Flemish.
Transmits at intervals from 5.0 p.m. 6.15 p.m.—Gramophone Records.
7.15 p.m.—Talk on Shortband.
7.30 p.m.—Le Journal Parlé.
8.0 p.m.—Orchestral Concert of Light Music.
8.45 p.m.—Reading from "The Proposal" (Tchekov).
9.0 p.m.—Dance Music.
10.0 p.m.—Le Journal Parlé.

BUCHAREST (Romania)
Radio-Bucarest. 761 kc/s (394 m.); 16 kW.
Transmits at intervals from 12 noon. 7.0 p.m.—Gramophone Records.
7.40 p.m.—Educational Talk.
8.0 p.m.—Dramatic Selection.
8.45 p.m.—"Cavalleria Rusticana"—Opera in One Act (Mascagni), on Gramophone Records.
9.45 p.m.—News Bulletin.

BUDAPEST (Hungary)
545 kc/s (550 m.); 23 kW.
Transmits at intervals from 9.15 a.m. 5.30 p.m.—Vocal and Orchestral Concert. Overture, "Norma" (Bellini). Slow Fox-trot from "The Land of Smiles" (Lehár). Songs: (a) Das Lied ist aus (Stolz), (b) Meine liebe Anna (Markus). Selection from "Die Fledermaus" (Strauss). Hungarian Dance Pieces. Madeleine (Waldteufel). Pasodoble (Labourgaigne-Manichetti).
6.30 p.m.—Programme by Herr Komaromy.
7.0 p.m.—Talk by M. Simonffy.
7.30 p.m.—Tarogato Evening.
8.0 p.m.—Tzigane Concert.
8.45 p.m.—"The Barber of Seville"—Opera (Rossini), on Gramophone Records, followed by Tzigane Concert from the Café Spolarich.

COLOGNE (Germany)
Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW. See Langenberg Programme.

COPENHAGEN (Denmark)
1,067 kc/s (281 m.); 1 kW. Relayed by Kalundborg, 260 kc/s (1,153 m.). Transmits at intervals from 7.30 a.m. (Gymnastics).
7.0 p.m.—News Bulletin.
7.15 p.m.—Time Signal.
7.30 p.m.—(from the Aabenraa Studio).—Talk: Impressions of German Universities.
8.0 p.m.—Ten Minutes by Per Knutzon.
8.10 p.m.—Concert. Part I. Verdi's Works. Overture, "The Force of Destiny." Aria: Pace mio Dio Selection from "Falstaff." Ballet Music from "Othello" Part II. Puccini's Works. Aria from "Madame Butterfly." Selection from "The Girl from the Golden West."
9.10 p.m.—Talk (to be announced).
9.40 p.m.—Songs to the Lute.
10.0 p.m.—News Bulletin.
10.15 p.m.—Concert from the Works of Emil Reszen, conducted by the Composer.
11.0 p.m. (approx.).—Close Down.

CORK (Ireland)
(6 CK). 1,337 kc/s (225 m.); 1.5 kW. 6.0—10.30 p.m.—See Dublin.

DUBLIN (Ireland)
(2 RN) 725 kc/s (413 m.); 1.5 kW. 1.30—2.0 p.m.—Time, Weather and Gramophone Concert.
6.0 p.m.—Gramophone Records.
6.15 p.m.—Programme for Children.
7.0 p.m.—Gramophone Records.
7.20 p.m.—News Bulletin.
7.30 p.m.—Time and Gardening Talk.
7.45 p.m.—Talk (to be announced).
8.0 p.m.—Concert of Gaelic Music. The Station String Orchestra. Eilis Denn (Contra). Tadhg MacFírbhisigh (Amhrain Gaedhíge). L. Molloy (Traditional Fiddle).
9.15 p.m.—Talk by Padraic Colum.
9.30 p.m.—The Station Sextet with Mollic Phillips (Soprano).
10.0 p.m.—Relay from the Royal Dublin Society's Bi-Centenary Ball.
10.30 p.m.—Time, News, Weather and Close Down.

FRANKFURT-am-MAIN (Germany)
770 kc/s (390 m.); 1.7 kW. Relayed by Cassel, 1,220 kc/s (246 m.). Transmits at intervals from 5.55 a.m. (Weather and Gymnastics).
7.10 p.m.—Time and News.
7.15 p.m.—12 midnight.—See Mühlacker.
10.30 p.m. (in an interval).—Time, Weather and News.
12 midnight (approx.).—Close Down.

HAMBURG (Germany)
Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.).
Transmits at intervals from 5.45 a.m. (Time and Weather).
6.5 p.m.—Variety Programme.
7.0 p.m.—Medical Talk.
7.25 p.m.—(from Hanover).—Talk: The Psychological Effects of Unemployment.
7.50 p.m.—Exchange, Market Prices and Weather.
8.0 p.m.—"His Tenor"—Operetta in Three Acts (Otto Goritz).
10.30 p.m.—News Bulletin.
10.50 p.m.—Topical Talk.
11.0 p.m.—(from Bremen).—Concert from the Café Astoria.

HEILSBURG (Germany)
1,085 kc/s (276.5 m.); 75 kW. Relayed by Danzig, 662 kc/s (453 m.).
Transmits at intervals from 6.0 a.m. (Weather and Gymnastics).
7.0 p.m.—Selections from "The Seasons"—Oratorio (Haydn).
8.30 p.m.—Topical Comments and Humorous Moments from South Germany.
9.10 p.m.—News Bulletin.
9.25 p.m.—Quartet in A Minor, Op. 132 (Beethoven), by the Königsberg String Quartet.
10.10 p.m.—Weather and News, followed by Concert and Dance Music from the Park Hotel, Königsberg.

HILVERSUM (Holland)
1,004 kc/s (298 m.); 8.5 kW. 6.25—9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.).

6.25—6.40 a.m. and 7.10—7.25 a.m.—Gymnastics.
7.40 a.m.—Gramophone Records.
9.40 a.m.—Religious Programme of the Liberal Protestant Radio Society (V.P.R.O.).
9.55—11.40 a.m.—V.A.R.A. Programme.
9.55 a.m.—Recitations.
10.10 a.m.—Programme for Hospitals.
11.10 a.m.—Gramophone Records.
11.40 a.m.—3.40 p.m.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.).
11.40 a.m.—Orchestral Concert.
1.40 p.m.—Programme for Schools.
2.10 p.m.—Quartet Concert with Gramophone Records.
3.40—7.40 p.m.—V.A.R.A. Programme.
3.40 p.m.—Organ Recital.
4.10 p.m.—Programme for Children.
4.55 p.m.—Orchestral Concert.
5.25 p.m.—Singing Lesson.
5.45 p.m.—Concert (contd.).
6.10 p.m.—Address.
6.25 p.m.—Concert (contd.).
6.55 p.m.—Talk for Workers.
7.10 p.m.—Concert (contd.).
7.40—10.40 p.m.—V.P.R.O. Programme.
7.40 p.m.—Talk on Russia.
8.10 p.m.—Concert.
8.40 p.m.—Talk: The Dutch National Anthem.
9.10 p.m.—Concert (contd.).
9.40 p.m.—News Bulletin.
9.55 p.m.—Recitations.
10.25 p.m.—Gramophone Records.
10.40—11.40 p.m.—V.A.R.A. Programme. Gramophone Records.
11.40 p.m. (approx.).—Close Down.

HUIZEN (Holland)
160 kc/s (1,875 m.); 8.5 kW. Transmits at intervals from 7.40 a.m. 12.10 p.m. till Close Down.—Programme of the Christian Radio Society (N.C.R.V.).
1.40 p.m.—Gramophone Concert from the Works of French Composers.
2.40 p.m.—Vocal and Instrumental Concert.
4.10 p.m.—Gramophone Records.
4.25 p.m.—Programme to be announced.
4.40 p.m.—Talk by H. J. Steinvort.
5.10 p.m.—Organ Recital from the Westerkerk, Enkhuizen.
6.10 p.m.—A Visit from the Radio Doctor.
6.40 p.m.—Gardening Talk.
7.10 p.m.—Police Notes.
7.25 p.m.—Gramophone Records.
7.40 p.m.—Choral and Band Concert. Talk in the interval.
10.25 p.m.—Gramophone Concert.
11.10 p.m. (approx.).—Close Down.

KALUNDBORG (Denmark)
Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW. See Copenhagen Programme.

KÖNIGSBERG (Germany)
Ostmarken Rundfunk. 1,382 kc/s (217 m.); 1.7 kW. See Heilsberg Programme.

LANGENBERG (Germany)
Westdeutscher Rundfunk. 635 kc/s (473 m.); 17 kW. Relayed by Aachen, Cologne and Münster, 1,319 kc/s (227 m.).
Transmits at intervals from 6.45 a.m. (Exercises).
7.0 p.m.—News Bulletin.
7.10 p.m.—Relay from Alsdorf.
7.55 p.m.—News Bulletin.
8.0 p.m.—Choral Concert of Contemporary Music. Gorm Grymme—for Baritone, Mixed Choir and Orchestra (Maurice). Choral Cantata for Mixed Choir, Soprano and Orchestra (Wedig). "Eiserne Welt"—Melodramatic Work for Male Voice Choir, Bass, Speaker and Orchestra (Knöchel). Lieder des unbekanntesten Soldaten—for Baritone, Mixed Choir and Orchestra (Oppenheimer).
9.50 p.m.—The World on Gramophone Records—A Cabaret in Baghdad.
10.15 p.m.—News Bulletin.
10.30 p.m. (approx.).—Concert.
11.0 p.m.—Dance Music Relay.
12 midnight (approx.).—Close Down.

