

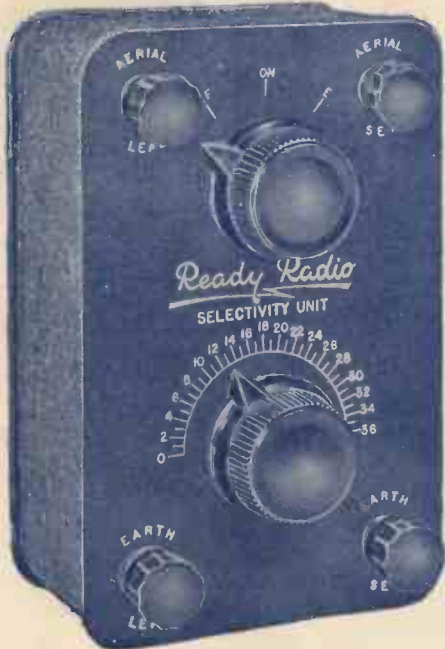
THE OFFICIAL FOREIGN
AND TECHNICAL
JOURNAL OF THE R.A.C.

AVSTIN
COOPER

World 3rd Radio



Christmas Number



TWO MODELS
LOW WAVEBAND. HIGH WAVEBAND.
From all Dealers and Stores.

“Un Noël Joyeu!” WITHOUT OUTSIDE INTERFERENCE

Read what others say about the scientifically designed
READY RADIO SELECTIVITY UNIT

THE RETAILER

Mr. L. H. FitzGibbon, A.M.I.R.E.
 of Fenchurch Radio, Ltd.

We have, during the past few days, given your Selectivity Unit a very severe test on a five valve set three-quarters of a mile from the London Station. . . . It would be unfair, we think, to refer to your unit as a wave trap pure and simple as we find that its performance is entirely different from all other types, inasmuch as it is possible to tone down the actual volume of the local station to a reasonable strength and considerably sharpen the tuning. In fact at three-quarters of a mile from 2LO, it is possible to receive Barcelona and Radio Toulouse without the slightest interference.—September 10th, 1920.

THE PUBLIC

Merton Park, London, S.W.19.
 Messrs Ready Radio,
 159, Borough High St., London, S.E.1.

*Dear Sirs,
 I safely received the Unit, and last night I attached it to my "Titan Three" and found that it worked admirably. I was able to receive 5GB without interference from 2LO, and could receive (Berlin I think it was) two degrees below 5GB without interference from either station.*

*I am ever so pleased with the Unit.
 Thanking you,
 I remain,
 Yours faithfully,
 B. E. P.*

N.B.—All the original letters quoted can be inspected at our offices.

WIRELESS PRESS

Mr. Percy Harris, M.I.R.E., in the
 "Wireless Constructor"—

Tested on a set which was particularly flat in tuning the Selectivity Unit provided complete elimination of the London Station over the whole band other than a few degrees and enabled several stations very close to 2LO to be brought in without the slightest interference from that station. We were agreeably pleased to find that the reduction in strength near the station being "trapped" was extremely small. It is also free from certain defects often found in wavetraps devices.—October, 1920.

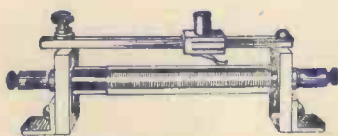
PRICE 20/- COMPLETE

FULLY GUARANTEED to cut out
 interference from ANY station.

“MAGIC” COMPONENTS

Every Ready Radio component illustrated below is approved for use in all "Magic" circuits, and was specially designed for them.

Your Local Dealer can supply or obtain them for you within 24 hours should he not have stocks on hand.



Slide Potentiometer
 Special 400-ohms Slide.
 (Essential for Short Wave Work) **2/9**



Differential Reaction Condenser
 Capacity .00015 **5/-**



Special Anode Feed Resistor
 Wire-wound. Complete with holder. Capacity 25,000 ohms. . . **2/5**

All Ready Radio products are obtainable from your Local Dealer.

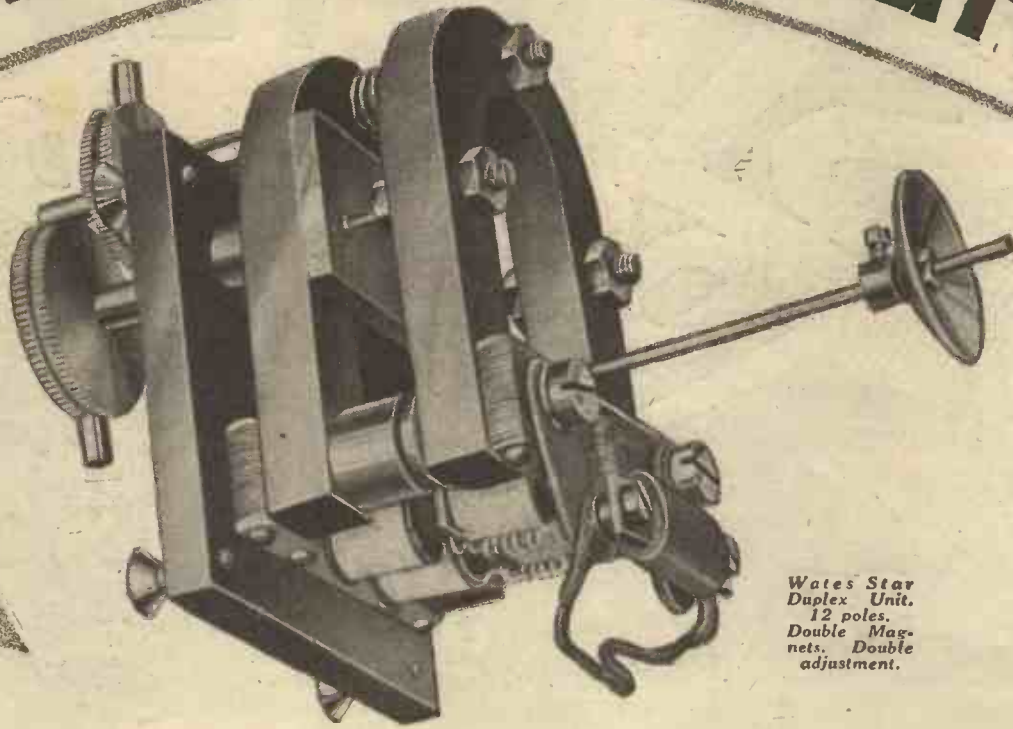
Telephone No. :
 Hop 5555
 Private Exchange.

Ready Radio

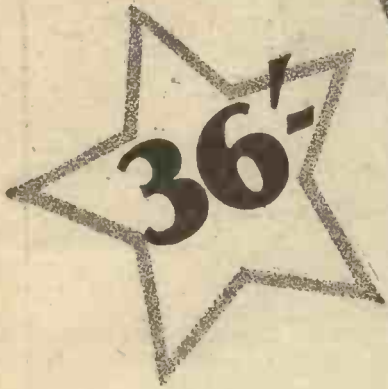
Telegrams :
 Ready Hop 5555
 London.

159, BOROUGH HIGH STREET, LONDON BRIDGE, S.E.1.

PURITY QUALITY REALITY



Wates Star Duplex Unit. 12 poles. Double Magnets. Double adjustment.



Wates STAR UNIT

Oak Speaker

£4

Complete

Wates Star Duplex Complete Speaker, with Double Cone Chassis, in Oak Cabinet £4 00
Mahogany Cabinet £4 60



The success of the Wates Star Unit is due to its amazing superiority of tone and lifelike realism, throughout the whole musical scale.

Its special design and perfect construction, allied to entirely new principles of scientific reproduction, have placed it high above any other reproducer, for **PURITY, QUALITY and REALITY.** Volume—if it is desired—is majestic!

Fully descriptive literature sent free on request.

THE SHAFTESBURY RADIO CO.

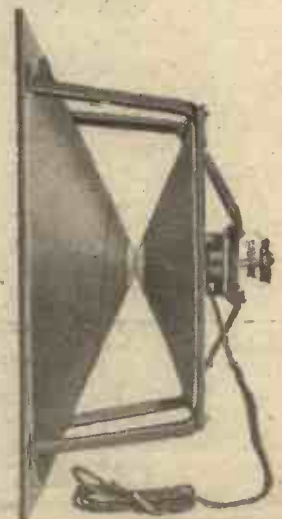
(Dept. W.R.)

184-188, SHAFTESBURY AVENUE, LONDON, W.C.2.

Double Cone

12/- Chassis

Specially designed for use with the Wates Star Unit, with brackets.





There is preserved power put into the big cells of the Lissen battery by the Lissen Secret Process—power which lasts for months and months and months, flowing always steadily, noiselessly, sustainedly. There is never a trace of ripple in it, never a sign of hum.

This Lissen Battery yields the purest form of current known for radio. It keeps speech clear, gives definition to musical notes and by the very purity of its current individual instruments seem "spot lighted" in the way they are made to stand out.

Next time ask firmly for a Lissen New Process Battery and take no other. Obtainable at 10,000 radio dealers.

PRICES.

60 volt (reads 66)	7/11	100 volt (Super power)	22/-
100 volt (reads 100)	12/11	9 volt Grid Bias	1/6
120 volt	15/10	4½ volt Pocket Battery 5d. each	
36 volt	4/6	(4/6 a doz.)	
60 volt (Super power)	13/6	Single Cell Torch Battery	4½d.

THE SECRET PROCESS THAT PUTS POWER INTO YOUR SET

LISSEN LIMITED, WORPLE ROAD, ISLEWORTH, MIDDLESEX. Factories also at Richmond (Surrey), and Edmonton. (Managing Director: T. N. COLE.)



WORLD-RADIO

Official Foreign and Technical Journal of the B.B.C.

Vol. IX. No. 229.

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

FRIDAY, DECEMBER 13, 1929

THREE PENCE



" . . . Winter comes to rule the varied year "

[Wife, Oslo.]

PRINCIPAL CONTENTS

Christmas in Jerusalem as I Saw it	Sigdar IKBAL ALI SHAH	Seeing Without Sight	C. G. PHILP
A Wanderer Stares into the Camp Fire	LOUIS GOLDING	"Scientific" Christmas Fun	RALPH STRANGER
If I Were Dictator . . .	VERNON BARTLETT	Christmas Customs and Traditions— Norway, Czechoslovakia, Germany	
A Christmas Trip to Devil's Island	Capt. ARTHUR MILLS	Jungle Lure	MARIAN ROBERTS
To a Wild Rose	WILLIAM MACKAY	Glimpses of Egypt	C. FALCON
Vitamin "P"	ARTHUR COMPTON-RICKETT	A New Zealand December Morning	J. T. CRAWFORD
Tall Stories	MORLEY ROBERTS	A Short Wave Adaptor	Tuning Coils and Condensers
Relics of Paganism in Europe	J. E. PRYDE-HUGHES	The Technique of Broadcasting:	Choosing Sites for Transmitters
Ginger Revisits the Opera	JAY COOTE	L.F. Intervalve Coupling	An Efficient Crystal Set
			Danish Listeners' Plebiscite

Christmas in Jerusalem as a Moslem Saw it

By Sirdar IKBAL ALI SHAH.

Sirdar Ikbal Ali Shah is the well-known Afghan traveller and author whose writings in European and American journals have attracted world-wide attention. His views on various sides of Oriental life are, therefore, of more than ordinary interest.

WHEN, as a Moslem pilgrim, I drew nearer and nearer Jerusalem, a mingled feeling of joy and respect came upon me. The passing crowd then became to me a living, pulsating pageant of early religion, and the holy Dome of the Rock framed in the sycamore avenue spoke of a different epoch. Giant bells were tolling somewhere, but their clang struck upon my ears in no material tone. "So this is Al Quds!—Jerusalem the Holy," I said, "of which Allah Himself speaks in His Book;" and lifted my hands in prayer of thanksgiving, for had the Prophet of Mecca not made his night journey from here to the Celestial Throne?

There was a nip in the sunlit air of the city, as I walked from shrine to shrine, during that Christmas week. Negotiating its narrow bazaars swarming with nationals from Poland to Java, I noticed the miracle of the town in so far as—despite twenty-two sieges, which must have destroyed Jerusalem of Solomon and of Jesus—this city still occupies its original site since it was first chosen nearly 3,000 years ago.

"Sabahal' Khair!—May thy morning be peaceful!" shouted a Christian pilgrim guide to a Moslem shopkeeper; but his reply, wishing the same felicity, was drowned by the high-toned inquiry of one of the party about an Arab silk gown that hung in the shop. That lady-pilgrim would not pay twenty dollars for it. She could buy the kind cheaper in Broadway. Hurriedly they passed on, scarcely noticing the Fifth Station of the Cross; but I lingered on, meditating about the agony of Jesus down the stone-paved Via Dolorosa. What history has that route of arches not made for man!—and yet the donkey-driver unconcernedly sold water down the lane and the Jewish priests with their love-locks walked past the scenes on which Europe's civilisation is built.

Through the arcaded bazaars, where you can purchase anything from an ancient Damascus blade to a fashionable necktie, passed the Christian Jews and Moslems, dressed nearly alike in the long flowing garb of the Arab, or the European dress, but their air generally meek and gentle. Here and there a Greek priest with tall black hat, or a Jew with a rimmed fur cap, glides mysteriously round the corner; or, again, Moslem divines, with their flapping coats reaching down to their ankles, wearing be-turbaned fezes, hurry on to the Mosque of Omar. Ponies, sheep, and goats jostle with the crowd, but the camel, ignoring humanity, makes his own way, or stops to nibble at the carrots at a vegetable booth. Beyond it lay the Church of the Holy Sepulchre, grim and steeped in the holiness of ages.

It is impossible not to be impressed by the sight of this, Christendom's most holy place; and after buying a few wax tapers from a shop before entering the precincts, I observed that a Moslem doorkeeper it was who kept the gate of this church as a hereditary privilege since Khalifa Omar's time. All along the walls of the Court sat beggars chanting, not only as

beggars, but to receive the "breath of the faithful" after the devout had prayed inside. They might regain their sight thuswise by the "pious breath of some accepted one," they thought. Sacred pictures from Hebron, glass bracelets and olive-wood toy camels they would sell me, too.