LEIPZIG (Germany)
1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.).
Transmits at intervals from 6.30 a.m. (Witzleben Relay).
4.30 p.m.—Orchestral Concert.
5.30 p.m.—Weather, Time and Economic Report.
6.0 p.m.—Talk: Villa Home-sites.
6.30 p.m.—English Language Lesson.
6.50 p.m.—Talk (to be announced).
7.0 p.m.—Mandoline Concert.

7.30 p.m.—See Langenberg.
8.0 p.m.—Concert by the Leipzig Symphony Orchestra. Soloist: Alexander Tcherepnin (Pianoforte). Overture, "Die Abreise" (d'Albert). Pianoforte Concerto, No. 2 (Tcherepnin). Scheherazade—Symphonic Suite for Full Orchestra (Rimsky-Korsakoff).
9.10 p.m.—Talk on Economics.
9.20 p.m.—"The South Seas and Alaska"—Extracts from the Works of Jack London.
10.20 p.m.—News Bulletin.
10.35 p.m. (approx.).—Dance Music Relay.
11.30 p.m. (approx.).—Close Down.

LWÓW (Poland)
788 kc/s (381 m.); 21 kW. Transmits at intervals from 11.58 a.m. 6.0 p.m.—Orchestral Concert.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.35 p.m.—Recitations.
7.55 p.m.—See Warsaw. In the interval at 10.30 p.m.—Wireless Correspondence.
12 midnight (approx.).—Close Down.

MADRID (Spain)
Union Radio (E.A.J. 7). 707 kc/s (424 m.); 2 kW. Transmits at intervals from 9.0 a.m. 8.30 p.m.—Chimes, Exchange, Market Prices and Literary Programme.
9.0 p.m.—News Bulletin.
9.10 p.m.—Educational Talk.
9.30—11.0 p.m.—Interval.
11.0 p.m.—Chimes, Time, Exchange Quotations and Symphony Concert on Gramophone Records.
1.0 a.m. (Saturday).—Chimes, News, Programme Announcements for Listeners Abroad, and Dance Music.
1.30 a.m. (approx.).—Close Down.

MILAN (Italy)
Ente Italiano Audizioni Radiofoniche. 599 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.).
Transmits at intervals from 8.15 a.m. 7.0 p.m.—Agricultural Notes and Report of the Royal Geographical Society.
7.15 p.m.—Variety Music.
7.40 p.m.—Announcements.
7.45 p.m.—Gramophone Records.
8.0 p.m. (in the interval).—Time and News.
9.0 p.m.—Talk: From Near and Far.
9.15 p.m.—Concert relayed from the Scala Theatre. In the interval, Book Review. After the Programme, Giornale radio and Music Relay.
11.55 p.m.—News and Results of the Trotting Races from the San Siro Racecourse.

MORAVSKÁ-OSTRAVA (Czechoslovakia)
1,139 kc/s (263 m.); 11 kW. Transmits at intervals from 11.30 a.m. 7.0 p.m.—See Prague.
7.5 p.m.—See Brno.
8.0 p.m.—See Prague.
10.10 p.m.—Announcements.
10.15 p.m.—Orchestral Concert.

MOTALA (Sweden)
221.9 kc/s (1,352 m.); 40 kW. See Stockholm Programme.

MÜHLACKER (Germany)
Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.).
Transmits at intervals from 5.55 a.m. (Time and Weather).
7.10 p.m.—Time and Forthcoming Events in Esperanto.
7.15 p.m.—(from Freiburg).—Medical Talk: Experimenting on Animals in the Cause of Science.
7.45 p.m.—(from Karlsruhe).—Mandoline Concert.
8.25 p.m.—Italian Folk Song Recital.
8.55 p.m.—"Humour and Satire"—Poems and Grotesques (Tucholsky, Polgar, Scherbarth, Valentin and Mynona).
9.25 p.m.—Rhenish Compositions by the Stuttgart Philharmonic Orchestra. Sinfonia piccola (Straesser). Violin Concerto in G Minor (Bruch). Little Comedy Suite (H. Wunsch).
10.30 p.m.—News Bulletin.
10.50 p.m.—See Langenberg.
12 midnight (approx.).—Close Down.

MUNICH (Germany)
563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.).
Transmits at intervals from 6.45 a.m. (Gymnastics).

Programmes for Friday—(Cont.)

7.10 p.m.—Talk: Materialism.—II.
7.30—9.30 p.m.—Relay from Rothenburg.
7.30 p.m.—Military Band Concert, followed by Discussion: On the Town Hall Tower.
8.30 p.m.—Rothenburg Provincial Programme—Choral and Vocal Soloist Selections, Orchestral Music and Recitations.
9.30 p.m.—Orchestral Concert of Symphony Music. Soloist: Josef Köhler (Cello). Rocooco Variations for Cello and Orchestra (Tchaikovsky). Symphony in G Minor (Kallinnuikoff).
10.20 p.m.—Time and News.

OSLO (Norway)
Kringkastingskapet. 280 kc/s (3,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamer, 511 kc/s (587 m.); Notodden, 671 kc/s (447.1 m.); Porsgrund, 662 kc/s (455 m.); and Rjukan, 671 kc/s (447.1 m.).
Transmits at intervals from 10.0 a.m.
6.30 p.m.—Gramophone Records.
7.00 p.m.—News Bulletin.
7.30 p.m.—Talk: From Admiral Peary to Fridtjof Nansen.
8.0 p.m.—Time Signal.
8.2 p.m.—Orchestral Concert. Overture, "Oberon" (Weber). Concerto for Pianoforte and Orchestra (Beethoven). Ballet Music from "Rosamunde" (Schubert). Selection from "Salome" (R. Strauss).
9.35 p.m.—Weather and News.
9.50 p.m.—Topical Talk.
10.5 p.m.—Talk.
10.35 p.m.—Cabaret Programme.
11.5 p.m. (approx.).—Close Down.

PARIS (France)
Eiffel Tower (FLE). 207 kc/s (1,445 m.); 15 kW. Time Signals (at 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals).
6.45 p.m.—Le Journal Parlé.
8.20 p.m.—Meteorological Forecast.
8.30 p.m.—Variety Programme.
9.0 p.m.—Symphony Concert conducted by M. Edouard Filament. The Jupiter Symphony (Mozart-Winter). Selections (Turina-Chapelier): (a) Moorish Song, (b) Doll Dance, (c) The Mosque, Violin Solo. Overture, "The

Barber of Seville" (Rossini-Nardon).

PARIS (France)
Poste Parisien. 914 kc/s (329 m.); 1.2 kW.
9.0 a.m.—Picture Transmission.
7.25 p.m.—Gramophone Records and News.
8.0 p.m.—Concert of Dance Music.
9.15 p.m.—French Song Recital by Music-Hall Artistes.
10.30 p.m. (approx.).—Close Down.

PARIS (France)
Radio-Paris (CFR). 174 kc/s (1,725 m.); 17 kW.
Transmits at intervals from 6.45 a.m. (Physical Culture).
12.30 p.m.—Gramophone Records.
1.0 p.m.—Exchange and News.
1.5 p.m.—Gramophone Concert of Chamber Music. In the intervals at 1.30 p.m. and 2.0 p.m.—Exchange Quotations.
3.30 p.m.—Exchange Quotations.
5.5 p.m.—Exchange Quotations.
6.0 p.m.—Gramophone Records.
6.30 p.m.—Agricultural Report and Racing Results.
7.0 p.m.—Colonial Talk.
7.30 p.m.—Elementary English Lesson.
7.45 p.m.—Commercial Prices, Economic and Social Notes and News.
8.0 p.m.—"The Romantic Night"—Play (Gabrielle Reval) with the Author in the Cast. In the interval at 8.30 p.m.—Sports Results, Weather, Amusement Guide and Talk.
9.15 p.m.—Press Review, News and Time Signal.
9.30 p.m.—Gramophone Records: Symphonie fantastique (Berlioz).

PRAGUE (Czechoslovakia)
Strasnice. 617 kc/s (487 m.); 5.5 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—Time and News.
7.5 p.m.—Songs for Boys.
7.40 p.m.—Talk.
8.0 p.m.—Conservatoire Concert Relay.
9.0 p.m.—Time and News.
10.10 p.m.—Announcements.
10.15 p.m.—See Moravská-Ostrava.
11.0 p.m.—Time; News; Chimes.

RADIO-SUISSE ROMANDE (SOTENS) (Switzerland)
743 kc/s (403 m.); 32 kW.;

Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.).
Transmits at intervals from 12.28 p.m.
7.0 p.m. (from Lausanne).—Organ Recital from the Capitol Theatre.
7.40 p.m. (from Lausanne).—News.
8.0—10.0 p.m.—Neuchâtel Programme.
8.0 p.m.—Talk on Neuchâtel.
8.15 p.m.—Literary Selections by Contemporary Neuchâtel Writers.
8.45 p.m.—Concert from the Works of Contemporary Neuchâtel Composers.
10.0 p.m.—News Bulletin.
10.15 p.m. (approx.).—Close Down.

RIGA (Latvia)
Radio Riga. 572 kc/s (525 m.); 13 kW.
Transmits at intervals from 11.0 a.m.
6.0 p.m.—Talk.
6.30 p.m.—Agricultural Talk.
7.0 p.m.—Weather Report.
7.3 p.m.—Orchestral Concert Relay. Overture, "Don Juan" (Mozart). Suite from "Izyl" (Pierné). Dance Intermezzo (Sibelius). Dorf-schwalbenaus Oesterreich (Strauss). Selection from "Prince Igor" (Borodin). Valse mélancolique (Darzins). Suite, Une fête à Aranjuez (Demersman). Suite No. 1 from "L'Arlesienne" (Bizet). Two Village Dances (Merkling). In a Persian Market (Ketelbey). Two Old Dances (Lacôme). Nocturne (Grieg). Popular Latvian Songs. In the interval at 8.0 p.m.—News.
9.0 p.m.—Weather Report.
9.30 p.m.—Song Recital.
10.0 p.m. (approx.).—Close Down.

ROME (Italy)
Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.); and 3RO, 11,810 kc/s (25.4 m.).
Transmits at intervals from 8.15 a.m. (Giornale radio).
7.35 p.m. (from Naples).—Shipping Report.
7.40 p.m.—News Bulletin.
8.10 p.m.—Gramophone Records.
8.30 p.m.—Time and Announcements.
8.45 p.m.—Review of Art and Literature.
9.0 p.m.—Variety Concert. Overture, "Olympia" (Spontini). Two Soprano Solos from "Ido-

meneo" (Mozart). Soprano Solos: Scottish Songs, Op. 108, with Violin, Cello and Pianoforte accompaniment (Beethoven). Una notte a Taormina (Mulé). Selections from "La boutique fantasque" (Rossini). "La vitima"—Comedy in One Act (Zambaldi). Songs from "L'Elisir d'amore" (Donizetti). Trio from "Crispino e la Comare" (Ricci).
10.55 p.m.—News Bulletin.

STOCKHOLM (Sweden)
Radiotjänst (SASA). 689 kc/s (436 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.).
Transmits at intervals from 8.0 a.m.
6.30 p.m.—Gramophone Records.
7.30 p.m.—Talk: Woods.
8.0 p.m.—English Concert. Suite for Violin and Pianoforte, Tallahassee (Cyril Scott). Songs: (a) A Christmas Carol, and (b) I heard a Piper piping (Bax), (c) Cuckoo Fair (Shaw), (d) The Three Ravens (arr. Ireland), (e) Where be you going (arr. Cyril Scott). Pianoforte Solos: (a) Christmas Day in the Morning (Holst), (b) The Bird (York Bowen), (c) Concert Etude in G Flat Major (Rosenbloom). Violin Solos: (a) Lotus Land (Scott-Kreisler). La Capricieuse (Elgar).
8.45 p.m.—Talk: The Swedish Educational System.
9.40 p.m.—Report of the Royal Automobile Club.
9.45 p.m.—Light Music and Song Recital.
11.0 p.m. (approx.).—Close Down.

STRASBOURG (France)
Radio-Strasbourg (PIT). 869 kc/s (345 m.); 15 kW.
Transmits at intervals from 11.30 a.m.
6.0 p.m.—Orchestral Concert.
6.45 p.m.—Legal Talk in German.
7.0 p.m.—Orchestral Concert. March, El Capitan (Souza). Waltz, L'É Barcarole (Waldteufel). Slavonic Dance, No. 6 (Dvorak). Selection from "Phi-Phi" (Christiné). Overture, "Le Petit Faust" (Hervé).
7.30 p.m.—Time Signal.
7.32 p.m.—News in French and German.

7.45 p.m.—Gramophone Records.
8.30 p.m.—Mandoline Concert.
9.30 p.m.—Gramophone Records.—Mozart Programme.
10.30 p.m. (approx.).—Close Down.

TOULOUSE (France)
Radiophonie du Midi. 779 kc/s (385 m.); 8 kW.
Transmits at intervals from 12.45 p.m.
7.30 p.m.—News Bulletin.
7.45 p.m.—Dance Music.
8.0 p.m.—Songs from Opéra-Comique.
8.15 p.m.—Musical Programme.
10.30 p.m.—News Bulletin.
10.45 p.m.—Musical Programme.
11.15 p.m. (in an interval).—North African News.
12 midnight.—Weather and Announcements.

VIENNA (Austria)
Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.).
Transmits at intervals from 9.20 a.m.
6.55 p.m.—Elementary Italian Lesson.
7.20 p.m.—Time and News.
7.30 p.m.—Relay from the State Opera House.
10.5 p.m.—Weather and News.
10.15 p.m.—Dance Music.

WARSAW (Poland)
Polskie Radio. 212 kc/s (1,411 m.); 18 kW.
Transmits at intervals from 11.40 a.m.
6.0 p.m.—See Lvów.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.40 p.m.—Agricultural Report.
7.55 p.m.—Radio Report.
8.0 p.m.—Radio Journal.
8.15 p.m.—Concert by the Warsaw Philharmonic Orchestra. Overture, "Genevra" (Schumann). The Unfinished Symphony in B Minor (Schubert). Concerto for Violin (Mendelssohn). Theatre Review. Suite from "A Midsummer Night's Dream" (Mendelssohn).
10.0 p.m.—Reading.
10.15 p.m.—Radio Journal, Police and Sports Notes.
10.25 p.m.—Programme Announcements.
10.30 p.m.—Light Music and Dance Items.
12 midnight (approx.).—Close Down.

PROGRAMMES FOR SATURDAY (June 27)

NOTE: THE HOURS OF TRANSMISSION ARE REDUCED TO BRITISH SUMMER TIME

ALGIERS (N. Africa)
825.3 kc/s (363.4 m.); 13 kW.
Transmits at intervals from 1.30 p.m.
8.15 p.m.—Dance Music.
8.55 p.m.—News Bulletin.
9.0 p.m.—Request Gramophone Records.
10.0 p.m.—Military Marches.
10.15 p.m.—Music Hall Programme.
10.45 p.m.—Gramophone Records.
11.15 p.m.—Organ Recital.
11.30 p.m.—Spanish Songs.
11.45 p.m.—English Dance Music.

BARCELONA (Spain)
Radio-Barcelona (EAJI). 860 kc/s (349 m.); 8 kW.
Transmits at intervals from 8.30 a.m.
8.0 p.m.—Gramophone Records.
9.30 p.m.—Elementary German Lesson.
10.0 p.m.—Chimes, Weather, Exchange and Agricultural Report.
10.5 p.m.—Orchestral Concert.
11.0 p.m.—News Bulletin.
11.5 p.m.—Municipal Band Concert from the Palacio de Bellas Artes.

BELGRADE (Yugoslavia)
697 kc/s (431 m.); 3 kW.
Transmits at intervals from 11.30 a.m.
7.50 p.m.—Talk on the following Transmission.
8.0 p.m.—See Zagreb.
9.30 p.m. (in an interval).—News Bulletin. After the Programme, Probable Relay of Tzigane Music.

BERLIN (Germany)
Königs Wusterhausen. 183 kc/s (1,635 m.); 75 kW.
Transmits at intervals from 5.45 a.m. (Hamburg Relay).
4.30 p.m.—See Hamburg.
5.30 p.m.—Talk: Our Daily Bread and Our Teeth.
6.0 p.m.—Advanced French Lesson.
6.30 p.m.—Talk: Zig-Zag Methods in Human Development.
6.55 p.m.—Weather Report, followed by Talk: The Luxury Problem.
7.20 p.m.—"The Quiet Hour"—"Father, Mother and Child"—Radio Sequence (Ilse Weiss).

8.0 p.m.—Weather Report.
8.5 p.m. (approx.).—See Hamburg.
9.0 p.m.—See Berlin (Witzleben).
12.30 a.m. (Sunday).—Close Down.

BERLIN (Germany)
Witzleben. 716 kc/s (418 m.); 1.7 kW.
Transmits at intervals from 6.30 a.m. (Gymnastics).
4.5 p.m.—Concert. Overture, "Anna Bolena" (Donizetti). Ballet Suite, La Source (Delibes). Waltz, Telegramme (Joh. Strauss). Serenade in A Major (Bernheimer). Ein Tonmärchen (Olsen). Sweden in Song and Dance (Pagel). Serenade, On Lake Maggiore (Heusser). Overture, "The Grand Duchess of Gerolstein" (Offenbach). Selection from "Don Cesar" (Dellinger). Song, Was ich längst erträumte (Lehar). Overture, "Waldmeister" (Joh. Strauss).
6.0 p.m.—The Narrative of the Week.
6.25 p.m.—Duet Recital, for Violin and Pianoforte. Aria, Op. 10 (Jarnach). Sonata in G Major, Op. 78 (Brahms).
7.0 p.m.—Talk: Has the Prussian School Reform succeeded?—Youth's Answer.
7.25 p.m.—Labour Market Report.
7.30 p.m.—Memorial Programme on the Centenary of the Birth of Joseph Joachim, relayed from the High School of Music. Overture for Full Orchestra, Op. 13. Address. Concerto in Hungarian Style for Violin and Orchestra, Op. 11 (dedicated to Brahms).
8.45 p.m.—News; Sports Notes.
9.0 p.m.—"The Traffic Bureau"—a Variety Programme.
10.0 p.m.—News Bulletin.
10.15 p.m. (approx.).—Dance Music.
12.30 a.m. (Sunday).—Close Down.