Immediately inside the church they bowed low, many kissed the Stone of Anointing, and they were respectful. In the Rotunda square pillars support a dome—which was then under repair—and although it might be a disappointment compared to what one sees in European cathedrals, it is not exactly masonry that is of consequence. The spirit of the place mattered to me. Up on one of the galleries they were chanting so beautifully that the accompaniment of a musical instrument would have killed its soul. Egyptian Christians, clad in their native



"These were not buildings—rather each was a book to me; and a woman carried a conical-shaped earthen water vessel."

costume, sang so emotionally before the Sepulchre in Arabic, that I felt how wrong it is to regard Jesus as the White Christ.

The edifice where Jesus was laid, although no more than twenty-four feet long, fifteen feet wide, and not very high, appeared to me a mighty thing. The heart of a great religion lay there. It thrilled me. But entering the marble ante-chamber, and stoopingly passing under a four feet high doorway, when I stood in the Chapel of the Holy Sepulchre itself, it was truly awe-inspiring. A Greek monk stood motionless and mute, eyeing a peasant youth who had placed his rosary upon the rock-hewn Sepulchre. Tears rolled down his cheeks as he knelt beside the Tomb. And as I stood outside, gazing upon the magnificence of its dome of Moscovite style, I counted eighty people going in and out, in less than ten minutes. The Shrine was never empty. Judging by their dresses, the pilgrims appeared poor; had wealth, I wondered, kept the rich away from this Cradle of Christianity?

Deeply moved by these experiences, I zig-zagged my way down the street, and saw the most impressive sight of all, when old men and young, knelt in prayer at a Station of the Cross, whilst Moslem guards led that procession of Franciscan Fathers through the crowded bazaars. Walking past a narrow lane, I came upon the Church of St. Anne, close to which is the Pool of Bethesda. A White Father explained about its discovery in 1871, and conversed with me in my native language of Persian. Beyond it is the grave of Bibi Maryam, the Mother of Christ, whose memory is sacred to us, the Moslems; and what of those peaceful-looking olive trees in the garden of Gethsemane, the twisted trunks of which could now tell me little of Christ's great tragedy?

Wandering round the city I came upon the Jews' Wailing Place. Superficially, it is nothing but a block of stones some fifteen feet long to about five feet high, the celebrated western wall of the Temple; but spiritually it seems to have a deep significance to those who clung to it more fondly than mothers cling to their only children. It was a Friday; white-bearded men, shaven and shorn youths, women and children, wept against the stone. A woman cried so bitterly that in another moment I could have joined her. A man selling oil to the mourners there appeared to have passed beyond weeping, and helped others in their prayers.

Just behind the Moslem quarter I entered the noble sanctuary of the Dome of the Rock by one of its seven gates. Since Kalif Abdul Melik built the Dome of this edifice and Sultan Salahuddin restored it, the Shrine of the Red Rock had seen pilgrims from every part of the globe. I reached the building by eight flights of steps. The porticoes stand gracefully in their indescribable glory at the top of each. Coloured tiles cover the octagonal sides, and the cupola rises to 108 feet. The Holy Koran is inscribed in Arabesque upon it, simplicity blended with magnificence around the Red

Rock inside; chandeliers and lamps that hung in the arches were but material signs of devotion, and pious history of my faith was writ large on that mass of solid rock, apparent only to the eyes of a faithful. There is nothing like it in the world to a Moslem, unless it be the Shrine of Mecca. That intense silence moved me to tears, the message of the Prophet I felt forcibly—all else was void; in the heart of that stone were buried annals of a thousand years, and then the Mosque of Al Aksa, facing the Dome, has charms of its own. Dreamy-eyed Uzbek pilgrims from Bokhara lingered round with the Arab brothers of their fraternity. Geographical disparity of their homelands they did

not feel, as we stood facing Kabba-ward when the Mazzan called the prayers. The same bending and swaying, the same chanting and mute lifting of upturned palms we engaged in as anywhere else, in the snow-bound passes of Afghanistan or the parched deserts of Mecca. Then they showed me the site where the Moslem pilgrims walked in procession, holding banners and displaying active manifestations of festivity to Nevi Musa.

A thin rain was falling when, in the morning of the Christmas Day, I walked to Bethlehem. To ride to the birthplace of Jesus was to deprive oneself of the spirituality of the occasion, and truly marvellous was the spectacle of the procession going through the streets to the Church of Nativity, wrapped in devotion. As I trekked back to Jerusalem some monks were also marching back with their orphan wards.

Standing just near the Chapel of Ascension on the Mount of Olives, I noticed how true it is to call Jerusalem "a city set on a hill." From that spot I could see the panorama of religions entombed in their buildings. A plateau rose in front of me from right to left, marking the Harem Sharief, the Dome of the Rock towering above its surroundings, and masses of houses of David Street carried the gaze to the tower of the Church of the Holy Sepulchre past Christian Street, till I sighted that fine new building, Notre Dame de France. Beyond that lay the Jaffa road. Peering down that scene of man's early faiths through the branches of olive trees, I noticed the atmosphere of peacefulness that floated over it all. These were not buildings—rather each was a book to me; and a woman carried a conical-shaped earthen water vessel

(Continued on page 942.)

A Wanderer Sits by the Log-Fire

By LOUIS GOLDING

Author of *The Miracle Boy*, *Sicilian Noon*, etc.

IT is Christmas Eve. The curtains are drawn across my room, but I have not turned the light on. They've put sprays of holly around the pictures, and a sprig of mistletoe is hanging just beyond the door. I've been busy all day. So have the others. And now for the first time I have the leisure to stretch out my feet before the fire, and take out my pipe, and give word for word to the dancing, eloquent flames. For it's the first Christmas I've spent at home in England for many years now; and the very fact that I am at home makes me aware how much of a wanderer I am. So, as I lean back in my deep chair, with my pipe puffing and flaming like a pocket Stromboli, far scenes and strange people re-create themselves in the fire's red chasms, and Christmases upon snowy mountain-ranges and in burning deserts interweave like the warp and weft of a wilder tapestry than was ever woven in Bayeux or Brussels or Mantua.

I remember the Christmas that I spent in Andritsaena, a high, cloud-hung city in the heart of Greece, an eagle's nest among cities. Century has succeeded century elsewhere in the world, but this city still lies ineradicable at the heart of the Middle Ages. It is forgotten. The world has passed it by. The ravens circle slowly over it. The sheep drift tirelessly along its barren pastures, which are so steep that often the snow holds no footing there.

And truly Greece is a notable land to be spending Christmas in (if Fate has made a wanderer of you, and you must leave your deep chair empty at Christmas-tide and no fire flickering in your grate). Greece, I say, is a notable Christmas land, for there the stranger is received with a hospitality to which no other country in the world offers any parallel. To find anything resembling it, he must go back to the customs of the Classical Greeks, the remote ancestors of these same people, to whom "Ksenia," or guest-friendship, was the supreme virtue.

It was the owner of many sheep who took me in hand in Andritsaena, upon that exalted Christmas Day when I arrived there, and he wore a white kilted skirt and held a great shepherd's crook in his hand—though he tended no sheep that day in the icy meadows. And we both went over to the café upon a high terrace looking out upon the serried mountains that hurled the sunset fire from peak to snowy peak.

The great attraction of the Christmas festivities in Andritsaena was a Turkish minstrel, who wandered from village to village throughout Greece and all the Balkans, singing to his guitar. (Alas! alas! he does not wander there now.) Turks are not, as a rule, popular in Greece, but this wandering minstrel had won the

affection of these people by espousing a Greek maiden and repudiating Mohamed. He had (as they expressed it with a confusion of b's and v's common to Greeks who speak English), "made a vaptise." And so this strange singer of the Babe New-Born in a Manger sat on a platform in the right-hand corner of the café, as bewhiskered a Turk as my patron was a blue-eyed Greek shepherd. And he had a great brazier of charcoal burning beside him, so that his finger might not be numb when he came to strumming his guitar. And I, being a guest, had a brazier of charcoal at my feet also, and we were very warm and cosy in our café there, slung high above the mountains. Gradually the shepherds and goatherds filled the place. Night was upon us. The refracted snow shone obliquely and eerily against the windows. The landlord brought us each our favourite hookah from the rail where it hung upon the wall. Carefully we placed the lit cinder in the stuffed bowls of our pipes and drew the smoke through the bubbling water. Bottle after bottle of wine, the harsh resinated wine of Greece, was laid before us.

And strange song after strange song mourned that Turkish minstrel to his guitar—now a Persian song of bulbuls and roses, making nightingales sing in our ears and roses bloom before our eyes, here on the snowy top of the world. And then he sang an Arab song of deserts and the sword. Then it was a pretty tale of Greek peasants courting; then a Kurdish mother crooning to her child. Now he suspended the twanging of his strings, and, crouching over the instrument, he lifted his face to the invisible roof and cried like a hurt beast. And then, very faintly, he touched the strings again, singing that there was joy, after all, in this dark cold world, because once, in a southward land, a Child had been born in a Stable. . . . And so his heart warmed to the theme which those shepherds and goatherds were assembled there to celebrate. And so he sang in divers tongues the song of Christmas. And then someone whispered in his ear and he paused a moment, and he nodded. And then suddenly, mysteriously, he brought forth words and a tune which had been familiar to me since I could remember. In this palace, in this fortress of the Middle Ages, engirdled by the mountains of classic Greece—it was not merely grotesque. It was not true.

But it was. And only when I made out that the heads of the peasants near me were all turned curiously in my direction did I realise that I, too, was singing to the twang of his guitar. And it was the carol of Wenceslas that he and I were singing together. Whether he learned it from some English youth, captured in Galli-

poli in the days before he had "made his vaptise," whether in his wanderings he had wandered so far as one of the English lands, I shall never know. But I know that never before had I, nor have since, heard or sung a carol with so queer a tumult at the heart.

All this was some years ago. It was at the time of the Greek Easter that I returned to Andritsaena more recently. There was a great decapitating of scarlet-painted eggs in the café on the terrace when I took my place there again. Outside, among the rocks, the last purple crocuses were failing. Through acres upon acres of scarlet anemones the mountain flowed down into the valley. And as I sat there sipping my resinated wine, the owner of sheep who had so befriended me came into the café. He was wearing, not a pleated fustanella, but a pair of carefully-pressed trousers. He carried, not a shepherd's crook, but a silver-topped ebony cané. Oh, how elegant he had become!

And the music in the café that evening was not provided by any wandering Turkish minstrel, but by the four-valved wireless set mine host of the café had installed. *Ami labuntur*, O my friend, the years slip by. And if my friends, the Greek peasants, shall not be so mindful of their folk-songs as of old time, it will do their spirits no irredeemable harm if the ether bears to them a chorale from Handel and a rondo from Brahms.

So the Christmases of my wanderings re-create themselves, as I stare deep into the heart of my London fire, puffing tranquilly at my pipe in the warm knowledge that nothing short of earthquake or tidal wave can dislodge me from my chair.

I recall a Christmas Eve in a snowed-up Alpine valley, and all the peasants gathered together in the Inn of the Golden Star. I recall how the lads slapped their bronzed, bare knees, how they seized their maidens and twirled them to the roof; what gallons of "Schnapps" they consumed, and what infinite piping-hot Atlantic cables of sausage they devoured. And I knew that, lustily though they sang and deep though their potions were, when the time of the Christmas Midnight Mass approached, a great silence and a great awe fell upon these people. I knew that not a few of them, some minutes before midnight, would go down upon their knees among the cattle in the cattle-sheds, because of their belief that at midnight the cows go down upon their knees and utter words like human words, in memory of a privilege once conferred on them.

I recall the peasant-family with whom I lodged that exquisite Christmas-tide; how, when they had eaten the last dumpling, and every candle of the Christmas-tree had burned down to its clip, and no wine was left in the flasks—I recall how the bells rang for the Midnight Mass. Very faint and clear, even now over all the London roofs, the thin music of the bells wavers like a flock of birds. And so the family took in hand the pine-torches for the journey to the shining church on the hill, but before they set forth, the mother put down a basin of milk

(Continued on page 942.)



If I Were Dictator

A Christmas Nightmare

By VERNON BARTLETT

CHRISTMAS, they tell us (although it is so obvious that we surely do not need to be told it) comes but once a year, and for a week everybody talks about food. The shop windows are full of turkeys decorated with holly or ivy, or with plum puddings that are even more indigestible than they look. And the result is that everyone eats too much.

I suppose I had done it, too. I went to bed too early after a big—no, a biggish—meal, and thought about things. Just before the light went out I had been reading an article on our European dictators—the stern Mussolini, the jovial Primo de Rivera, and the boisterous but fatherly Pilsudski—and I reflected that it must be great fun to be a dictator. I sometimes feel a little like Mussolini in my own house at breakfast time—but perhaps that is only because

Dictator. What did the Government mean by taking three shillings or whatever it was licence that was paid? I rang a bell and the Prime Minister, looking a little nervous and timid, stood before the immense desk from which I dictated the policy of the B.B.C. I don't know what had happened to Mr. Ramsay MacDonald, because I don't remember hearing that he had resigned, and yet my visitor bore no resemblance to him at all.

"Sit down, my dear Prime Minister," I said, and although my tone was affable, he realised that it amounted to a command. "About this money on licences," I began, and he interrupted timidly.

"It would make things rather difficult for our Budget," he said. "I hope you will keep that in mind, but, of course, if you insist—"

"You will keep the money," I assured him magnanimously, "but it must go towards the establishment of a 'Ministry of Fine Arts'" (This was not my own idea. I had seen something about it in some newspaper, but I did not tell him so.) "Why haven't we a National Opera, for example?"

"I have read speeches about this," the P.M. admitted.

"And why no subsidies to a National Orchestra?"

"The B.B.C. is developing all that sort of thing so ably," my visitor suggested, with an ingratiating smile.

"And, then, these international exhibitions—the Barcelona Exhibition, the Seville Exhibition, and all the rest of them—why do you do nothing about that sort of thing?"

"Of course, the Treasury's sometimes rather difficult."

"But what have Fine Arts to do with the Treasury? This country has got its own culture, and British prestige suffers if we pretend it hasn't. You had better draw up a plan for this new Ministry. You can have the odd money on the licences, and I will see how the B.B.C. can collaborate."