BEROMÜNSTER (Schweizerischer Landessender) (Switzerland)
653 kc/s (459 m.); 77 kW.
Transmits at intervals from 12.30 p.m.
6.30 p.m. (Zürich).—Gramophone Records.
7.0 p.m. (Zürich).—Chimes from the Zürich Churches.

7.15 p.m. (Zürich).—Talk.
7.25 p.m.—Time and Weather.
7.30 p.m. (Zürich).—Talk on Africa.
8.0 p.m. (Basle).—"La Croisade des Enfants"—Musical Legend (Pierné) for Soloists, Choir and Orchestra, relayed from the Concert Hall of the Sample Fair.
10.0 p.m.—Weather and News.
10.10 p.m. (Basle).—Dance Music.
11.0 p.m. (approx.).—Close Down.

BORDEAUX-LAFAYETTE (France)
(PTT). 986 kc/s (304 m.); 35 kW.
Transmits at intervals from 12.45 p.m.
6.30 p.m.—Radio Journal.
8.0 p.m.—News Bulletin.
8.5 p.m.—Sports Talk.
8.10 p.m.—English Lesson.
8.25 p.m.—Results of the Prize Draw.
8.45 p.m.—"Blanchette"—Comedy in Three Acts (Brieux), followed by Amusement Guide and Time Signal.

BRATISLAVA (Czechoslovakia)
1,076 kc/s (279 m.); 14 kW.
Transmits at intervals from 11.0 a.m.
7.0 p.m.—See Prague.
10.20 p.m.—Announcements.
10.25 p.m.—See Moravská-Ostrava.

BRESLAU (Germany)
923 kc/s (325 m.); 1.7 kW. Relayed by Gleiwitz, 1,184 kc/s (253 m.).
Transmits at intervals from 6.30 a.m. (Alarm and Gymnastics).
6.55 p.m. (approx.).—Gramophone Concert of Austrian Folk Music.
7.30 p.m.—See Langenberg.
8.0 p.m.—Weather Report.
8.5 p.m.—The Patent Microphone—Humorous Programme.
9.0 p.m.—News Bulletin.
9.10 p.m.—Concert by the Silesian Philharmonic Orchestra.
10.30 p.m.—News Bulletin.
10.50 p.m.—See Berlin (Witzleben).
12.30 a.m. (Sunday).—Close Down.

BRNO (Czechoslovakia)
878 kc/s (342 m.); 3 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—See Prague.
10.20 p.m.—Announcements.
10.25 p.m.—See Moravská-Ostrava.

BRUSSELS (Belgium)
Radio-Belgique. 590 kc/s (509 m.); 20 kW.
Transmits at intervals from 5.0 a.m. (Pigeon-Flying Notes).
6.15 p.m.—Talk by M. Blanchart, Vice-President of the Union Radio Club of Belgium.
6.30 p.m.—Gramophone Records.
7.15 p.m.—Talk: Women Poets in Belgium.
7.30 p.m.—Literary Review.
8.0 p.m.—Concert of Military Music.
8.45 p.m.—The Belgian Congo—Readings from the Works of Stanley, Jadot, Daye and Mathelin de Papigny.
9.0 p.m.—Concert (continued).
9.30 p.m.—Orchestral Concert.
10.0 p.m.—Le Journal Parlé.

BRUSSELS No. 2 (Belgium)
887 kc/s (338.2 m.); 20 kW.
Programme in Flemish.
Transmits at intervals from 5.0 p.m.
6.15 p.m.—Talk: Folklore and Literature.
6.30 p.m.—Gramophone Records.
7.15 p.m.—Talk by Mr. Hans.
7.30 p.m.—Le Journal Parlé.
8.0 p.m.—"Princess Rayon de Soleil"—Opera (Gilson).
10.0 p.m.—Le Journal Parlé.

BUCHAREST (Romania)
Radio-Bucarest. 761 kc/s (394 m.); 16 kW.
Transmits at intervals from 12 noon.
5.0 p.m.—Orchestral Concert of Light Music and Romanian Music.
6.0 p.m.—News and Time.
6.45 p.m.—Talk (to be announced).
7.0 p.m.—Gramophone Records.
7.40 p.m.—Educational Talk.
8.0 p.m.—"The Secret Marriage"—Opera in Three Acts (Cimarosa).—News in the intervals.
BUDAPEST (Hungary)
545 kc/s (550 m.); 23 kW.
Transmits at intervals from 9.15 a.m.
5.25 p.m.—Tzigane Concert.
6.45 p.m.—Programme by Herr Lyka.
7.15 p.m.—Dance Music.
8.15 p.m.—Humorous Talk.
8.35 p.m.—Joachim Centenary Concert, conducted by Ernst Dohnanyi, with Memorial Address; followed by Tzigane Concert from the Café Baross.

COLOGNE (Germany)
Westdeutscher Rundfunk. 1,319 kc/s (227 m.); 1.7 kW.
See Langenberg Programme.

COPENHAGEN (Denmark)
1,067 kc/s (281 m.); 1 kW.
Relayed by Kalundborg, 260 kc/s (1,153 m.).
Transmits at intervals from 7.30 a.m. (Gymnastics).
7.0 p.m.—News Bulletin.
7.15 p.m.—Time Signal.
7.30 p.m.—Talk for Tourists.
8.0 p.m.—Danish Provincial Programme. Møen Island. Talk and Songs.
9.0 p.m.—Concert from the Less-Known Works of Lumbye.
10.0 p.m.—News Bulletin.
10.15 p.m.—Readings in Zealand Dialect.
10.45 p.m.—Dance Music from the Wivel Restaurant.
12 midnight (in the interval).—Town Hall Chimes.
12.15 a.m. (Sunday).—Close Down.

CORK (Ireland)
(6CK.) 1,337 kc/s (225 m.); 1.5 kW.
7.30—10.30 p.m.—See Dublin.

DUBLIN (Ireland)
(2RN.) 725 kc/s (413 m.); 1.5 kW.
1.30—2.0 p.m.—Time, Weather and Gramophone Concert.
7.20 p.m.—News Bulletin.
7.30 p.m.—Time Signal.
7.32 p.m.—Blanche Mercer; Monologues.
7.45 p.m.—Irish Lesson.
8.0 p.m.—2RN Symphony Concert, conducted by Mr. Vincent O'Brien.
10.30 p.m.—Time, News, Weather and Close Down.

FRANKFURT-am-MAIN (Germany)
770 kc/s (390 m.); 1.7 kW. Relayed by Cassel, 1,220 kc/s (246 m.).
Transmits at intervals from 5.55 a.m. (Weather and Gymnastics).
7.15 p.m.—Time and News.
7.20 p.m.—Spanish Language Lesson.
7.45 p.m.—Gramophone Review.
8.30 p.m.—Soldier Songs of the Great War by the Station Male Voice Choir, with Commentary.
9.30 p.m.—Concert of Marches.

Programmes for Saturday—(Cont.)

10.30 p.m.—Time, Weather and News.
10.50 p.m.—Dance Music.
12 midnight (approx.)—Close Down.

HAMBURG (Germany)

Norag (ha, in Morse). 806 kc/s (372 m.); 1.7 kW. Relayed by Bremen, 1,112 kc/s (270 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 530 kc/s (566 m.); and Kiel, 1,292 kc/s (232.2 m.).
Transmits at intervals from 5.45 a.m. (Time and Weather).
4.15 p.m.—Open Air Concert.
5.30 p.m.—Dialogue on Books: German Publishers.
6.0 p.m.—Hanseatic Musical Research: Modern Greek Music—Musical and Literary Selections with Commentary.
6.45 p.m.—Variety Programme.
7.55 p.m.—Weather Report.
8.0 p.m.—Music on Popular Instruments.
10.0 p.m.—News Bulletin.
10.20 p.m.—Topical Talk.
10.30 p.m.—Dance Music.

HEILSBURG (Germany)

1,085 kc/s (276.5 m.); 75 kW. Relayed by Danzig, 662 kc/s (453 m.).
Transmits at intervals from 6.0 a.m. (Weather and Gymnastics).
6.10 p.m.—Agricultural Prices.
6.25 p.m.—World Market Prices.
6.35 p.m.—Programme Announcements in German and Esperanto.
6.55 p.m.—Weather Report.
7.0 p.m.—Monthly Review.
7.30 p.m.—See Berlin (Witzleben).
8.30 p.m.—See Langenberg.
10.10 p.m.—Weather and News.
10.30 p.m.—See Berlin (Witzleben).
12.30 a.m. (Sunday)—Close Down.