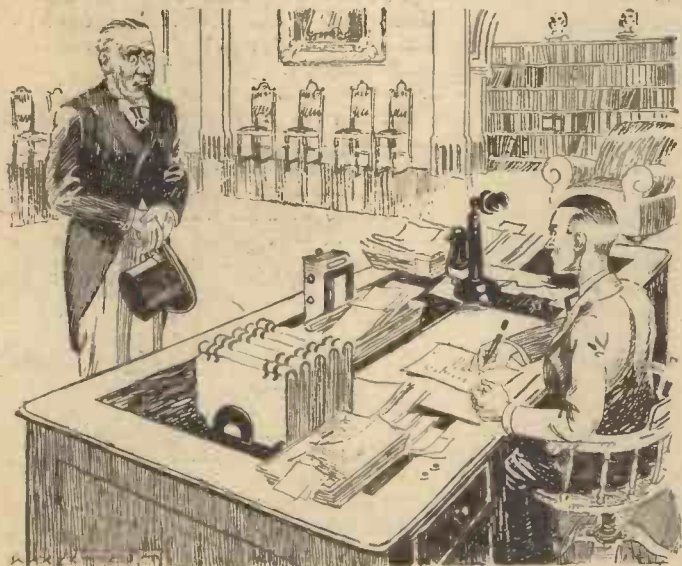
"Certainly," said the P.M. with alacrity. "What else could I do to show I was Dictator. "There is another thing," I said after a pause. "There is something all wrong with the electoral system in this country. I want it changed."

"Not proportional representation?" asked the Prime Minister anxiously. "Or is anything wrong about the Flapper's vote?"

"Age and sex should have nothing to do with it," I declared. "On the register you will have only people who are licensed listeners. A person who has not sufficient social sense to buy himself a wireless set has no right to the vote."

What further could I do? My fingers tapped impatiently on my desk, as I sought for fresh ideas. The tapping became louder and louder, until gradually the desk itself faded away, the Prime Minister was no more, and the maid was making it plain that my shaving water awaited me.

I stumbled out of bed with a sigh. And at breakfast my family found me unusually mild and humble. My son bluffed me into buying him the most expensive toy train in his catalogue, and my wife bought, for me to give her, an impossibly luxurious piece of furniture. Over-eating is bad for the pocket as well as for the inside.



"... the Prime Minister, looking a little nervous. . . ."

the other members of the family don't wake up enough to dispute my title until later in the day, when I have wisely gone off to my office. In any case, I wanted something more spectacular than a mere dining-room dictatorship.

At the back of my mind was the unpleasant thought that I had not found anything interesting for my next B.B.C. talk and that, I suppose, made me wonder about Savoy Hill. It would be rather fun, I told myself, to be dictator there. Would it, though? There are musicians and engineers, variety artists and university professors, poets and statesmen, all sorts of people with conflicting ambitions to achieve, unexpected tasks to perform, different axes to grind. And there's a public of several million individuals, with individual likes and dislikes, to be satisfied, or, at any rate, to be kept reasonably quiet. Obviously, it would not be such an easy job, and I fell to wondering what I should do if, suddenly, I were made Dictator of the B.B.C.

In the first place, I thought, I would cut down the programmes drastically. Rabbit is as good as hare, and blackberries are not very inferior to loganberries. But people hesitate to eat rabbit, unless it is called *lapin sauté*, or something of the sort. The public, I said to myself, does not appreciate too much of a good thing. So my first act as Dictator would be to cut down the length of the wireless programmes by half. But the night dragged on, while I tried to find some other way of giving evidence of my power.

Suddenly I realised that I was the complete

CHRISTMAS IN JERUSALEM

(Continued from page 940)

on her head to her husband ploughing the fields in the olive grove.

How restful and truly happy it looked! Bells were tolling from a hundred churches, and the Moslim priests called the faithful to prayer. It was, indeed, a struggle to tear oneself away from the scenes of that spiritual detachment to the tawdry glamour of modern life! This pilgrimage has left a deep impression upon my mind, and, sitting amongst the hurly-burly of this superficial existence of town life of Europe, I do not need to close my eyes to see the moving picture film of that great city and that great drama unrolled before me with the same emphasis that I actually saw it.

A WANDERER SITS BY THE LOG-FIRE

(Continued from page 941)

on a ledge before the picture of the Holy Family, and all the others ringed the basin round with their spoons; for they were certain that one of them would find his or her spoon moved out of its place, and he or she would have luck till Christmas came again, for Mary, in her grace, had fed her Child with it.

And the flames in my fire leap and slide, and my mind takes a leap over Alps and Apennines, to a traced Mediterranean island. I behold the brightly garbed bands of masqueraders who go serenading the joyous time from house to house, in Capri, under the cypresses that burn like tall torches. What discord of instruments, what coughing of callow voices, what quiring of shrill voices—and how all those sounds cohere into rapture in the odorous air!

And now the phantasmagoria of the fire impels me to recall a far different Christmas-tide—this was in New England, only last year. It was in the home of one of the great Puritan families, and it seemed to me that those sturdy men and those gracious women had preserved the tradition of the English Christmas as intact as any English folk I know. How far removed we were from the hectic fever of New York, with its blazing skyscrapers climbing hand over fist into Heaven! How far removed we were from the Negro cabarets in Harlem, where the eyeballs of the jazz-band roll like the eyeballs of man-slayers in the steamy heart of the midmost African jungle! Here all was peace and kindness—from the enormous laden Christmas-tree that took the centre of their shining and panelled dining-room, to the piano which was reflected like an island in that sea of polished wood! And in the vast kitchen a sheep was roasted whole in the mediæval fashion, that all this clan might feast, and all their dependents and work-folk.

There was only one touch of the modern world in all this Yuletide bravery. This was the loud speaker concealed cunningly in the fir-tree, so that the carols relayed from New York sounded like the tree itself articulate. And when the wireless music drew to an end, we felt that we might do almost as well ourselves. So the clan gathered about the piano and sang carols, and I stood outside myself and gazed on these people, and the picture went further back than the pages of Nathaniel Hawthorne; it went back even to the heart of England, to the joyful pages of Chaucer.

It was lovely—but it was not my own place. They were kindly, but not my own people. I ram the tobacco deeper down into my pipe. I stretch a foot lazily towards the logs on my fire and kick them up into a more cheerful blaze. I shall go a-wandering in the high tide of summer henceforth. It is a grand thing to be a home-keeping man when Christmas comes, and snow, and puddings as rich as Heaven, and the cunning mistletoe

A Christmas Trip to Devil's Island

By Capt. ARTHUR MILLS

HAVING gone to Paris for a holiday and grown tired of cabarets, I decided to go to Cayenne for Christmas. Cayenne is associated in most people's minds with red pepper and Devil's Island. Actually, I could not discover that any red pepper is exported from the place nowadays, and Devil's Island, as we use the expression over here, applies to the great penitentiaries on the mainland at St. Laurent du Maroni and Cayenne, rather than to the fifteen convicts on that terrible little rock, marked upon the maps as L'Isle du Diable.

Except for the convicts who are sent out in chains in that foul old transport *The Martinère*, there is no way of reaching Cayenne direct from France. The ordinary passenger must change steamers at Martinique, where he will find the *Biskra*, the only passenger boat in the world that actually calls at the Isle du Diable.

"Hell let loose" are the only words I can use to describe the departure of the *Biskra* from Martinique.

We had already taken on board representatives of almost every conceivable nationality, and their various goods. Third-class passengers had found their way into the first-class; first-class were adrift down in the third; nobody's baggage had been put in the right cabin; a swarm of darkie sightseers hampered the labour gang upon the quay. Even so, we might have got away at approximately our scheduled time had it not been for the arrival, at the last minute, of three British racehorses, which had been sent up by their owners from Trinidad to Martinique in the hope that they would either win a race or break their necks, and which had fulfilled neither expectation and were being returned to their own island in disgrace.

Those three discredited quods did not want to go back to Trinidad—not they. They began their antics as soon as they saw the ship. Nothing would induce the first horse to enter his crate



"The passenger list was slightly mixed"

box to be swung on board. Grooms were scattered in all directions; the man operating the crane jerked up the crate box empty several times as though it was a fishing rod; passengers on the boat deck yelled advice to those below; those below hurled imprecations at those above. Finally, the captain, fearing to miss his tide, let out a long and fearful blast on the ship's siren, which frightened the horses to a frenzy and started them lashing out in all directions, thus clearing the quay.

We did get away at last, making our way slowly past the old Fort de France, into the heart of a glorious blood-red sunset.

At Martinique, fellow-travellers had commiserated with those of us who were embarking in the *Biskra*, saying she was probably the worst ship carrying passengers on any ocean. Well, one can't expect the *Berengaria* to take one to Devil's Island, and anyway the *Biskra* was none too bad. The two French officers who had charge of her were excellent fellows. The passenger list was slightly mixed; there was a Martinique nigger, a Corsican ex-bandit, and a Brazilian—all warders on Devil's Island, or rather at St. Laurent du Maroni, the headquarters of the convict settlement. Personally, I shared a cabin with a Chinaman, who, like most of his race, was a real gentleman, but he did not pollute himself with water nor make any change in his attire beyond removing his top shirt before he went to bed, from the day we left Martinique until he landed at Surinam.

From Surinam we went on down to St. Laurent du Maroni, where stands that tragic landing-stage on which those sentenced to penal servitude disembark. I will not write here of the horrors I saw at St. Laurent du Maroni, for I have described them once elsewhere.

Thirty-six hours later we stopped off Devil's Island to land and take off mails. It is no more than a rock on which there are a few coco-nut palms. The Isle Royale and the Isle St. Joseph belong to the same group. As we dropped anchor, a boat put off from shore, rowed by six convicts; five armed warders sat in the stern. As soon as the boat came alongside, two of the convicts and four of the warders immediately proceeded to climb up the gangway. The Captain of the *Biskra*, who stood at the head of the gangway, would not allow any of the party to come more than a few feet on deck, just sufficiently far to enable them to deposit the mail sacks and receive the new mail. He kept both warders and convicts at a distance. Maybe he thought, as we did, that the warders did not look any more prepossessing than the convicts.

Next morning we reached Cayenne. Cayenne has the reputation of being the most ghastly city in the world. Still, I looked forward to a couple of nights ashore. The Café du Verdun, they told me, was the best hotel. Two liberés, that is men who have finished doing their time for murder, arson, or robbery with violence, and are allowed to wander about the colony but may not quit it altogether, took charge of my baggage and off we set.

The Café du Verdun was not an hotel at all. Nobody was staying there, and I don't believe anybody ever has stayed there or ever will. The waiter was an interesting character—an ex-convict, of course. Rather tactlessly I asked him how he came to be in Cayenne. He made a frightful grimace and went through the gestures of sticking a knife into a foe's stomach.

I finished my drink rather quickly and left, being careful to tip him well.

My convict porters now suggested I could find accommodation with the Sisters of Charity at their hospital. Really, these Sœurs de St. Paul de Chartres are very brave women; they go all over the world. The Sisters took me in.



"Two liberés took charge of my baggage and off we went"

I found there were also staying there three parties of Belgian gold prospectors, none of whom were on speaking terms. The hospital orderly was a convict; after my *faux pas* with the waiter I did not ask him what he had done, but from the look of him he had killed somebody, too—a child very likely—he really had an awful face. However, everybody is matey out there, and after supper the orderly, a young mining engineer, and myself, sat round a guttering candle discussing how the orderly could escape (his was a life sentence).

Next morning I got up bright and early and went for a stroll in the town. Some vultures were demolishing a dog that had died overnight in the Place des Palmiers, Cayenne's principal beauty spot, otherwise there was not much sign of life.

After a bit I found a barber's open and went in, changing my mind, and asking for a haircut instead of a shave, when I remembered the barber was almost certain to be an ex-convict.

He was an ex-convict too. He had been five years on Devil's Island, and the French Government had only just found out he was innocent of the crime for which he had been convicted and set him at liberty. Naturally, he was annoyed. Barbers are generally loquacious, but I never heard one talk as much as he did while he was cutting my hair.

It was now getting time for the old *Biskra* to sail, and, though she was not exactly a floating palace, I must say I was very glad to get on board her once more. Sitting on deck, reviewing the trip, I came to the conclusion that it had had its drawbacks. But, at least, for someone like myself, who has a passion for queer experiences, it was something to have had my hair cut by a man who had been on Devil's Island.

Ginger Revisits the Opera

By JAY COOTE

"I 'EARD that tune only the other night," said Private Thomas Miggs; he pushed back the empty beer mug on the table and took a half-smoked cigarette from behind his ear.

It was quite by chance that I had met him again at Wiesbaden. "Ginger," as he was known to us, was a Cockney Tommy in the Rhine Army; for three years he had acted as office orderly for me at Cologne. Our unexpected meeting in the Wilhelmstrasse had prompted me, for the sake of old times, to seat him at a table on the Terrace in the Kursaal Gardens. The orchestra had just played a medley of operatic airs.

"That," I replied, when the applause had died down, "was the Toreador March in *Carmen*."

Ginger's face lit up. "You've 'it it," he said, "first go off. That's what I 'eard on Thursday night, next door." He pointed to the left of the Kurhaus. Next door, I may tell you, is the Wiesbaden Opera House.

I recalled a description he had once given me of a performance of *Lohengrin*, and foresaw in this chance meeting all the elements of a good story.

Ginger's points of view were taken from a peculiar angle; his was no carping criticism, but a relation of facts as he interpreted them, and as they appealed to his senses.

I settled myself down comfortably in the wicker chair, but a quick glance showed me that his mug demanded replenishment; tact was needed, and sufficient lubrication by means of ice-cold Münchener was required to ensure an uninterrupted narrative. The white-jacketed *Ober*, on point-duty two tables away, at my signal exchanged Ginger's mug for a full one. Nature abhors a vacuum; so does a German waiter.

"Were you alone?" I queried.

"'Im wot we calls Nobby Clarke was with me. Yer see, last week we 'ad the choice of *The Tanner-ouse*, *Riggleletter* and this 'ere *Carmen*, so we tossed for it. It must 'ave been my lucky dye."

"Lucky?" I asked.

"Yus, I was always fond of 'orses, and the mark fell 'eads up for *Carmen*."

By this time I realised that I had Ginger fairly well on the way; it required but gentle persuasion to keep him going.

"*Carmen*," I said quietly, "possesses a very human story." This as an opening, of which I felt he would avail himself. It succeeded.

"Not so dusty; I've seen worse at the ole West London," he answered. "She was a bit of 'ot stuff and no mistake, and she deserved orl that come to 'er in the end."

"Tell me about it," I prompted.

"Well, when the curtain went up we was on a sorter market plice; might 'ev bin Piccadilly Circus, only a bit livelier. There was a sergeant-major and some other ranks on guard. Wot for, I don't know, except that in Spain where this was—did I tell yer it was in Spain?—I s'pose they 'ad to do p'lice work."

"That was the guard," I explained.

"Oh—ah! Well, any'ow, they didn't seem to be 'aving not 'arf a bad time, for there was oodles of girls abaht, giving them the glad eye. Some young feller-me-lads come along and talked with the skirts, and they clicked and went orf. Just then anuvver gel comes along—"

"A scene of animation," I interrupted,

"No, Nobby Clarke, who can read the lingo

better than wot I can, said as in the programme the name wosn't Annie, but Micky Ayla. The old Major was fair 'it between the eyes; a tidy bit of skirt, she wos. But she wouldn't 'ave 'im; she wanted some Joseph chap."

"Don José," I explained. "He was a brigadier."

"Wot, a blinkin' general!" exclaimed Ginger.

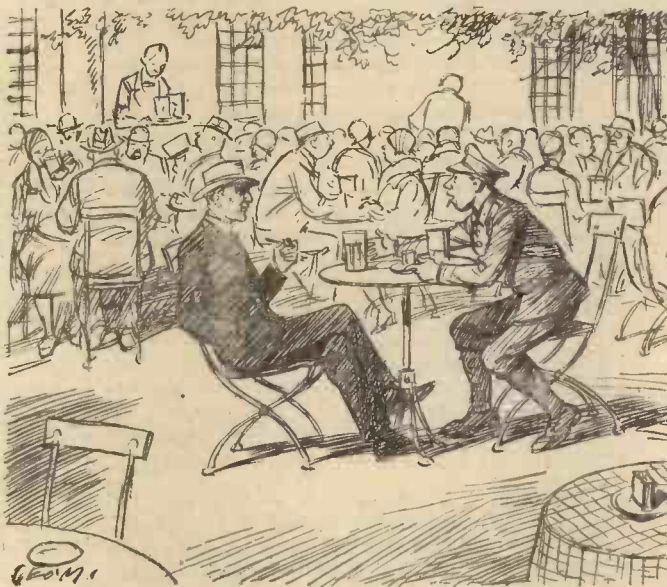
"'E didn't look like one."

"No," I corrected, "a brigadier—something between a corporal and a sergeant."

"Oh, just a non-com. I didn't count 'is stripes. Any'ow, she'd got a letter for 'im—one of those billy ducks, I expect, and she wouldn't give it up. The sergeant-major, or wotever 'e wos, made up to 'er, and when 'e offered 'er a drink or something, she sloped orf, offered like."

"Not much action," I said, merely in order to draw him out.

"'Ere, you wait a bit, I'm a-telling this story.



"'Ere's the factory, that there ash-dish is the guard-room; and . . ."

Just then a bugle rings out, not as I knew the call, but in come the relieving guard. Did I tell yer as they wos dragoons? In they come, tooting away with their trumpets like a lot of Boy Scahts dahn ahr way, with a bunch of kids dancing abaht in the van, and all the gels and fellers from the blessed neighbourhood tailing along in the rear. There wos one officer, a lieutenant—'e wasn't black, but Nobby Clarke sed as 'is moniker wos Zoo Nigger—and next to 'im wos the Joseph chap."

"Ah, yes," I murmured, "Zuniga and the brigadier, Don José."

"'Srite," continued Ginger. "After a bit they settled dahn and lit up their fags. Slovenly they wos, I think. They played crown and anchor, and old wot's 'is nime, Joseph, 'e starts a polishing up his kit."

"No, no," I interrupted, "he was supposed to be making a—"

"Wos you there," snapped Ginger, "or wos I?"

I suppressed a chuckle and turned it into an apology.

"While 'e wos at it, the sergeant tells him abaht the letter wot Micky wouldn't give 'im, and up walks the Zoo Nigger, and all three 'ave a bit of a confab, until the dinner bell went at the factory."

"Factory?" I raised my eyebrows. It was my intention to secure all details.

"Yus," explained Ginger. "There wos a cigar works rahnd the corner." He reached out for my glass, the ash-tray and the match-stand. "'Ere's the factory, that there ash-dish the guardroom, and this match-stand the steps at the back of the stige. These blokes were standing, as you might say, 'ere." He seized his mug with the intention of illustrating their position; then, presumably prompted by a second thought, lifted it to his lips and quickly swallowed the contents.

"That's perfectly clear to me," I said. "What happened then?"

"Caht quite remember, except that after a lot of singing—a good chorus, that wos—the big noise come on—'er wot they called *Carmen*—a buxom wench with black 'air and a rose stuck in her face. Nobby sed as she'd never seen Joseph before, but when she'd given him the once-over, she threw her rose at him and 'e picked it up. She wos out for 'is 'ide, she wos. After that, she ran away back to the works with orl the other gels."

At this point Ginger's attention seemed to wander; he patted himself all over.

"Forgot me fags!" he said in mournful tones. I opened my cigarette case and placed it on the table before him. He picked out two, putting one behind his ear, and lit the other one.

"The next turn wos a bit of orl right, for there wos a shemozzle at the factory, and all the female 'ands ran out and rahnd the stige like a lot of 'ens, shouting fit to blow yer 'ed orf. They wos all pointing to this *Carmen* wench. There 'ad been a bit of a set-to, you see, and she'd tried to do another gel in by stabbing 'er in the neck with a 'atpin, so the orficer sends 'is men out to quieten 'em dahn, and the sergeant, this Joseph feller, 'e arrests *Carmen*. She wos a saucy bit of stuff, I give you my word, but she wos for it orl right. I wouldn't 'ave liked to 'ave the job of looking after 'er myself, but Joseph wos told off to 'ang on to 'er till they went back to barracks, and to shove 'er in the clink." Ginger paused for a few seconds.

"Was he in love with her?" I queried, not so much for the sake of asking as to recall my presence to him.

"Yus, and a nice dancer she wos, if on the plump side."

Ginger apparently had an eye for beauty, although so far as I could recall, in the old Cologne days his tastes in that direction had not always demonstrated this quality.

"Well," I remarked, "knowing the weakness of corporals and sergeants in that respect, I suppose he let 'er go?"

"You're not far wrong," was the reply. "I should a done it myself. She sang to 'im, she did a dance, and 'e wos knocked clean orf 'is perch. Any'ow, 'e untied 'er 'ands and before you could say Jack Robinson she wos up those steps at the back of the stige, waved cheerio, and did a guy. As I sed, she wos no bantam-weight, and them stairs wos a good pull up for *Carmen*."

I laughed; Ginger saw the joke and smiled. "There wos a bust-up all rahnd and the curtain come down. Nobby and I went out for a wet."

Ginger's hand sought the stone mug; its lack of weight caused a troubled look to come over his face.

The *Herr Ober*, who had been standing in the offing, with an air of expectancy approached our table.

"Was wuenschen die Herren?"

"Another half-liter, cully," replied Ginger, "and bitte make-n *Sie* it snappy—you know, 'toot sweet.'" His capacity for the rapid

assimilation of iced Munich had evoked considerable admiration even amongst the Germans.

"And what happened after that?" I asked.

"Ah!" said Ginger, "the next bit was the goods all right; we was took to some kind of a cabary. Nobby 'ad bought a sino-something, givin' the story in English—funny English it wos, too!"

"A synopsis of the plot," I suggested.

"Yus, somethink in that line. Well, it wos a sort of American cabary; it wos called The Inn of Lill' Pastries."

"Lillas Pastias, eh?"

"Yus, in their lingo. The plice wos full of gipsies, and there wos that Zoo Nigger trying to cut out the Joseph chap with Carmen. We 'erd some good singin' and dancin', and after a while in comes a fat feller who killed the bulls in the public slaughter-house."

"Saints alive!" I thought, "what a fall for the Toreador!" but I refrained from interruption.

"Then it got a bit mixed," continued Ginger. "E made up to Carmen, and went off wiv all the people cheering 'im. 'E seemed a bit of a favourite. A few minutes afterwards in comes Joseph—you know, the——"

"Yes, Don José, the brigadier."

"That's 'im. 'E 'ad copped it 'ard, not three days' C.B. but two muns in the lock-up. Bit thick, that wos. Then 'e made up to Carmen and they'd become quite matey-like when the Zoo Nigger came back and bust the door down. Yer see, 'lights out' had gone at the barracks, and old Joseph 'adn't turned up at roll call, and the officer 'ad twigged where 'e wos. Nobby and me, we wos looking forward to the scrap, but it didn't come orf. Carmen let out a yell and 'arf a dozen chaps fell on top of the Zoo Nigger and took 'im away."

"This is becoming exciting," I said.

"Not 'arf bad," conceded Ginger. "It wos as good a plye as any I've seen before, only no fight ever come orf."

"What, not even in the third and fourth acts?"

"'Ow d'you know wot 'appened? Wos you there?"

I denied the suggestion that I was present, but submitted the plea that I had heard of the opera before—but, of course, in a vague way.

"When we got back to our seats we saw a fairly dark stige, wiv mountains, and a platoon of them gipsies doing fatigue duty carrying supplies. Smugglers, they wos. Carmen and Joseph 'ad a bit of a dust-up and she told 'im orf proper. So 'e wos sent off with a flea in 'is ear and she did the three-card trick with two other gels. Then little Micky pops up again—the fair girl wot loved 'im, but 'e shot at 'er, the silly ape, and she ran away. Funny thing wos that 'e just missed this bull chap, and the feller showed us the 'ole in 'is 'at. Well, 'e cut up rusty and 'im and Joseph were just going to 'ave it aht when Carmen made 'em break away."

"So you were done out of your fight after all," I interjected.

"Yus, worse luck, and just then little Micky came back and told Joseph that 'is mother 'ad caught a chill on 'er liver and wanted 'im 'ome. So 'e says 'Auf Wiedersehen' to Carmen and dahn comes the curtin." Ginger reached out for his mug of Münchener.

"Is that the end?" I asked.

He glanced at its contents. "Very near," he replied, and finished it at one gulp. He laid it down gently and wiped his mouth on the sleeve of his tunic.

"I meant the play," I said.

"Oh, that! The end wos good. It wos another sort of market plice with a circus at the back. There wos a crahd, some of them circus chaps and programme and choclit gels and wotnots. Well, old Joseph, you see, 'ad

(Continued on foot of column 2.)

To a Wild Rose

By WILLIAM MACKAY

IT was wireless that put the stopper on my lack of recognition.

I suppose that everyone has what Freud would probably describe as a familiarity-breeds-contempt complex, in a greater or less degree, which is the cause of our regarding, to-day, with a certain tolerant *ennui* that at which we marvelled only a very short while ago. Realisation descended on me in this wise.

It was night—just such a night as falls in quiet country, on 365 calendar days of the year. Having nothing better to do—for I am not a wireless "fan"—I had just tuned in on the portable set, almost without apprehension of coming enjoyment—more as a matter of course. It was in the middle of a programme, and a violin solo was in progress. Then, suddenly, I must have stiffened in my chair. McDowell's *To a Wild Rose* was throbbing through the mouth of the loud speaker.

In a moment—I recalled afterwards—the room where I was sitting, occupants and all, had faded from my ken, and I was stretched on the night-hot sand floor of a great, prehistoric desert, beneath ruins so old that men can't even guess their antiquity, with a big New Mexican moon-jewel flaring softly through *cañon* and *arroyo* over the land. The portable's loud speaker was throbbing forth in just the same way the same air—*To a Wild Rose*.

Man-invented and man-recorded music on a horizon-bound desert, without a known soul in a half-thousand mile radius! Is it any wonder the air so loved by poor, paralysed McDowell should so impress itself on one hearing it once under such circumstances?

It had been a blue-white day of shimmering heat haze, I remember well, for the ball of fire had burned the water from our veins as we rode the blistering, *yucca-gaunt* *tierras calientes* up from the red Llano Estacado. Our cavalcade—meagre enough—consisted of, besides myself, a half-clad Navajo Indian camp-wallah; a leathery, silent, desert-wise cowman of uncertain age, who answered to the name of Nagel; two hard-bitten, sun-dried, witherless *brancos*; and four of the smallest-hoofed, longest-eared little *burros*—and the portable! It was a great portable, and the *prima donna* of that desert outfit. A sudden run of luck at a forbidden *faro* "layout" in *Ysleta*, and a broken dealer who was forced to eke out his losses with what furniture his shabby 'dobe "dive" afforded, were responsible for the portable.

(Continued on next column.)

been drummed out for desertion; 'e 'adn't arf come dahn in the world! A reglar tramp 'e looked like. Carmen wos there and the bull chap came in with all the people cheering, and went to the circus. I dunno wot Joseph wanted, but she wasn't 'aving any, and they both got waxy like, so when Carmen threw a ring at 'im and tried to go into the circus after the other feller, Joseph ups and gives 'er one in the back with a carving knife' e'd 'id up his sleeve. Then there wos another dust-up and they all come in and get 'old of 'im, and he sez it's a fair cop, and gves 'em best."

"Ah, well," I said, "a tale with a moral."

"She got in the neck and no mistake," replied Ginger pensively, "but she 'ad it coming to 'er, wot wiv 'er carrying on with three of them at the same time. When I wos at Cologne——" He stopped and looked up; another British Tommy, a few yards off, was trying to attract his attention.

"Well, so long, sir," said Ginger. "That's Nobby Clarke over there. We're leaving 'ere on the 14th, so——"

But it was Nagel, the leathery-featured bull-whacker, who impressed the importance of the portable on our Navajo major-domo.

"Yuh-all are probably aimin' to accumulate agin' with that there tribe of yourn, Taos way," began Mr. Nagel with indifferent drawl, fixing the Navajo with an eye chilled to the hardness of beaten steel. "*Buenos*. Now, ef it so comes that there's airy a scratch on this yere vocal musical-box, yuh-all's kinder liable to set up housekeepin' in the *tierras calientes*, permanent and alone. Savvy?"

That night, I recall, we camped under the overhanging walls of a castellated city, hung high up from the sheer face of a beetling basalt crag. All day our *brancos*, saddle-tired and leg-weary under the sizzling fire from the desert flooring, had staggered on, tongue hung, under the urge of leather and steel, and the Navajo had plied the score of his cactus goad unceasingly. But now, as dusk came creeping like a grey wolf down from the *barrancas*, the embers of our camp fire burned a hot red against the bulging New Mexican stars.