HILVERSUM (Holland)

1,004 kc/s (298 m.); 8.5 kW.
7.40-9.40 a.m.—Programme of the Workers' Radio Society (V.A.R.A.).
7.40 a.m.—Gramophone Records.
9.40 a.m.—Religious Programme of the Liberal Protestant Radio Society (V.P.R.O.).
9.55 a.m. till Close Down.—V.A.R.A. Programme.
9.55 a.m.—Programme for Workers.
11.40 a.m.—Gramophone Records.
1.25-1.55 p.m.—Talk by Mr. Thijsen.
2.10 p.m.—Talk by Mr. Landré.
2.40 p.m.—Mandoline Concert.
2.55 p.m.—Address.
3.25 p.m.—Concert (continued).
3.55 p.m.—Programme for Children.
4.25 p.m.—Espéranto Lesson.
5.15 p.m.—Choral Concert.
5.40 p.m.—Talk by Mr. Woudenberg.
5.55 p.m.—Concert (continued).
6.10 p.m.—Literary Talk.
6.55 p.m.—Variety Items.
7.30 p.m.—Talk by Mr. de Vries.
7.40 p.m.—Orchestral Concert with Gramophone Records and Recitations.
11.40 p.m. (approx.)—Close Down.

HUIZEN (Holland)

160 kc/s (1,875 m.); 8.5 kW.
Transmits at intervals from 7.40 a.m.
11.55 a.m. till Close Down.—Programme of the Catholic Radio Society (K.R.O.).
11.55 a.m.—Sextet Concert.
1.25 p.m.—Gramophone Records.
2.10 p.m.—Question Time for Young People.
2.40-4.10 p.m.—Programme for Children.
4.25 p.m.—Instrumental Concert.
5.40 p.m.—Sports Talk.
5.55 p.m.—Press Review.
6.15 p.m.—Gramophone Records.
6.40 p.m.—Talk by Mr. Pilaar.
7.10 p.m.—Police Notes.
7.25 p.m.—Gramophone Records.
7.40 p.m.—Orchestral Concert, with Songs and Accordion Selections.
8.40 p.m. (in the interval).—News and Talk.
10.40 p.m.—Gramophone Records.
11.40 p.m. (approx.)—Close Down.

KALUNDBORG (Denmark)

Kalundborg Radio. 260 kc/s (1,153 m.); 10 kW.
See Copenhagen Programme.
KÖNIGSBERG (Germany)
Ostmarken Rundfunk. 1,382 kc/s (217 m.); 1.7 kW.
See Heilsberg Programme.

LANGENBERG (Germany)

Westdeutscher Rundfunk. 635 kc/s (473 m.); 17 kW. Relayed by Aachen, Cologne and Münster, 1,319 kc/s (227 m.).
Transmits at intervals from 6.45 a.m. (Exercises).
7.0 p.m.—News Bulletin.
7.15 p.m.—Wireless Talk: The Latest Wireless Literature.
7.30 p.m.—Talk: Seventy-Five Years of the German Engineers' Association.
7.55 p.m.—News Bulletin.

8.0 p.m.—Variety Programme, followed by News.
10.30 p.m.—Concert, including Songs to the Lute.
11.30 p.m.—Dance Music Relay.
1.0 a.m. (Sunday)—Close Down.

LEIPZIG (Germany)

1,157 kc/s (259 m.); 2.3 kW. Relayed by Dresden, 941 kc/s (319 m.).
Transmits at intervals from 6.30 a.m. (Witzleben Relay).
7.0 p.m.—Talk: On the Borders of Natural Science—Medicine.
7.30 p.m.—Werner Finck of the Berlin Cabaret, "Katakombe"—in Selections from his Repertoire.
8.20 p.m.—Concert of Old Dances.
9.20 p.m.—Operetta Melodies.
10.20 p.m.—News Bulletin.
10.40 p.m.—Popular Melodies and Dance Music.
12 midnight (approx.)—Close Down.

LWÓW (Poland)

788 kc/s (381 m.); 21 kW.
Transmits at intervals from 11.58 a.m.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Literary Programme.
7.40 p.m.—See Warsaw.
12 midnight (approx.)—Close Down.

MADRID (Spain)

Union Radio (EA17). 707 kc/s (424 m.); 2 kW.
Transmits at intervals from 9.0 a.m.
8.30 p.m.—Chimes, Market Prices and Dance Music.
9.0 p.m.—News Bulletin.
9.10 p.m.—Dance Music (continued).
9.30-11.0 p.m.—Interval.
11.0 p.m.—Chimes, Time and Musical Comedy Selections.
1.0 a.m. (Sunday)—Chimes and News.
1.30 a.m. (approx.)—Close Down.

MILAN (Italy)

Ente Italiano Audizioni Radiofoniche. 599 kc/s (501 m.); 8.5 kW. Programme relayed by Turin, 1,013 kc/s (296 m.); and Genoa, 959 kc/s (312.8 m.).
Transmits at intervals from 8.15 a.m.
7.0 p.m.—Agricultural Report.
7.10 p.m.—Concert. Overture, "Don Juan" (Mozart). Song. Selection from "Adrienne Lecouvreur" (Cilea). Song. March, Gloria (Schröder).
7.40 p.m.—News Bulletin.
7.45 p.m.—Gramophone Records.
8.0 p.m. (in the interval).—Time and News.
8.45 p.m.—Talk: Events and Problems.
9.0 p.m.—"In the Country"—Comedy in One Act (Greyille).
9.35 p.m.—Choral Concert.
11.0 p.m.—Giornale Radio and Dance Music Relay.
11.55 p.m.—News Bulletin.

MORAVSKÁ-OSTRAVA (Czechoslovakia)

1,139 kc/s (263 m.); 11 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—See Prague.
10.20 p.m.—Announcements.
10.25 p.m.—One Act Play, Songs and Dance Music.

MOTALA (Sweden)

221.9 kc/s (1,352 m.); 40 kW. See Stockholm Programme.

MÜHLACKER (Germany)

Süddeutscher Rundfunk. 833 kc/s (360 m.); 75 kW. Relayed by Freiburg, 527 kc/s (570 m.).
Transmits at intervals from 5.55 a.m. (Time and Weather).
7.15 p.m.—Time Signal.
7.20 p.m.—12 midnight.—See Frankfurt.
10.30 p.m. (in an interval).—News Bulletin.
12 midnight (approx.)—Close Down.

MUNICH (Germany)

563 kc/s (533 m.); 1.7 kW. Relayed by Augsburg and Kaiserslautern, 536 kc/s (560 m.), and Nürnberg, 1,256 kc/s (239 m.).
Transmits at intervals from 6.45 a.m. (Gymnastics).
6.35 p.m.—Concert of Old Music.
7.10 p.m.—"A Fresh Clue in the Search for the Unknown Person?"
7.30 p.m.—See Langenberg.
7.55 p.m.—"Der G'wissenssturm"—Peasant Comedy with Song in Three Acts (Anzengruber).
9.25 p.m.—Variety Programme.
10.20 p.m.—Time and News.
10.45 p.m. (from Nürnberg)—Concert and Dance Music from the Café Königshof.
12 midnight (approx.)—Close Down.

OSLO (Norway)

Kringkastingsselskapet. 280 kc/s (1,071 m.); 75 kW. Relayed by Fredrikstad, 815 kc/s (368 m.); Hamar, 511 kc/s (587 m.); Notodden, 671 kc/s (447.1 m.); Porsgründ, 662 kc/s (453 m.); and Rjukan, 671 kc/s (447.1 m.).
Transmits at intervals from 11.5 a.m.

6.30 p.m.—News Bulletin.
7.30 p.m.—Talk on the Operatic Relays.
8.0 p.m.—Time Signal.
8.2 p.m.—"I Pagliacci"—Opera (Leoncavallo) and "Cavalleria Rusticana"—Opera (Mascagni), relayed from the National Theatre. In the interval, Weather, News and Topical Talk.
11.0 p.m. (approx.)—Close Down.

PARIS (France)

Eiffel Tower (FLE). 207 kc/s (1,445 m.); 15 kW. Time Signals (on 2,650 m.) at 10.25 a.m. and 11.25 p.m. (preliminary and 6-dot signals).
6.45 p.m.—Le Journal Parlé.
8.20 p.m.—Meteorological Forecast.
8.30 p.m.—Descriptive Pianoforte Music, with Introductory Talk: Animals. La Poule (Rameau). Le Coucou (Daquin). L'Anguille (Couperin). Les Papillons (Couperin). The Trout (Schubert-Liszt). L'An blanc (Ibert). The Nightingale (Liszt).
9.0 p.m.—Romanian Festival. Address by M. Dinu Ceciano, Romanian Minister. Romanian Poems from the Works of Hélène Vacaresco, Anghel and Alexandri. Pianoforte Solos. Romanian Songs. Recitations (Baudelaire). Popular Romanian Songs.
9.0 p.m.—Picture Transmission.
1.2 kW.
9.0 a.m.—Gramophone Records and News.
8.45 p.m.—Theatre Talk, Gramophone Records and News.
9.0 p.m.—Concert. Overture, "Une éducation manquée" (Chabrier). Gigue for Flute and Orchestra (Hüe). Pacific 231 (Honegger). Catalane, for Viola and Orchestra (Büsser). Les Escapes (Ibert). Berceuse (Järnefelt). Marche des petits soldats de plomb (Pierné).