In the south-western plateau of the United States, on whose tawny face our little encampment was no more than so many flecks of tiny sand, are the remains of a prehistoric life, so ancient that only speculation attempts to connote its antiquity. High in the *barrancas* they hang—castellated ruins of forgotten communities. Perhaps the men who built these cliff "cities" emigrated from the Nile Delta; there is evidence. Mayhap their womenfolk followed the flower-decked barges of Death to Heliopolis, the city of mausoleic silence. Now, only partially intact arches, door and window ways, and broken bartisans of jutting house walls, overhanging the zone of earth and sky for a thousand miles of horizon, are left to speak to us of the glory that was Egypt.

It was under the house flooring of one of these cities, garnet-red from the roar of our camp fire, as though a raw foetal life were jazzing in its womb, that we pitched our one-day tent, *brancos* and *burros* browsing, knee-tethered, on what sparse verdure the *cañon* maw afforded. "Chuck" disposed of, we stretched ourselves, tobacco-comforted, and put the portable into action. What written words can convey the thrill of hearing, in that thousand-mile waste of sand and cactus, "The *Los Angeles Times*; Uncle John speaking!"

Regard yourself, if you please. We were in the midst of a waste, non-verdured, man-shunned desert, over a thousand miles as the crow flies from *Los Angeles*, with no other human, so far as we knew, nearer than, possibly, all of 300 miles. And yet, through the agency of a little wooden box, borne with several hundredweight of other things on the back of a pack *burro*, we were listening to the well-known voice of Uncle John, the beloved wireless announcer of the *Los Angeles Times*!

Then, suddenly, it seemed as though a hush fell on the very night face of the desert. Just before, a coyote had been howling with the wail of a damned soul from a spired peak, over which the moon, now a shivering green, gashed with three grey fingers, hung, while a bittern had boomed back at him from the black of an half-fallen arch in the ruins overhead. Then fell the utterness of the silence—and from the heart of it came throbbing through the loud speaker *To a Wild Rose*—a violin sobbing of a flower, over the face of a land where no flower is, whose only vegetation is the leafless, spiney *yucca*, and the cruel Spanish bayonet!

It was with a jerk that I somehow pulled myself back from the moon-shot New Mexican desert, and the big, warm cobalt sky beaded with stars as though with pearls, to my cosy little home in our lovely British Isles. But the familiarity-breeds-contempt complex had now given place to wonderment—at the miracle that is wireless.

Vitamin "P"

A December Afternoon's Dream

By ARTHUR COMPTON-RICKETT, Litt.D.

I HOLD Sadie responsible for what happened.

Sadie is chronologically reputed to be a child of thirteen. But years mean nothing nowadays. Anyway, that is how we sexagenarians cheer ourselves up. I do not know why she was called Sadie—except . . . yes, I think I do know, but, it being the festive season, I would rather not say.

There is a wood beyond my garden, and to the wood I have brought my portable wireless. The day before had been arctic, so I knew to-day would be as warm as midsummer. You see, I am an English weather expert. It is my habit to light a bonfire here at this season, and on this particular day I had been beguiled into having a small tea-party. Buffin brought out the tea-things. As a butler, he is excellent, with a spiral grey hair ascending from his otherwise bald scalp, like steam from an apple dumpling. As a man, he is trying, for he suffers from perpetual colds in the head and I didn't like the way he sneezed over the sandwiches and cut bread and butter. I told him to get indoors quickly, before the wood was under water.

Then my cousin Jane (middle-aged and astrigent) appeared with Sadie in tow. "Well, kiddie," I said "what's that story-book?"

"It's not a story-book," said Sadie, scornfully, "it's just Shakespeare."

"Modern education, Robin," said my cousin, "I pay preposterous fees for my niece to be taught to bore people in public."

"It's teaching us to act," said Sadie.



"Puck, at your service."

Jane sniffed. "Teaching you to act! As if every girl didn't act from the moment she was born." Sadie smirked. "I'm going to be awfully good."

I looked at the fire pensively and remarked: "Little swank!"

"I'm not. I can't come on and say just 'Oo'er.'"

"It would be sooner over if you did," sighed Jane.

"Well, well," said I, "What is the book? Ah, I see, *A Midsummer Night's Dream*. Delightful!"

"It's the stuffiest old thing I ever came across. All about fairies and piffle of that kind. I've got to play Puck. Like to hear me?"

"What about tea first," I suggested, memories of Dr. Johnson and young reciters flitting through my mind. And at this moment other guests arrived. Let me introduce them.

Archdeacon Small (large, of course; in figure like an overgrown pear, but harmless and genial), Tony and Joan (recently married and depressingly casual with one another), and a few others, including a Bright Young Thing—Lola.

Sadie may not have imagination, but she has a vigorous appetite. Yet even the best appetite wanes, and later on I found myself holding the book for Sadie whilst she, her mouth decorated with crumbs, was mumbling her part. Jane, with the others, unfeelingly disappeared towards the fire which was a hundred yards away. Over Sadie's rendering of Puck's speeches I will pass. Christmas stories should eschew the minor key. I was glad Shakespeare wasn't there. I was glad Mr. Poel wasn't there. Even the mildest men have their homicidal moments. Suddenly I discovered I was standing in a fairy ring. I pointed it out gleefully to Sadie.

"What is it? Missing treasure stunt?" piped Sadie.

"It's a fairy ring, my child."

Sadie was distinctly pert. I gathered something about "priceless" and "dippy;" and then, with a sandwich-cake-and-bread-and-butter giggle, she ran away to join the others.

I sat down. Perhaps it was the fire at which I stared for some moments. Perhaps it was the mildness of the afternoon. Perhaps it was force of habit at this time of day. Anyhow, I dozed off—and opened my eyes with a start.

It was dark. A handful of stars overhead, and a glint of moonlight through the trees. Charming! But why hadn't I been roused?

Was this a practical joke? Young people to-day indulge in all kinds of imbecilities which they regard as funny.

Suddenly I heard the boom of Big Ben from the wireless. Good heavens! had I been sleeping all that time.

"The iron tongue of Midnight hath tolled twelve"—and so on! Buffin must have doped the tea. Possibly everyone else was doped—but no, the thought was absurd and entirely due to my being dragged to films by bright young relations. I looked at my watch. It had stopped at 4 o'clock. Almost immediately a peal of laughter came from the wireless. Ah! was this what they call the "surprise item"? A small boy stood before me, dressed like a Boy Scout. He grinned at me. "Up and down, I will lead them up and down."

I murmured, softly: "Bless my soul!"

"No wish to curse it," said the small boy. "Puck, at your service."

"Of course," I said, politely, "But why this costume?"

"Why not? It's the twentieth century, isn't it?"

"So I'm told. But how is it Sadie didn't see you?"

"Only children see me. She's too old."

"Dear me—a delicate compliment. Haven't you seen any of my friends?"

"Thought I'd see you first. You stood in the ring."

"What's the idea," I said. "I haven't forgotten that love juice of yours!"

"Love juice! Bah, that's an old wheeze. I use fruit pastilles now. One must march with the times. Pop one in the mouth, and you love

madly the person you happen to see at that moment."

I shook my head. "Think of what a mess you made of that in the wood near Athens. Besides, you must be original, Puck. People don't eat 'pastilles to-day.'"

Puck grinned. "Tell 'em it's a new vitamin and they'll swallow it all right. And remember my pastille lasts for ten minutes only. Then—as you were. Think of what fun you can get out of it with a boxful at winter parties."

"We don't do badly in fun, even without pastilles. I'm not sure it would be wise." But the idea tickled me. It would be distinctly amusing. Jane might fall for Buffin. Then there was the Archdeacon and that little minx, Lola. "Give me a box," I said. "After all, they left me alone in the dark."

Puck laughed. "No, I keep the box."

"You may forget."

"My honoured Lord, this shall be done with haste. For night's swift dragons—oh, sorry. I'd fallen into the old gags. Don't worry. Fairy power is at its strongest in June and December."

A faint sound of singing came from the wireless.

"That little worry," said Puck, crossly. "Ariel again! He shows off so frightfully with his parlour tricks. He'll probably turn some of your guests into strange wild animals."

"The attempt might be superfluous," I murmured. "Now mind you remember."

"I will, I will, Jack shall have Jill. The man shall have his mare again—I mean cheerio." And in a flash he was gone.

"I think it will be amusing," I murmured. "Now, Robin—aren't you coming to pick an apple out of the fire. It's no good snoozing."

I rubbed my eyes. The fire was still blazing and crackling. "Why, what a pity!" I said.

"What's a pity?" asked Jane.

"Heaps of things," I muttered, vaguely.

"What's a pity?" asked Tony, his arm was round Joan's waist, and they both looked flushed and happy.

"Oh, nothing," I said. "Perhaps he was here after all."

"Potty!" said Sadie. A rude child.

But I felt so absurdly amiable I could almost have heard her speak her piece again. *Almost*, I said.

THE CHRISTMAS PARTY.

The old Loud-Speaker said, "I think it fair, As Christmas is Relayed but once a year— That festive time when joys should be Transmitted

To everyone who has a "Wireless" fitted— To give a children's fête on Christmas Day."

And all the wee Electrons cried "Hooray!" This genial host then Broadcast invitations To friends in England, also Foreign Stations.

The guests ate beef—'twas roasted on a Grid— And Christmas pudding, in whose depths were hid,

Besides the Currents, just to make it sweeter, Some Anodes and a Modulation Meter.

"Snap-Dragon" followed, Fused Magnesium Wire,

Which set, alas! the Christmas-tree on fire, And poor Aunt Jane, though comforted by clerics,

Went off in an attack of Atmospherics! The fire soon Faded Out and was Closed Down,

Although Aunt Jane Announced it singed her gown;

The wee Electrons laughed, and two small friskers

Were next discovered pulling the Cat's Whiskers! Then Batteries of shrill "Good-nights!" were said.

And nurses took their Charges home to bed.

LESLIE M. OYLER.

Tall Stories

By MORLEY ROBERTS

I.—The Man who Walked at Night.

AFTER his late walk Thorne went home in a state of mind which seemed to preclude sleep even if he did take bromide.

"I'd like to kill Hardwicke," he said furiously. "If we were only out in the East—shall I never get to sleep?"

He counted "one," "two," "three," to a thousand; then he counted things: sheep, dogs, scoundrels, dead men—all like Hardwicke. Then he heard thunder and the first rain for a long month and fell asleep at last.

He woke aching in every limb, and found it dawn.

"I might have walked a hundred miles—in my sleep. I haven't walked in my sleep for years. What was it I dreamt? What? I feel so ill!"

At eight o'clock his man brought tea and said his bath was ready.

"I won't get up. 'Phone to Dr. Grey to come and see me."

At ten-past nine the doctor came in.

"Well, what's the matter with you?"

"Oh, I'm just bad! I feel bruised all over or as if I'd walked all night."

"Have you had another attack?" asked the doctor.

"Not—not that I know of. But I've been dreaming of that scoundrel," said Thorne bitterly.

"You'll never be happy till he's dead," said Grey.

"That's true," said Thorne savagely.

"Then be happy now," said Grey, with a grim smile. "Hardwicke is dead, Thorne!"

Thorne sprang up and stared at him dumbly.

"Not only dead, but murdered at last," said the doctor. "One of his victims knocked his brains out on the step of his flat in Sloane Street."

Thorne gasped.

"Why, doctor," he said, "last night I believe I actually dreamt that I killed him myself!"

"Well, you don't seem so cheerful about it after all," said Grey.

"It's a bit of a shock, glad as I am," said Thorne. "Yes, but I am glad! Yes, I am!"

"Then stop in bed to-day," said the doctor. "I'll come round and look at you to-night."

But as soon as Grey went Thorne crawled out of bed and went into his sitting-room.

"No, no, I can't stay in! They'll know something at the club. It must have rained furiously while I was asleep, furiously!"

He went to his bath and back into his bedroom and dressed rapidly. Why the devil had Johnson put out that suit of clothes?

"I dreamt! What was it I dreamt?" he said again and again. He returned to his sitting-room and rang the bell.

"I'm going out at once. Bring me the boots I wore yesterday," he said.

"You must take another pair, sir," said Johnson. "The others and your clothes are very wet, sir."

II.—The Stuffed Tiger.

A Fo'c'sle Yarn.

WHILE I was in India I never seen no tiger, but I knowed a cove as was 'urt by one and a stuffed one at that. I was in the *Mofussil*, from Rangoon River for

Calcutta, and we 'ad a colonel aboard and I heard him tell about a tiger he shot and give to the club in a bungalow just outside a place called somethin' like 'What-is-it.' He had it stuffed lying down on account of bein' damaged on the starboard side. And colonel said the *budmashes*, which means waiters and the like, of the club, took a down on him and cut off the tiger's whiskers and poured hacid over it. What 'appened to the *budmashes* I don't know, but



"He sot down on it plump-oh"

the colonel 'ad the damaged tiger 'auled out into the compound and took drinks on it, setting there very savage. And that night, lookin' out he let on that he saw that very tiger walkin' about in the compound! He roused the place and they soothered him, but in the morning they found the tracks of a live tiger wot 'ad bin smellin' round the stuffed one. So the colonel sat up for it with a gun and a bottle three nights. But all he emptied was the bottle. On the fourth night he went out to dinner and drank so he forgot all about that there damaged tiger. He come back to the club late and seen the tiger lyin' just in 'is usual place, as 'andsome as ever. I heerd him tell all this on the bridge to the skipper and the mate while I was at the wheel. And he let on that he felt a bit unsteady comin' 'ome tanked up, as he owned, and the only seat handy bein' the tiger, he sot down on it plump-oh! and was boosted up among the rafters of that bungalow what he 'angs on to while the live tiger as 'ad come in and took a snooze, gives a 'woof' and shoots through a winder. And there the soldier was 'igh and dry bellowin' for 'elp. And out comes the others and fetches a ladder, arskin' of 'im 'ow 'e got there. And he tells 'em and they sends for the doctor. And the medico nods and says, 'Yes, yes, but let's put you to bed.' And ever after when he begins about the tiger the other coves says, 'Yes, yes, Colonel, but let's all go to bed,' and he retired from the Army in consecens.

"'Crool, warn't it?' he says to the skipper. 'And as for him not eatin' me,' says the colonel, 'why, in a way he was a stuffed tiger, too.' "'Ow d'ye make that out?' arsts the skipper.

"'Because that there tiger 'ad scoffed 'alf a goat and a good part of a *budmash* afore he took that there snooze,' says the colonel.

"And down he goes on deck and the skipper looks at the mate and winks and says:

"'Yes, yes, Colonel, but let's all go to bed!'"

Here's
Happiness
and Prosperity
for you and yours.

£275 A YEAR FOR LIFE, WHEN YOU RETIRE.