PARIS (France)

Poste Parisien. 914 kc/s (329 m.). 1.2 kW.
9.0 a.m.—Picture Transmission.
8.25 p.m.—Gramophone Records and News.
8.45 p.m.—Theatre Talk, Gramophone Records and News.
9.0 p.m.—Concert. Overture, "Une éducation manquée" (Chabrier). Gigue for Flute and Orchestra (Hüe). Pacific 231 (Honegger). Catalane, for Viola and Orchestra (Büsser). Les Escapes (Ibert). Berceuse (Järnefelt). Marche des petits soldats de plomb (Pierné).

PARIS (France)

Radio-Paris (CFR). 174 kc/s (1,725 m.); 17 kW.
Transmits at intervals from 6.45 a.m. (Physical Culture).
12.30 p.m.—Gramophone Concert. In the interval, News.
3.45 p.m.—Programme for Children.
4.30 p.m.—Dance Music.
6.0 p.m.—Gramophone Records.
6.30 p.m.—Agricultural Talk, Racing Results and Market Prices.
7.0 p.m.—Talk arranged by the Union des Grandes Associations Françaises.
7.10 p.m.—Science Talk.
7.30 p.m.—Advanced English Lesson.
7.45 p.m.—Commercial Prices, Economic and Social Notes and News.
8.0 p.m.—Literary Readings.
8.30 p.m.—News, Sports Results and Weather.
8.40 p.m.—Talk.
8.45 p.m.—Gramophone Records. In the interval at 9.15 p.m.—Press Review, News and Time Signal.

PRAGUE (Czechoslovakia)

Strasnice. 617 kc/s (487 m.); 5.5 kW.
Transmits at intervals from 11.30 a.m.
7.0 p.m.—Time and News.
7.5 p.m.—Bagpipe Selections.
7.35 p.m.—Talk.
7.45 p.m.—A Sketch.
7.55 p.m.—Cabaret Programme.
8.55 p.m.—News Bulletin.
9.0 p.m.—Time, News and Brass Band Concert.
10.0 p.m.—Time and News.
10.15 p.m.—Announcements and Report on the Horse Racing at Chuchle.
10.20 p.m.—Announcements.
10.25 p.m.—See Moravská-Ostrava.

RABAT (Morocco)

Radio-Maroc. 721.1 kc/s (416 m.); 2.5 kW.
Transmits at intervals from 1.30 p.m.
8.0 p.m.—Arab Programme—Talk, Radio Journal and Gramophone Records.
8.45 p.m.—News and Radio Journal.
9.0 p.m.—Concert of Italian Music. Selection from "La Bohème" (Leoncavallo). Song: Mattinata (Leoncavallo). Selection from "The Girl of the Golden West" (Puccini). Aria from "La Bohème" (Puccini). Selection from "Cavalleria Rusticana" (Mascagni). Selection from "I Pagliacci" (Leoncavallo).
10.0 p.m.—Medical Talk.
10.15 p.m.—Light Music and Dance Music.

RADIO-SUISSE ROMANDE (SOTTENS) (Switzerland)

743 kc/s (403 m.); 32 kW. Lausanne, 442 kc/s (680 m.); and Geneva, 395 kc/s (760 m.).
Transmits at intervals from 12.28 p.m.

7.0 p.m. (from Lausanne)—Dance Music.
7.40 p.m. (from Lausanne)—News Bulletin.
8.0 p.m.—Orchestral Concert.
9.0 p.m.—Relay of Speeches from the General Meeting of the International Wireless Union at the Hotel Victoria, Zermatt.
9.30 p.m. (from Geneva)—Cabaret.
10.15 p.m.—News Bulletin.
10.30 p.m. (from Geneva)—Dance Music from the Kursaal.
11.0 p.m. (approx.)—Close Down.

RIGA (Latvia)

Radio-Riga. 572 kc/s (525 m.); 13 kW.
Transmits at intervals from 11.0 a.m.
6.0 p.m.—Talk.
6.30 p.m.—Agricultural Talk.
7.0 p.m.—Weather Report.
7.3 p.m.—Orchestral Concert Relay. Overture, "Die Fledermaus" (Strauss). Selection from "The Czarevitch" (Lehár). Waltz (Joh. Strauss). Overture, "Orpheus in the Underworld" (Offenbach).
8.0 p.m.—News Bulletin.
8.20 p.m.—Concert (continued). Overture, "Eva" (Lehár). Three Songs from "Frederica" (Lehár). Song from "The Circus Princess" (Kálmán). Mon rêve (Waldteufel). Gold and Silver (Lehár). Egyptian March (Strauss).
9.0 p.m.—Weather Report.
9.30 p.m.—Dance Music.
11.0 p.m. (approx.)—Close Down.

ROME (Italy)

Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 75 kW. Relayed by Naples, 905 kc/s (332 m.); and 3RO, 11,810 kc/s (25.4 m.).
Transmits at intervals from 8.15 a.m. (Giornale Radio).
7.35 p.m. (from Naples)—Shipping Notes.
7.40 p.m.—News Bulletin.
8.10 p.m.—Gramophone Records.
8.30 p.m.—Time and Announcements.
9.0 p.m.—"Siberia"—Opera in Three Acts (Giordano). Announcements and Talk in the intervals. News after the Programme.

SCHENECTADY (U.S.A.)

General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kW. Relayed at intervals by W2XAF on 9,530 kc/s (31.48 m.) and by W2XAD on 15,340 kc/s (19.56 m.).
Transmits at intervals from 11.45 a.m.
11.44 p.m.—Weather Report.
11.45 p.m.—New York Relay.
12 midnight.—Time Signal.
12.1 a.m. (Sunday)—Piano Solos.
12.15 a.m.—New York Relay. In the interval at 2.0 a.m.—General Electric Programme.
5.0 a.m.—The Hotel DeWitt Clinton Orchestra, Albany, N.Y.
5.30 a.m.—The Hotel Kenmore Orchestra, Albany, N.Y.
6.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiojätten (SASA). 689 kc/s (436 m.); 75 kW. Relayed by Boden, 244 kc/s (1,229.5 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 221.9 kc/s (1,352 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.).
Transmits at intervals from 8.0 a.m.
6.30 p.m.—Talk on Hygiene.
6.45 p.m.—Military Band Concert.
7.45 p.m.—Talk on Ghosts.
8.15 p.m.—Saturday Evening—"The Week's Comedy," Light Music and Guitar Solos.
9.40 p.m.—Old Time Dance Music.
10.40 p.m.—Modern Dance Music, relayed from Göteborg.
12 midnight (approx.)—Close Down.

STRASBOURG (France)

Radio-Strasbourg (PTT). 869 kc/s (345 m.); 15 kW.
Transmits at intervals from 11.30 a.m.
6.0 p.m.—Orchestral Concert. Overture, "Maritana" (Wallace). Élegie from "La Reine Fiammette" (Leroux). Ballet Music from "Lakmé" (Delibes). Song. Nostalgia (Dyck). In the Shadows (Finck). Dance of the Hours from "La Gioconda" (Ponchielli).
6.45 p.m.—Talk in French: Tourist Organisation in Alsace and the Vosges.
7.0 p.m.—Orchestral Concert. March, Manhattan Beach (Souza). Waltz, Pluie de diamants (Waldteufel). French Comedy Overture (Kéler-Béla). Selection from "The Gipsy Baron" (Joh. Strauss).
7.30 p.m.—Time Signal.
7.32 p.m.—News in French and German.
7.45 p.m.—"Der Freischütz"—Opera (Weber)—Abridged Version on Gramophone Records.

8.30 p.m.—Opéra-Comique Selection: "Le Petit Duc" (Meilhac-Halévy).
10.30 p.m.—Dance Music from the Niederbronn-les-Bains Casino.
12 midnight (approx.)—Close Down.

TOULOUSE (France)

Radiophonie du Midi. 779 kc/s (385 m.); 8 kW.
Transmits at intervals from 12.45 p.m.
7.0 p.m.—Symphony (Schubert).
7.15 p.m.—"Cello Recital. Träumerei (Schumann). La Fileuse (Popper). Sérénade (Pierné). Prelude to "Le Déluge" (Debussy).
7.30 p.m.—News Bulletin.
7.45 p.m.—Orchestral Selections.
8.0 p.m.—Solo Selections.
8.15 p.m.—Mandoline Music.
8.20 p.m.—Balalaika Music.
8.30 p.m.—Popular Songs.
8.45 p.m.—Argentine Tangos.
8.55 p.m.—Fashion Notes.
9.0 p.m.—Selections from "Faust" (Gounod). In the intervals, at 10.30 p.m.—News and at 11.15 p.m.—North African News.
12 midnight.—Weather and Announcements.

VIENNA (Austria)

Radio-Wien. 581 kc/s (517 m.); 20 kW. Relayed by Graz, 851 kc/s (352 m.); Innsbruck, 1,058 kc/s (283 m.); Klagenfurt, 662 kc/s (453.2 m.); Linz, 1,220 kc/s (246 m.); and Salzburg, 1,373 kc/s (218 m.).
Transmits at intervals from 9.20 a.m.
6.30 p.m.—Time, Weather and News.
6.45 p.m.—Topical Programme.
7.10 p.m.—Talk: An Ebner-Eschenbach Memorial.
7.20 p.m.—Song Recital. Selections (Schubert): (a) Der Doppelgänger, (b) To Sylvia, (c) Jägers Abendlied, (d) Der Wanderer an den Mond. The Captives (Gretchaninoff). Song (Tchaikovsky). Selections (R. Trunk): (a) Die Stadt, (b) In meiner Heimat. Selections (R. Strauss): (a) Befreit, (b) Traum durch die Dämmerung, (c) Kling! Ich Hochzeitslied (Loewe).
8.10 p.m.—"The Man who drove his Conscience"—Play in Three Acts and a Prelude (Maurice Rostand), relayed from the German People's Theatre.
10.25 p.m.—Weather and News.
10.45 p.m.—Orchestral Concert from the Hotel Krantz-Ambassador. Overture, "Das Veilchenmädle" (Hellmesberger). Nile Waltz (J. Klein). Une peu d'amour (Silesu). Ballgüster (Meyer-Helmund). Ich bin ein Wienerkind (Lehár). Marching Song, Ich bin zum letztenmal verliebt (Lehár).