Think of it! A care-free life, from, say, age 55. An income of £275 a year absolutely secure to you for the remainder of your days—even if you live to be a centenarian. An income irrespective of business or other investments, and not subject to market fluctuations, trade conditions, or political troubles! What a boon to you and yours! What a burden off your mind!

The plan devised by the Sun Life of Canada makes this splendid prospect possible for you. You deposit with them a yearly sum you can well afford out of your income, and the money, under the care of this most prosperous company, accumulates to your credit, and to it are added extraordinarily generous profits. Thus you share in the Company's great prosperity.

The figures here given assume an age of 35, and are estimated on present profits, but full details of other ages and amounts will be sent upon request. Here is how the plan works out:

£275 a Year for Life.

From 55 years of age you will receive £275 a year for life. If you prefer it, a cash sum of £3,400 will be given you instead of the yearly income.

£20 a Month if Unable to Work.

(Applicable to residents of the British Isles, Canada and United States.)

Supposing you adopted this new plan now, and next week, next year or any year until you are 55, you become—through illness or accident—permanently incapacitated for earning a living, £20 a month will be paid to you until the £275 a year becomes due.

Income Tax Rebate.

If Income Tax remains as now, you will save over £200 during the term of the arrangement. This is additional to the profit you make on the transaction.

£2,000 for Your Family if Anything Happens to You.

Should you not live to the age of 55, £2,000 plus accumulated profits will be paid to your family. If death results from an accident the sum would be increased to £4,000, plus the profits.

Any Age, Any Amount.

Though 35 and £275 a year for life have been quoted here, the plan applies at any age and for any amount, even for a policy of only £100. Whatever your income, if you can spare something out of it for your and your family's future, this plan is the best and most profitable method you can adopt.

£100,000,000 Assets.

The Sun Life of Canada has assets of over £100,000,000 which are under Government supervision. In addition to the foregoing Plan, this great Annuity Company is responsible for protecting thousands of men and women under its Group Assurance and Pension Policies, and it also specialises in provision for Children's Education.

FILL IN & POST THIS FORM TO-DAY

To H. O. LEACH (Manager),
SUN LIFE ASSURANCE CO. OF CANADA,
111, Sun of Canada House, Cockspur Street,
Trafalgar Square, London, S.W. 1.

Assuming I can save and deposit £.....

per..... please send me—without obligation on my part—full particulars of your endowment plan, showing what income or cash sum will be available for me.

Name.....
(Mr., Mrs., or Miss)

Address.....

Occupation.....

(Exact date of Birth).....

W.R. 13/12/29

CHRISTMAS CUSTOMS and TRADITIONS

Relics of Paganism in Europe

By J. E. PRYDE-HUGHES, F.R.A.I.

WE little realise the powerful survival of Paganism in Europe, and the many forms of worship which persist despite the victory of Christianity a thousand and more years ago. Even in our daily life Christians perform acts (in most cases as a sort of superstitious ritual) which belong to those religions our forebears strove to maintain against the influence of the missionaries. But then most religious forms are relics of older superstitions, and the early fathers of the Church, in their wisdom, did not hesitate to graft Christian branches on to the old pagan trees, well aware that the roots could not be eradicated. All over the Continent, if sought for at the right time, there will be discovered lengthy and elaborate festivities which are based on pure pagan worship.

Christianity borrowed many old pagan forms, yet it effectively laid the foundation of our Western civilisation. Had Christianity failed, our accomplishments today would have been vastly different. Even the pagans from the East, who overwhelmed Europe after the advent of Christianity, eventually turned to defend the Western civilisation against the East, and during the centuries their outlook has completely changed.

Through a thousand years it might be expected that all signs of Paganism in the West would have died out. But it is far from being so. Even apart from those forms incorporated in religious ritual, many actual festivals may be witnessed which are deliberately pagan, and hark back directly to the worship of Germanic and earlier gods and goddesses, and sometimes to untraceable beliefs and pre-historic myths.

We have signs very near home. Not only are our superstitious habits undying survivals of older religious forms, but very prominent red-

letter day festivals in the British Isles are distinctly pagan. A very good couple of examples are Christmas and the Maypole customs.

The Yule log, no doubt, goes right back to the marvellous discovery of fire, which enabled human beings to spread over the globe, and encouraged those nomadic wandering tribes,



A Group of Masked Dancers (Austrian Tyrol)

Mondiale.

who eventually settled in the colder regions of the earth. Fire meant so much that it was regarded with awe, and has been so regarded ever since. A ritual grew up and centred round the continuance of fire which must be ever kept alight owing to the difficulty of restarting it. And so the Yule-log freshly lighted at Christmas persists with Christians, despite the command against the worship of other gods.

The Yule-tide festival is perhaps the strongest in Norway, and the Scottish people, who brought much Norse myth with them from Scandinavia, maintain the older forms most distinctly in this country. In Norway the old feast of darkness and the spirits of the dead is the origin of many existing superstitions, such as that the ghosts assemble and fly through the air at Christmas, trying to catch and kill all who stay in their path. To propitiate the ghosts, the remains of the feast are left on the sideboard for many days. Later, this notion was turned round so that the ghosts became well disposed, the little Christmas spirit bringing good luck especially to the farmer's cattle. For this reason he must be well received, and a mess of porridge is placed in the barn for him.

The Christmas cake reminds one of sun worship, for at first it was in the shape of the sun, Christmas being the sun feast. But with the invasion of typical Scandinavian gods, the cakes took on the shapes of gods and animals, such as Thor's goat and Freya's pig.

Except for the birth of Christ everything we do at Christmas is an echo of pagan worship. Even our gifts to each other are both a reminder of votive offerings and sacrifices, and the placing of money on the altar has a similar origin. The Yule-bukk in Norway began in the early

custom of dressing up like the god Thor, with the horns of a buck.

In Central Europe the hauling home of the Yule-log (once common in England) is general, and it is lighted from the old log with solemn ritual, in some cases showing signs of ancestor worship.

A little later, when we arrive at Shrovetide, there is a galaxy of pagan habits to conform to. The decorated rod, at one time part of a Roman festival, in which it was for the woman, was once dressed with baby images and storks. But, like most customs with which trees are connected the origins go back to the days of Aryan migra-

tions and earlier, when the tree was endowed with extraordinary powers—our "touch-wood" habit comes from the same source, and incorporates the original sense of the magic protective circle drawn by the branch of a special tree, the oak, the ash, the willow, and so on, according to the country.

On May Day we have the festivals connected with fertility, and in some parts of Germany may trees are set up at the doors of stables and cowsheds, one for each horse and cow. This is thought to make the cows yield much more milk. The Irish have a similar notion, and in Suffolk it was the custom that the servant who brought the first sprig of hawthorn in blossom on May Day was entitled to a dish of cream. Cornwall witnessed this custom also at one time. The spring festivals with their pretence of casting out black winter and bringing in spring with a joyous welcome, are remains of very early worship of the various goddesses of rejuvenescence and fertility. Hogmanay (despite what Scotsmen may think), with its feasting, just symbolises the expectation of the new sun and renewed fertility; and Beltane fire or sun worship feasts at Yuletide, May Day, Midsummer, and Hallowe'en were frequent in England only a few years back. The Midsummer sun worship can still be met with in Norway, and other parts of the Continent, while in Yugoslavia it was discovered the other day that peasants killed their old fowls and smeared the blood on the doorposts and lintels. Our ancestors always built the foundations of a new home on a blood sacrifice!

The persistence of Paganism and the crudeness of the worship, however, serves to show how much we owe to the finer civilisation of Christianity.

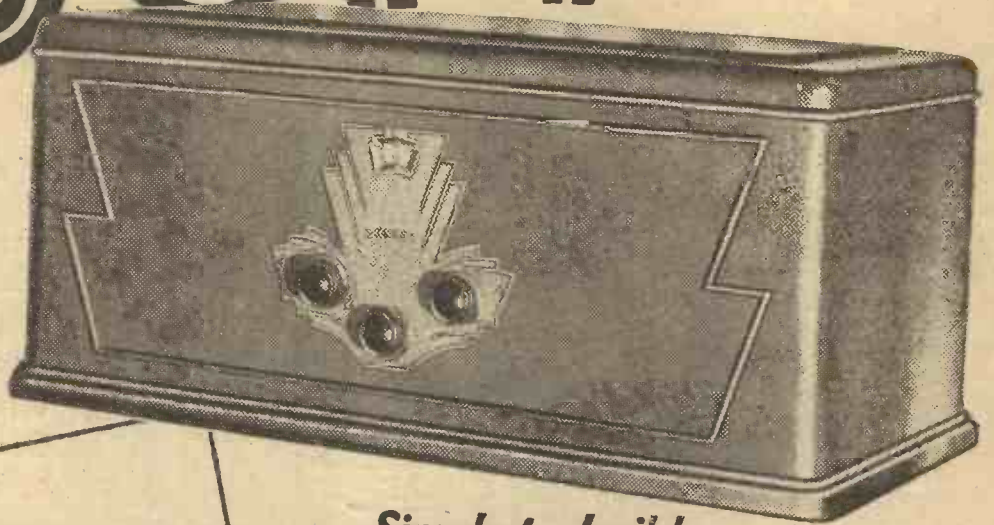


Mondiale.

Winter Mask of evil spirit

PROOF!!

that the 1930 Cossor Melody Maker is the Season's finest Set!



"Selwyn"
St. Helen's Avenue,
Grimsby,
Lincs.
31st. Oct. 1929.

Gentlemen,

I procured a 1930 Melody Maker last week and assembled it on Saturday and, considering the fact that the new Set is so simple to construct and so easy to handle, I do not think there can be anything to beat it.

I got it into operation at about 7 p.m. and up to the present I have logged with certainty the following:-

- | | | | |
|------------|---------------|-------------------|-------------|
| Nurnberg. | Rome. | Manchester. | Bratislava. |
| Toulouse. | Daventry 5GB. | Bucarest. | Breslau. |
| Barcelona. | Vienna. | Witleben. | Stuttgart. |
| Hilversum. | Belfast. | Paris PT. | Toulouse. |
| Barcelona. | Leipzig. | Prague. | Katowice. |
| Hamburg. | Turin. | Munich. | Madrid. |
| Frankfurt. | Goteborg. | Gleititz. | Langenberg. |
| Dublin. | London. | Moravska Ostrava. | Oslo. |

I have not done much on the long waves yet, but expect the results will be equally good. I received Manchester without any interference from either Hamburg or Toulouse, and the same applies to these two stations also. It speaks very well for its selectivity as it is a very fair test, and I think that your new Set will receive anything that is at all reasonably possible. The quality, although I am using an obsolete loudspeaker is remarkably good, and the control leaves nothing to be desired, the volume control especially being exceptionally smooth. Merely to say that I am pleased with the Set is feeble, it is in a class by itself. Accept my congratulations on your success and my thanks at putting such an excellent instrument into my hands.

I am, Gentlemen,
Yours truly,

L. J. Slocombe

Simple to build

Only 10 components—only 20 wires. No soldering—no drilling—you can assemble it in an evening even if you know nothing about Wireless.

Easy to use

Only three simple controls—one knob for tuning, one knob for volume, one knob for wavelengths. No coils to change. Anyone can use it.

32 Stations!

All Europe at your finger tips with the 1930 Cossor Melody Maker! This remarkable Receiver enables you to choose your own Wireless programmes.

Knife-edge selectivity

At the mere twist of a single knob the 1930 Cossor Melody Maker will cut out your local station and bring you the programme you want to hear.

Superb tone

Because it uses a team of three accurately balanced NEW Cossor Valves this remarkable Receiver has an exquisite tone, rich, clear and mellow with majestic volume.

£8 15s.

Price includes the NEW Cossor Valves, the cabinet and the 10 components.

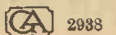
Ready shortly—All Electric Model . . . Price £15.

To A. C. COSSOR, Ltd., Melody Dept., Highbury Grove, London, N.5
Please send me, free of charge, your Constructor Chart which tells me how to assemble the 1930 Cossor Melody Maker.
Name
Address

W.R.
13/12/29

The 1930 COSSOR "Melody Maker"

A. C. Cossor, Ltd., Highbury Grove, London, N.5.





VALVES ARE EXPENSIVE! GET THEM FREE!

Here's a quality valve, British made and fully guaranteed, in whatever type and voltage your set requires, free. A good reception is always accorded to BLACK CAT Cigarettes for their quality alone—this splendid offer will make them doubly welcome.

LIST OF VALVES

When ordering state Gift No. and Reference No.

Reference No.	Type	Volts.	Number of Coupons.
ORDINARY AND POWER VALVES GIFT NO. 347.			
1.	L.F. AND DETECTOR	2.	150.
2.	H.F. OR DETECTOR	2.	150.
3.	RESISTANCE CAPACITY	2.	150.
4.	POWER	2.	150.
5.	L.F. AND DETECTOR	4.	150.
6.	H.F. OR DETECTOR	4.	150.
7.	RESISTANCE CAPACITY	4.	150.
8.	POWER	4.	150.
9.	L.F. AND DETECTOR	6.	150.
10.	H.F. OR DETECTOR	6.	150.
11.	RESISTANCE CAPACITY	6.	150.
12.	POWER	6.	150.
SUPER POWER VALVES GIFT NO. 638.			
13.	SUPER POWER	2.	200.
14.	SUPER POWER	4.	200.
SCREENED GRID H.F. VALVE. GIFT NO. 639.			
15.	SCREENED GRID FOR H.F. AMPLIFICATION	2.	350.

Free
FOR COUPONS
from

5 FREE COUPONS

(Dept. 213), Gift Dept., CARRERAS LTD.,
Arcadia Works, Hampstead Road,
London, N.W.1

Please send me Free Booklet and Five Free Coupons.

Name

Address

Only one of these signed Coupons accepted.

Black Cat

VIRGINIA  CIGARETTES

10 for 6^d 20 for 1⁴

FOR XMAS

Handsome Decorated Metal Boxes

50-2/6, 100-5/0, 150-7/6

BLACK CAT MIXTURE TOBACCO 1/- PER OZ.
Two Coupons in Every Packet.

CHRISTMAS SPORT IN NORTHERN LANDS



Shaking down the Christmas Pudding!



[Wilse, Oslo.]



Ski-jöring: Two Forms of this sport



Winter Silhouettes

[Photo: Canadian National Railways.]