WARSAW (Poland)

Polskie Radio. 212 kc/s (1,411 m.); 158 kW.
Transmits at intervals from 11.40 a.m.
6.0 p.m.—Soloist Concert.
7.0 p.m.—Miscellaneous Items.
7.20 p.m.—Gramophone Records.
7.40 p.m.—Agricultural Report.
7.55 p.m.—Weather Report.
8.0 p.m.—Radio Journal.
8.15 p.m.—Concert by the Warsaw Philharmonic Orchestra. Overture, "The Merry Wives of Windsor" (Nicolaï). Selections from "The Flying Dutchman" (Wagner). The Tatra Album (Paderewsky-Opiensky). Invitation to the Dance (Weber-Berlioz). Song. Selection from "La Juive" (Halévy). Kol Nidrei for Cello and Orchestra (Bruch). Procession of the Gnomes (Blon). Waltz, Dorfschwalben aus Österreich (Jos. Strauss). Ballet Music from "La Gioconda" (Ponchielli). Oberek fantastique (Sonnenfeld). In the interval, Theatre Review.
10.0 p.m.—"On the Horizon."
10.15 p.m.—Radio Journal and Police Notes.
10.25 p.m.—Programme Announcements.
10.30 p.m.—Chopin Pianoforte Recital. Two Nocturnes in E Flat, Op. 55, and C Sharp Minor, Op. 27. Etude in A Flat Major, Op. 25. Four Mazurkas in (a) A Minor, No. 3, (b) D Flat Major, Op. 30, (c) G Major, Op. 50, and (d) E Major, Op. 6.
11.0 p.m.—Dance Music and Light Music.
12 midnight (approx.)—Close Down.

ZAGREB (Yugoslavia)

977 kc/s (307 m.); 0.7 kW.
Transmits at intervals from 12.20 p.m.
7.35 p.m.—Educational Notes and Announcements.
7.50 p.m.—Introductory Talk to the following Transmission.
8.0 p.m.—An Opera (to be announced), relayed from the Zagreb National Theatre. In the intervals, News and Weather.

Stations in Order of Frequencies and Wavelengths

Corrected in accordance with the latest official information available at the time of going to press

The figures in black type represent the power according to the Prague power-rating scheme