Norway

By GLADYS M. PETCH

I KNOW of no country where the old-fashioned and cheery Yuletide spirit is retained to such an extent as in Norway. Christmas in Norway is very nearly the same now as it was centuries ago, and as it was when our own Saxon ancestors rollicked round their yule-logs and groaning festal tables.

Of course, old customs cling more tenaciously in the rural districts—the more out-of-the-way the more they stick—but still, one finds a very warm Christmas spirit also in Norwegian towns, far more so than in any other country. The Norwegian Christmas is first of all a family affair, an occasion for hearty reunion and rousing conviviality among scattered members of the clan. Unlike other countries, Norwegians rarely accept invitations to leave the family circle during Christmas, and still more rarely do members of a family spend the festive days in restaurant or hotel, feasting amongst strangers. They meet together, all available members of the family, at the most suitable home of one of the members—if possible, the senior—and there they keep to themselves, and indulge in the pleasures that make the most festive of all seasons what it is.

Christmas in Norway begins at six o'clock on Christmas Eve. After that time the belated guest will have to hurry to his destination through deserted streets, and with the sombre clanging of the church bells in his ears. As he passes through residential districts he will see all windows lighted, and through drawn blinds he will see the queer silhouettes of symmetrical

Christmas trees, whilst the voices of children dancing round the trees in each home strikes sweetly on his ears. (I cannot imagine a more sentimental or poignant situation than that of an outcast wandering through a Norwegian street on Christmas Eve, seeing and hearing the pleasant revels, but not being able to take part.)

Each family has a Christmas tree, the size of the tree depending upon the size of the family and the number of children, or the purse of *paterfamilias*. If the children are under thirteen or fourteen years of age they will not see the tree in its full glory of decoration before six o'clock on Christmas Eve. At that time their happy impatience is cut short by the flinging open, by father and mother, of the door into



[Wiles, Oslo.]

Ski-jumping at Holmenkollen

the parlour. They rush in and stand enraptured before the gaily lit and decorated tree, with its customary glittering star on the top and its still more welcome pile of parcels around the

foot. In spite of the children's impatience to get at the parcels, old customs have first of all to be attended to, and the servants are called in, mother seats herself at the piano, and then the whole family circle joins hands to walk round the tree singing the old Christmas hymns and melodies. After that the great expected moment comes. Father gets on his knees under the tree and begins distributing the parcels, whilst paper is feverishly torn from presents and enraptured cries fill the room. In this way the feast is carried on till late at night, whilst the little sparrows in the frost-bitten air outside have their own present in the form of bundles of oats, called "yule-knips," hung from each window.

Christmas Eve is the children's time, and Christmas Day is the day for church-going and heavy dinners. The old-fashioned dinner consists of a special kind of prepared fish called "lye-fish"—so named because it is soaked in a solution of lye—and a special Christmas porridge, but besides this fare, one does justice to an enormous assortment of specially-made cakes, biscuits, and delicacies—the fruits of the womenfolks' labour for many weeks beforehand.

Such, more or less, is the Christmas of the Norwegian towns. In the out-of-the-way country districts up in the mountains, or along the far-flung weather-beaten coast, the rural population keep to the more orthodox customs of centuries ago.

Superstition plays a large part in their preparations, and although, of course, they do not still believe in fairies, pucks, and good or bad trolls, they give themselves the benefit of any doubt by placing bowls of deliciously steaming Christmas porridge outside the door for the benefit of the "little folk."

When visiting is done on Christmas Day and the sleigh-bells tinkle eerily in the still, cold air, whilst the breath of horses and humans sends clouds of steam trailing in the wake of the sleighs, then indeed is the spirit of Christmas present.

Czechoslovakia

By J. HANČ

WHEN an Englishman who had spent fifteen years in Czechoslovakia was asked what were the differences between the Czechs and the English, he answered that there were none. "The Czechs and the English," he said, "are like two gloves of the same pair." Even if allowance is made for such differences as there are—for instance, the sea, of which Great Britain has plenty and Czechoslovakia none at all—there remain such qualities as love of one's own institutions without despising other people's, tenacity, a subtle sense of humour, and love of adventure, if need be, which are cherished equally by the peoples of both countries. It has been said that the English are governed by what has been described as "the state of the weather" in their minds, and similarly many of the national characteristics of the Czechs and Slovaks are the direct result of their preoccupation with their inner thoughts.

Open-Air Social Life

One thing that may strike an Englishman visiting Prague, which is the historical capital of the country, is a certain public air about the social life there as compared with the more reserved and private nature of social intercourse over here. Whether he does or does not know the language, he cannot fail to notice the presence of this mild pulsation of its collective life, which, besides many other reasons, is partly attributable to the less capricious behaviour of the Continental climate. Even the Christmas holiday, the most stay-with-your-family day, is to a

certain extent celebrated in the open air. Huge illuminated Christmas trees are erected in public squares and markets—usually covered with snow, for there can be no real Christmas in Czechoslovakia without snow—for the enjoyment of the casual passers-by, and presents are distributed there to children, thanks to the efforts of various charitable institutions. But the central feature of celebrating Christmas is



Snow-covered trees; a curious effect

the family dinner on Christmas Eve. Owing to various reasons, of which the fact that for three hundred years people were not masters of their own destinies was but one, not many "home-castles" were built in Czechoslovakia during the last century as was the case in England, where that delightful style of social life was cultivated for many generations. The time-honoured saying: "My home is my castle" can, therefore, be applied to the domestic life in Czechoslovakia only with a certain proviso. The word "castle" should be replaced by the words "my little cottage" or "my little flat." There are very few people, indeed, who would be strong enough to resist the power of domestic gravitation at Christmas-time and who would not come to the family table, if this were at all possible.

One Touch of Christmas—

There is no doubt that the modern stream of life tends to equalise Christmas celebrations, not only in the families of one nation, but also of whole nations, and a certain uniformity is being gradually substituted for the various national and popular customs, which used to accompany this merry festival. In the more remote districts of Czechoslovakia, however, some of the old customs are still preserved. Many of them, if not the majority, concern the problem of marriage, which shows that the hope of marriage is still entertained by many young women. On Christmas Eve girls used to melt lead in a spoon over the fire and then throw the liquid on the floor. If it formed the outline of a scythe, the girl would marry a peasant; if a small circle, she would marry an artisan.

(Continued on page 955.)

An Income of £200 a year and a cash payment when you retire

THAT is what a man aged 30 next birthday may secure by taking out an Endowment Assurance Guaranteed Bonus Policy with the Prudential. The annual premium would be £35 8s. 4d., but allowing for Income-Tax Rebate at 2/- in the £1, and assuming that the rate and conditions of rebate remain unchanged, the

**YEARLY OUTLAY WOULD BE
£31 : 17 : 6**

(less than 54/- a month)

In the event of death before 65, £1,000 plus guaranteed Bonus Additions of £30 a year (almost as much as the yearly outlay) would be available for his dependants.

If you would like a Guaranteed Income of £200 a year at age 65, or earlier, fill in and forward this Coupon.

The
PRUDENTIAL ASSURANCE COMPANY, LTD.
Holborn Bars, E.C.1.

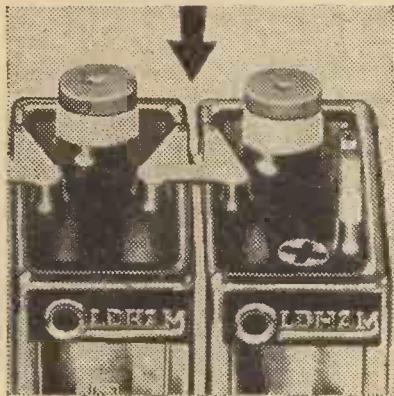
Please send me particulars of an endowment Assurance Policy with Guaranteed £3% Bonus which will enable me to secure an assured income of £.....at age.....

My age next birthday is.....

Name

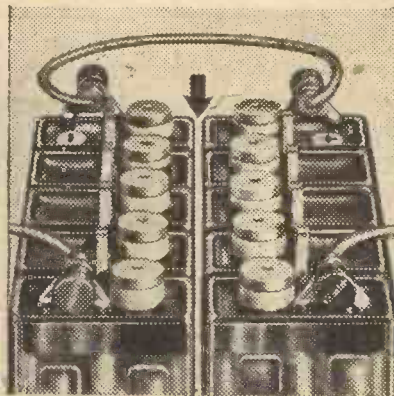
(Mr., Mrs., Miss.)

Address



1. Air gaps between each cell

See the famous Oldham "Air-gap" which ended electrical leakage—the bugbear of the old-fashioned smooth-top H.T. Accumulator.

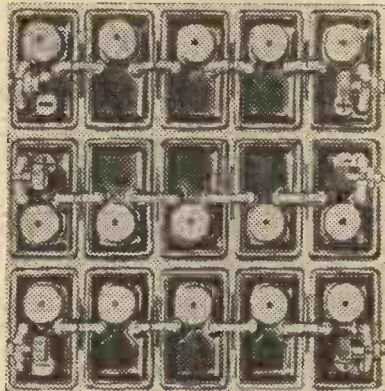


2. Air gaps between each unit

Not only between each cell but *between each unit* as well there is an "Air-gap" in Oldham H.T. Accumulators—see for yourself.

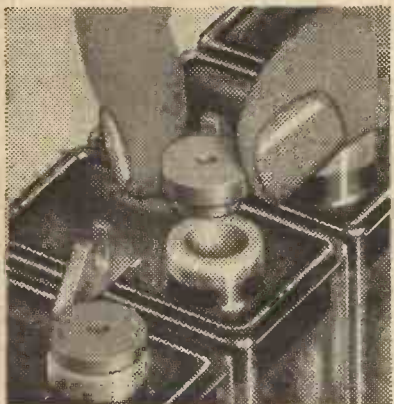
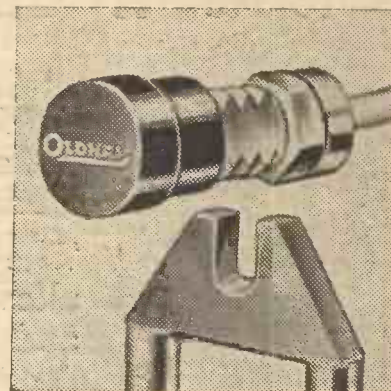
3. Air gaps throughout

You can assemble Oldham H.T. Accumulator Units to any voltage but always every cell and every unit will be air-spaced from its neighbour.



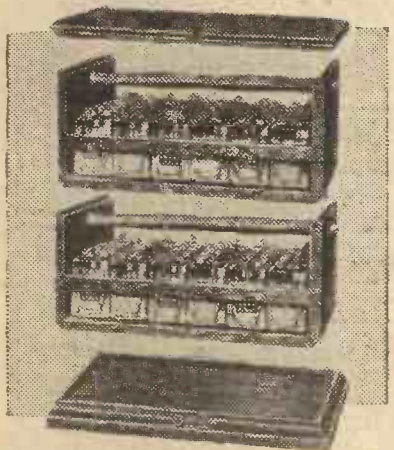
4. Screwed Cell-connectors

This is the New Oldham Connector. Much better than the old wander plug—it gives a clean electrical connection—can be detached in a moment.



5. Large "easy-to-fill" Vents

Sensible, large-size Vents make "topping-up" absurdly simple with Oldham H.T. Accumulators.



6. Built up like a bookcase

How the Oldham H.T. Accumulator is assembled. Additional trays can be added as desired.

Vital for LONG RANGE Reception!

—the pure, smooth current which only an OLDHAM "Air-spaced" H.T. Accumulator can give.

A BUNDANT, steady H.T. is a vital necessity for long range reception. Only with smooth, ripple-free H.T. current can you get that ultra sensitivity—that nicety of control which are essential for long distance work. H.T. Dry Batteries are extravagant—their voltage continuously falls—they cause "crackling" and other noises, but the power that comes from an Oldham "Air-Spaced" H.T.

Accumulator is smooth, dead silent, ripple-free—and the voltage on each valve is constant *regardless of the load*. And because each 2-volt cell is provided with a tapping point the exact voltage necessary for each valve can be obtained. Look at the illustrations, see all the other striking features of the Oldham—no other H.T. Accumulator offers you all these advantages.

Extra Large Capacity.	Standard 10-volt Unit
(5,500 milliamps) Per 10-volt Unit	Capacity 2,750 milliamps
6/9	5/6
Complete with two connectors and length of cable.	



H.T. ACCUMULATORS



CZECHOSLOVAKIA

(Continued from page 952.)

If the lead did not take either of these shapes then there was no prospect of a marriage in the immediate future. There are many other ingenious methods of ascertaining beforehand the whereabouts of the future husband. After the Christmas Eve dinner the girls go into the garden and shake the trees, and the husband will come from the direction from which the first dog barks. Some of the more enterprising candidates for matrimony would go to other people's windows and doors and would listen to the conversations carried on inside. If the first word is "Yes," it means certain marriage; while the word



Czechoslovak wooden toys

"No" indicates that she must wait another year and then try again. In some districts girls take armfuls of wood from a neighbour's stack, and then count the sticks. If the number is even, the girl will marry a widower, but if uneven, then a bachelor. At midnight on Christmas Eve some of the girls go to the roost and wake up the cock. His crowing soon arouses answers from other cocks, and again the direction from which the first cock crows in reply indicates whence the prospective husband would come.

The Christmas Eve Fast

Christmas Eve is a day of fasting. The only meal eaten is the dinner, which is meatless, the dishes consisting very often of pea soup, bread with honey, carp, and apple pudding. The head of the family puts his purse under the tablecloth in order that money may stay at home. The farmer's wife never forgets to keep a piece of bread or cake for the cattle, crumbs for the poultry, and bread with garlic for the dog, so that it may guard the house in the coming year. After dinner, apples are cut into two parts, and if the core shows the picture of a star, the person who cuts the apple will be happy, whilst if a cross is seen in the apple then he will die within the year.

On Christmas Day no work at all should be done, and even the dishes should not be washed until late in the evening. People should stay with their families, and it is only the "bad hats" who patronise the local inn. In a few districts there used to be the superstition that whoever lighted his house first would have a fire during the year, and therefore everyone used to sit in darkness until very late.

The installation of wireless in so many houses has changed the celebration of Christmas in Czechoslovakia, and it is likely to lead to other alterations as the use of the wireless set is more and more enjoyed. The singing of Christmas carols is a very favourite item in the programme, and this year carols will be broadcast from all stations.