Kc/s	M.	Station	Dial Readings	Kc/s	M.	Station	Dial Readings	Kc/s	M.	Station	Dial Readings	
EUROPEAN												
(Including Stations connected with the European System)												
155	1935	Kaunas (Lithuania), 7 kW.		779	385	Toulouse (Radio) (France), 8kW.		779		Berne (Switzerland), 1 kW.		
160	1875	Huizen (Holland), 8.5 kW.		788	381	Lwów (Poland), 21 kW.		788		Cartagena (Spain), 0.4 kW.		
167	1796	Lahti (Finland) (relays Helsinki), 54 kW.		797	376.4	Glasgow (SSC), 1.2 kW.		797		Cassel (Germany) (relays Frankfurt), 0.3 kW.		
174	1725	Radio Paris (CFR), 17 kW.		806	372	Hamburg (Germany), 1.7 kW.		806		Eskilstuna (Sweden) (relays Stockholm), 0.25 kW.		
183.5	1635	Königs Wusterhausen (Zeeseen) (Germany), 75 kW. Relays Berlin.		810	370.4	Radio L.L. (France). Fredriksstad (Norway), 0.8 kW. (relays Oslo). Seville (Union Radio) (E.A.J.s) (Spain), 1.5 kW.		810		Kiruna (Sweden) (relays Boden), 0.25 kW.		
193	1554.4	Davenport National Station (Gt. Britain), 35 kW.		815	368.1	Trondheim (Norway), 1.13 kW.		815	1220	Linz (Austria) (relays Vienna), 0.6 kW.		
195	1538	Ankara (Turkey), 7 kW.		824	364.1	Algiers (N. Africa), 13 kW.		824	246	Pietersaari (Jacobstad) (Finland) (relays Helsinki), 0.25 kW.		
202.5	1481	Moscow (Old Komintern) (R.A.I.) (Russia), 40 kW.		825.3	363.4	Mühlacker (Germany), 75 kW.		825.3		Saffle (Sweden) (relays Stockholm), 0.4 kW.		
207.5	1445.7	Eiffel Tower (FLE), 15 kW.		833	360	London Regional 70 kW.		833		Schaerbeek (Brussels) (Belgium), 0.1 kW.		
212.5	1411	Warsaw No. 1 (Poland), 158 kW.		842	356.3	Graz (Austria) (usually relays Vienna), 9.5 kW.		842		Turku (Åbo) (Finland) (relays Helsinki), 0.6 kW.		
221.9	1352	Motala (Sweden) (relays Stockholm), 40 kW.		851	352	Leningrad (Russia), 1.2 kW.		851	1229	244.1	Basle (Switzerland), 0.65 kW.	
222.2	1350	Kasbah (Tunis), 0.5 kW.		855.5	351	Barcelona (Radio Barcelona) (E.A.J.) (Spain), 8kW.		855.5	1238	242	Belfast (2BE) (Ireland), 1.2 kW.	
230.6	1304	Moscow (Trades Unions), 75 kW.		860	349	Strasbourg-Brumath (France), 15 kW.		860	1247	240.6	Stavanger (Norway), 0.5 kW.	
244	1229.5	Boden (Sweden), 0.75 kW.		869	345	Brno (Czechoslovakia), 3 kW.		869	1250	240	Radio Beziers (France), 1.5 kW.	
250	1200	{ Istanbul (Turkey), 5 kW. Reykjavik (Iceland), 21 kW. }		878	342	Brussels No. 2 (Belgium), 20 kW. (Flemish programme). Cadix (Spain), 0.5 kW.		878	1256	239	Nürnberg (Germany) (relays Munich), 2.3 kW.	
260	1153	Kalundborg (Denmark) (relays Copenhagen), 10 kW.		887	338.2	Poznań (Poland), 1.9 kW.		887		237.2	{ Bordeaux Sud - Ouest (France), 3 kW. Radio-Nimes (France), 1 kW. }	
268.8	1118	Novosibirsk (Russia), 4 kW.		896	335	Naples (I.N.A.) (Italy), 1.7 kW.		896	1265	237	Orebro (relays Stockholm) (Sweden), 0.25 kW.	
272	1103	Moscow-Popoff (Russia), 40 kW.		905	332	Grenoble (P.T.T.) (France), 1.2 kW.		905	1274	235.5	Kristiansand (Norway), 0.5 kW.	
279.6	1073	Rostov-Don (Russia), 4 kW.		914	328.2	Poste Parisien (Paris) 1.2 kW.		914	1283	234	Lodz (Poland), 2.2 kW. Exp'l.	
280	1071	Oslo (Norway), 75 kW.		923	325	Breslau (Germany), 1.7 kW.		923	1292	232.2	Kiel (Germany) (relays Hamburg), 0.3 kW.	
283	1060	Tiflis (Russia), 10 kW.		932	322	Göteborg (Sweden), (relays Stockholm), 15 kW.		932		231	Norrköping (Sweden), 0.25 kW.	
300	1000	Leningrad (Russia), 20 kW.		941	319	Dresden (Germany) (relays Leipzig), 0.3 kW.		941	1301	231	Hälsingborg (Sweden), 0.25 kW.	
320	937.5	Kharkov (Russia), RV20.		950	316	Sofia Rodno - Radio (Bulgaria), 1 kW.		950	1310	229	Malmö (Sweden) (relays Stockholm), 0.75 kW.	
357	840	Nijni Novgorod (Russia), 1.8 kW.		959	312.8	Marseilles (P.T.T.) (France), 1.5 kW.		959	1319	227	Uddevala (Sweden), 0.1 kW.	
375	800	Kiev (Russia), 20 kW.		968	309.9	Cracow (Poland), 1.5 kW.		968	1337	224.4	Aachen (Germany), 0.3 kW.	
385	778	Petrozavodsk (Russia), 2 kW.		977	307	Genoa (I.G.E.) (Italy), 1.5 kW.		977	1355	221	Cologne (Germany), 1.7 kW.	
389	770	Östersund (Sweden), 0.75 kW. (relays Sundsvall).		986	304	Radio-Vitus (France)		986	1364	219.9	Münster (Germany), 0.6 kW.	
395	760	Geneva (Switzerland), 1.5 kW.		995	301.5	Cardiff (S.W.A.), 1.2 kW.		995		218	Cork (6CK) (Ireland), 1.5 kW.	
416.6	720	Moscow (Experimental), 20 kW.		1004	298.8	Zagreb (Yugoslavia), 0.7 kW.		1004		217	Helsinki (Finland), 15 kW.	
428	700	Minsk (Russia), 4 kW.		1013	296.1	Bordeaux-Lafayette (P.T.T.) (France), 35 kW.		1013	1373	216	Fécamp (Radio Normandie) (France).	
442	680	Lausanne (Switzerland), HBz, 0.6 kW.		1022	293	Falun (Sweden), 0.65 kW.		1022	1382	217	Flensburg (Germany) (relays Hamburg), 0.6 kW.	
511	587.1	Hamar (Norway) (relays Oslo), 0.8 kW.		1031	291	North National (Manchester) 70 kW.		1031	1400	214.2	Salzburg 0.6 kW. (Relays Vienna).	
522	574.7	Ljubljana (Yugoslavia), 2.8 kW.		1040	288.5	Hilversum (Holland), 8.5 kW.		1040	1450	207	Königsberg (Germany), 1.7 kW.	
527	570	Freiburg-im-Breisgau (Germany) (relays Stuttgart), 0.3 kW.		1049	286	Tallinn (Estonia), 0.7 kW.		1049	1470	204	Halmstad (Sweden), 0.25 kW.	
530	566	Hanover (Germany), 0.3 kW. (relays Hamburg).		1058	283	Kosice (Czechoslovakia), 2.5 kW. (Limoges, P.T.T. France) 0.08 kW.		1058	1480	203	Radio Chatelineau (Belgium).	
531	565	Smolensk (Russia), 2 kW.		1067	281	Tampere (Tammerfors) (Finland) (relays Helsinki) 1 kW.		1067	1490	202	Warsaw, No. 2 (Poland), 1.9 kW. Experimental.	
536	560	{ Augsburg (Germany) (relays Munich), 0.3 kW. Kaiserslautern (Germany) (relays Munich), 0.3 kW. }		1071	280	Viipuri (Viborg) (Finland), (relays Helsinki), 15 kW.		1071	1530	196	Borås (Sweden), 0.12 kW.	
545	550	Budapest (Hungary), 23 kW.		1076	279	Bratislava (Czechoslovakia), 14 kW.		1076	1714	175	Gävle (Sweden) (relays Stockholm), 0.2 kW.	
554	542	Sundsvall (Sweden), 15 kW.		1085	276.5	Heilsberg (Germany), 75 kW. (Relays Königsberg).		1085		203	Kristinehamn (Sweden), 0.25 kW.	
563	533	Münich (Germany), 1.7 kW.		1094	274.2	Aberdeen (2BD), 1.2 kW.		1094		202	Jönköping (Sweden), 0.25 kW. (relays Stockholm).	
572	525	Riga (Latvia), 13 kW.		1103	272	Bournemouth (6BM), 1.2 kW.		1103		196	Karlskrona (relays Stockholm) (Sweden), 0.25 kW.	
581	517	Vienna (Rosenhügel) (Austria), 20 kW.		1112	270	Dundee (2DE), 0.16 kW.		1112		175	St. Quentin (France).	
585	511	Archangel (Russia), 1.2 kW.		1121	268	Edinburgh (2EH), 0.4 kW.		1121				
590	509	Brussels No. 1 (Belgium), 20 kW.		1130	265.4	Hull (6KH), 0.16 kW.		1130				
599	501	Milan (Italy), 8.5 kW.		1139	263	Liverpool (6LV), 0.16 kW.		1139				
603.5	497	Moscow (Russia), 1.2 kW.		1148	261.3	Newcastle (5NO), 1.2 kW.		1148				
608	493.4	Bergen (Norway), 1.3 kW.		1157	259	Plymouth (5PY), 0.16 kW.		1157				
617	487	Prague (Czechoslovakia), 5.5 kW.		1166	257	Sheffield (6FL), 0.16 kW.		1166				
626	479.2	North Regional (Manchester) 70 kW.		1175	255	Stoke-on-Trent (6ST), 0.16 kW.		1175				
630	476	Simferopol (Russia), 1.2 kW.		1184	253	Swansea (5SX), 0.16 kW.		1184				
635	473	Langenberg (Germany), 17 kW.		1193	252	Lyons (Radio) (France), 0.8 kW.		1193				
644	466	Lyons (La Doua), France 2.3 kW. (relays P.T.T.).		1205	249	Montpellier (France), 1.2 kW.		1205				
644	465.8	Tartu (Estonia).		1211	247.7	Berlin Relay (Germany), 0.6 kW.		1211				
653	459	Beromünster (Switzerland), 77 kW.				Innsbruck (Austria) (relays Vienna), 0.6 kW.						
		Bodö (Norway), 0.6 kW.				Magdeburg (Germany), 0.6 kW.						
		Bolzano (Italy) (BZ), 0.2 kW.				Stettin (Germany) (relays Berlin), 0.6 kW.						
		Danzig (Free City), 0.6 kW. (relays Königsberg).				Varberg (Sweden), 0.3 kW.						
		Klagenfurt (Austria), 0.6 kW. (relays Vienna).				Copenhagen (Denmark), 1 kW.						
		Palermo (Italy) 4 kW.				Radio Liège (Belgium).						
662	453.2	Porsgrund (Norway) (relays Oslo), 1.5 kW.				Bratislava (Czechoslovakia), 14 kW.						
		Salamanca (Spain), E.A.J. 2, 1 kW.				Heilsberg (Germany), 75 kW. (Relays Königsberg).						
		San Sebastian (Spain), 0.6 kW.				Turin (Italy), 8.5 kW.						
		Tromsø (Norway), 0.11 kW.				Rennes (France), 1.2 kW.						
		Uppsala (Sweden), 0.2 kW. (relays Stockholm).				Bremen (Germany) (relays Hamburg), 0.3 kW.						
666.5	450	Moscow (Russia), RA2, 1 kW.				Barcelona (E.A.J. 13), Radio Catalana (Spain), 10 kW.						
		Aalesund (Norway), 0.4 kW.				Oviedo (Spain) 0.7 kW.						
		Notodden (Norway), 0.9 kW.				Lille (P.T.T.) (France), 1 kW.						
671	447.1	Paris (P.T.T.) (Ecole Supérieure) (France), 1 kW.				Moravská-Ostrava (Czechoslovakia), 11 kW.						
		Rjukan (relays Oslo) (Norway), 0.17 kW.				London National 68 kW.						
680	441	Rome (IRO) (Italy), 75 kW.				Leipzig (Germany), 2.3 kW.						
		Malmberget (relays Boden) (Sweden), 0.25 kW.				Hörby (Sweden) (relays Stockholm), 15 kW.						
689	436	Stockholm (Sweden) 75 kW.				Toulouse (P.T.T.) (France), 1 kW.						
697	430.4	Belgrade (Yugoslavia), 3 kW.				Gleiwitz (Germany) (relays Breslau), 5.6 kW.						
702.5	427	Kharkov (Russia) RV 4, 25 kW.				Almeria (Spain) (E.A.J. 18), 1 kW.						
707	424	Madrid (Union Radio) (E.A.J. 7) (Spain), 2 kW.				Barcelona (Association Nacional) (E.A.J. 15), 1 kW.						
		Berlin (Witzleben), 1.7 kW.				Trollhättan (Sweden), 0.3 kW.						
721.1	416	Rabat (Morocco), 2.5 kW.				Juan-les-Pins (Nice) (France)						
725	413	Dublin (2RN) (Ireland), 1.5 kW.				Kalmar (relays Stockholm), 0.25 kW.						
734	408	Katowice (Poland), 16 kW.										
743	403	Sottens (Switzerland), 32 kW.										
752	398.9	Midland Regional Station (Gt. Britain), 38 kW.										
761	394	Bucharest (Romania), 16 kW.										
770	390	Frankfurt (Germany), 1.7 kW.										

DEVIATIONS

The following are the actual deviations from the official frequencies, as noted during measurements made at the Tatsfield Checking Station. All differences of 1.0 kc/s and over are shown.

554	542	Palermo (Italy)	
1013	296.1	Turin (Italy)	
1044	287.4	Lyons (France)	
1054	284.6	Montpellier (France)	
1180	277.7	Barcelona E.A.J. 15 (Spain)	
1189	252.3	Fécamp (France)	
1199.3	250.2	Juan-les-Pins (France)	
1216	246.7	Berne (Switzerland)	
1226	244.7	Basle (Switzerland)	

BRITISH DOMINIONS AND COLONIES

AUSTRALIA

580	517	Perth (7ZL), 3 kW.	
620	484	Melbourne (3AR), 5 kW.	
665	451	Sydney (2FC), 5 kW.	
690	436	Perth (6WF), 5 kW.	
734	409	Adelaide (5CL), 5 kW.	
779	385	Brisbane (4QG), 5 kW.	
808	371	Melbourne (2LO), 5 kW.	
838	358	Sydney (2BL), 5 kW.	

CANADA

690	435	Toronto (CKGW), 5 kW.	
730	411	St. Hyacinthe (CKAC), 5 kW.	
780	385	Winnipeg (CKY-CNRW), 5 kW.	

EAST AFRICA

750	400	Nairobi, Kenya (7LO)	
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210 H.L. 210 DET.

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41 MSG 41 MH
41 MHL MS/PEN-A

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