Germany

By **CHRISTEL DAMRATH**

ALTHOUGH education, wealth, and social position may set up distinctions between people of the same race, yet at heart they are usually united; there is no barrier or dividing line. Thus the cultivation of native customs and traditions is a duty, since it tones down social contrasts and brings all classes closer together.

A number of these traditions, particularly those associated with the winter season, are still maintained with considerable fervour by the German people; small wonder, therefore, that this season is—especially for the youth of Germany—full of excitement. Now the time for winter sports has arrived; rivers and lakes are frozen over for months on end and everything is covered with snow.

The celebration of St. Nicholas's Day, on December 6, is very widespread. In town and country Father Christmas—dressed in Bishop's attire—accompanied by Knecht Rupprecht, goes through the streets. He enters the houses, distributes all kinds of sweets to the good children, and orders Knecht Rupprecht to punish the naughty.

Christmas is a real family festival which in the course of years the German people have so shaped as to correspond with their temperament. The celebration in the narrow circle of the family, the scene illuminated by the rays from the candles of the Christmas-tree, the pleasure of giving and receiving presents, the enjoyment of eating and drinking, and the baking of special cakes, the singing of Christmas songs, and the visit to the church—all these are features of the day which are ingrained in the soul of the German peoples and in the celebration of which they have grown into a harmonious whole.

A Religious Festival

Christmas is, of course, first and foremost a religious festival; as a family festival it is kept in Germany to an extent which is possibly not equalled in any other country. It is not necessary to examine whether the various customs and traditions associated with Christmas to-day are of Pagan-Teutonic, Christian-Teutonic, or foreign origin. One thing is certain: they would never have survived had they not found a response in the soul of the people. Preparations for the festival begin weeks before, and with them a poetic atmosphere enters the house.

The gifts for the members of the family are prepared behind closed doors. The children whisper and talk secretly to each other. Full of expectant joy, they look forward to the glorious night of Christmas Eve. They write a letter to Father Christmas, and hand it to their parents to forward.

Nor is suffering humanity forgotten at these times—indeed, never is it more actively remembered. And when at last the Christmas-trees are placed in position, hung with nuts and apples, sweets and honeycakes, and decorated with joyous colours, excitement reaches its highest point, and the children count the hours till they are called to the illuminated tree. This call is the signal for the beginning of the family festival, which usually continues till midnight. The whole family and household then, in many cases, go to church.

The illuminated Christmas-tree, above all traditions, has always been celebrated in poetry. In the Middle Ages the belief was held that trees blossom at Christmas. For that reason many people to this day take branches from fruit trees on St. Andrew's Day (November 30) and put them into water, so that they may be in blossom at Christmas.

Days of Fate

The period from Christmas to the Epiphany, or the Feast of the Three Kings, is generally known here as "The Twelve Nights," or the twelve days of Fate. According to legend, during this period ghosts are playing pranks and witches ride through the air. Farmers deem it necessary then to guard their cattle particularly well; they give them special food and paint a cross or the three initials C.M.B. (standing for the names of the Three Holy Kings—Caspar, Melchior, and Balthasar) on the threshold or the walls of their stables. Even to-day there is a belief held in parts of Northern Germany that "Mistress Holle" punishes those who do any work during this period.

The Christmas season, beginning with St. Andrew's Day, November 30, has always been looked upon by the people as the time for "prophecy" and "magic." Underlying this popular faith is really more than a childish joke. It is the naive desire of the people to lift the veil that covers the future. Young girls eagerly inquire whether they are going to be married during the coming year, and, if so, what their future husbands are like. The custom of

(Continued on page 956.)



Old farmhouses, Garmisch, Bavarian Alps

[Photo: B. Johannes.]

TO OUR READERS.

When replying to advertisements please mention **WORLD-RADIO**

making moulds of lead is most popular in this connection. The appearance and occupation of the bridegroom are deduced from the shape which the mould takes. Or the girls, with their backs to the door, throw a shoe over their shoulders. If it falls pointing in the direction of the room, they will meet their bridegroom in



Photo: German Railways Bureau.

Postman on Skis

the coming year. Another custom, prevalent in Central Germany, is that of cutting an onion into twelve slices, and, after putting some salt on each, spreading them out one by one, each slice signifying a month of the year. The month corresponding to the slice which is the most moist will be a wet one.

On New Year's Eve the whole family stays up till midnight and later, spending the evening with the making of lead-moulds, the drinking of punch, and the eating of *Stollen* (Christmas cakes). At midnight all the windows are opened and people wish each other a Happy New Year or a *Prosit Neujahr*. The church bells are chiming, and so give to these moments an air of solemnity. But irrepressible youth enjoys itself by making as much noise as possible.

On the Feast of Epiphany (January 6) the Christmas-tree is "plundered." In the presence of all members of the family, the nuts, sweets, apples, and honeycakes are taken off and distributed, or, more generally, raffled. The joyful time of Christmas is now at an end.

Another outstanding festival (which has just passed) is the Feast of St. Martin, celebrated on November 11, which in most Central European and Scandinavian countries—in France the day is kept by the Church only—is a real people's holiday. Ever since the early Middle Ages St. Martin has been the patron saint of the flocks and of poultry. For that reason in very many houses, from the Alps to the Norwegian fjords, you will find a St. Martin's goose served up on this day. At dusk the children march in gay procession through the streets, with lighted torches in their hands, singing St. Martin's songs. Among these torches are some veritable works of art, which in many cases entailed weeks of work on their own and their fathers' parts. The Düsseldorf St. Martin's procession is particularly famous, and was broadcast again this year by the Cologne group of stations.

Jungle Lure

By MARION ROBERTS.

WANDERLUST is again upon us. A sneeze, and the grave-like flower beds urge us to slip our winter collars and flee to sunshine.

Some happy memory bewitches us. We are haunted by a tinkling shudder of dry bamboo in a hot little breeze.

Oh, to be back on the jungle track; to be separated by thousands of miles from the rubs and pricks of ordinary existence; to escape burst pipes and long, dark days.

We picture the lumbering queue of touring elephants steered through the forest by the wagging brown toe of a Burman. They waddle along in their grey "Oxford" trousers, innocent of fashion's whims, whisking their tails, tossing earth about and tearing down succulent tit-bits. They do about two miles an hour. In spite of their great size, they fear small things and are said to turn tail at the sight of a mouse, lest perhaps, in a fit of caprice, it should run up their trunk.

The jungle camp moves off early; the track has a strange, strong scent of steamy, dank earth and fresh-crushed vegetation. The outstanding impression is of an obscure, primeval density, lashed and dishevelled.

Everywhere giant lianas embrace, lasso, or strangle in an impetuous urge of growth from tree to tree, and beneath this fantastic creeper, broken and split bamboo lies scattered—untidy remains of the elephants' nocturnal wanderings. In the dark corners, rare and beautiful orchids cling to branch and stem.

From an overhanging branch a crusty little old gentleman mumbles in his beard. The camping party hear him and carry on with quickened strides. It was a fish-owl—bird of ill omen—with the face of a cat and bright yellow eyes.

A sudden bend brings the track to the side of a mountain stream which scurries along with the pitch and exuberance of undying youth. It dimples and laughs in excitement, or turns green and still with vivid reflections.

The order of precedence is adhered to as strictly in a tropical jungle as in the courts of Europe. Bison follow wild elephants, which pull down the tall bamboo shoots for them. Then come wild pig to grub up the roots which they can smell when those roots are crushed under the feet of elephants or bison. Jungle fowl follow to pick worms from the loose earth—and so on, *ad infinitum*.

There echoes a great roar from an adjacent hillside, closely followed by a headlong crashing and tearing. A long-suffering "tusker" is at work for some teak firm. He "drags" logs of three to four tons weight to the hill tops, then, raising the huge block with his tusks, heaves it into the river far below.

In the open rice-fields, surrounding a Burmese village, there lies the carcass of an old working buffalo—black and flapping with the inert wings of gorged vultures. It is hard to believe that these birds can look so beautiful when flying high in search of carrion. A jackal is also tearing his pound of flesh.

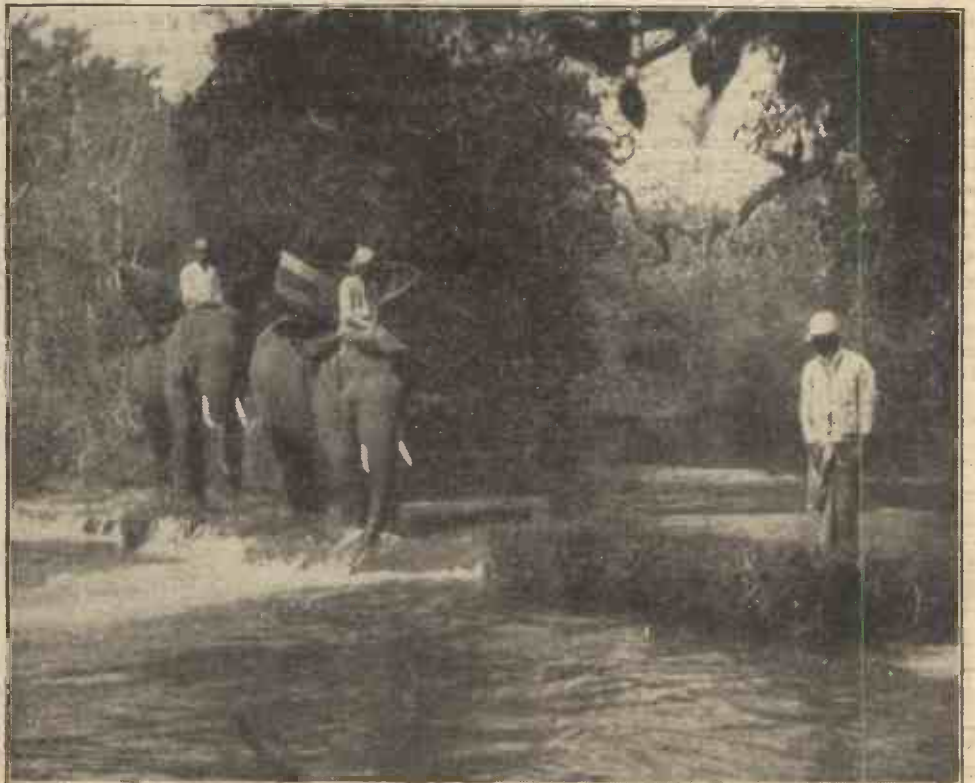
In such open spaces the lapwing cries: "Did he do it? Did he do it?" while the partridge in the grass near-by shrills: "Yes, mama!"

Camp is reached, with a happy feeling of relief, about noon. It is pleasant to sink into comfortable green-canvassed "Multan" chairs while muddy bath-water is boiling in kerosene tins. There is an art in landing boiled insects on the soap which only experience can master.

Later, the camp fires are piled high. A chill-some wind blows down the creek. Daylight fades and the hills go to bed. They are clothed in purple, then wrapped in misty darkness with the moon as a nightlight.

* * * * *

And so, on the eve of winter, the great overcrowded Eastern-bound liners leave their docks; reluctantly at first, then resolutely, as though conscious also of the lure of sunshine and warmth.



Elephants, with Burman drivers, travelling through a mountain stream



REVEALED IN FULL BRILLIANCE

Tuned in to the Broadcast Programme of your choice, the McMichael Screened Dimic Three gives a superlatively true rendition of every performance.

The McMICHAEL SCREENED DIMIC THREE

This amazing "3" has won extraordinary popularity all over the World. So efficient is its circuit that it is more powerful than many a 4 or 5 valve set.

It obtains at least 30 British and Continental Stations at loud speaker strength whilst by use of two plug-in Dimic Coils (price 5/- each) many additional stations on the ultra low wave bands are obtainable from the most distant parts of the World.

ASK YOUR DEALER FOR A DEMONSTRATION
OF THIS WONDERFUL SET.

CASH PRICE 19 GNS.

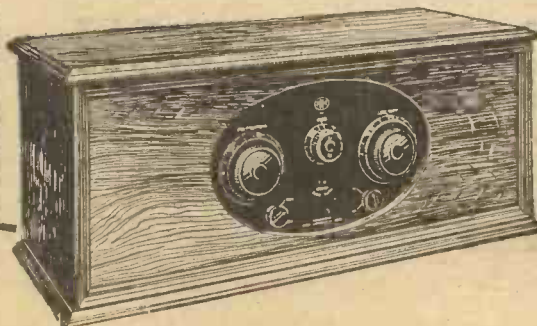
(including Royalties and 3 valves specially tested in set), or by special "Deferred Payments on Hire Purchase Terms" if desired.

THE HOME ASSEMBLY SCREENED DIMIC THREE

For those who prefer to build their own set and yet want the best possible results, the Home Assembly set of this model is ideal. Full instructions are given gratis, whilst the specified components cost £8 8s. 9d. (Extras: Valves, 58s.; Oak Cabinet, 35s.; Loud Speaker to choice.)

L.M. MICHAEL LTD

Manufacturers of Wireless and Scientific Apparatus
WEXHAM ROAD, SLOUGH, BUCKS.



Telephone: Slough 441-442.
Telegrams: Radiether, Slough.
London Showrooms: 179, Strand, W.C.2.
(Telephone: Holborn 2466.)



The Triple Test —SIFAMETER

The new "Sifameter" eclipses all others for accuracy and reliability. It gives up-to-date margins of measurements.

- 0-15 volts. for L.T. and G.B.
- 0-150 volts. for H.T.
- 0-50 Milliamps for plate current consumption.



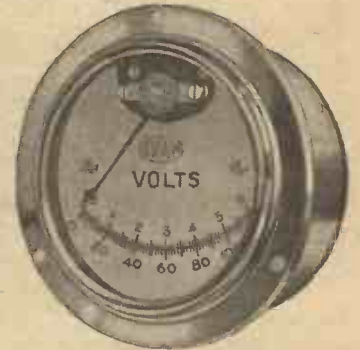
All three measurements on one Dial **Price 10/-**
Ask your dealer for it The ideal Xmas Gift, and do not be put off with a cheaper meter which may cost more in the long run.

OTHER FAMOUS SIFAM GIFTS

Panel Mounting meters Volts. Amps. Milliamps.—complete range for Radio Measurements, including the "ELIMETER" for eliminator voltages.



Moving Iron
E.A. 66
2



Moving Coil
E. 70 A.
3

Price - 7/6

Price - 27/6

Sifam Radio Test Set, 9 Ranges in one meter.

"Multum in Parvo"



**Price
£3 15 0**

Finally, the Sifam Radio Fuses.

From 100MA to
5 amps.

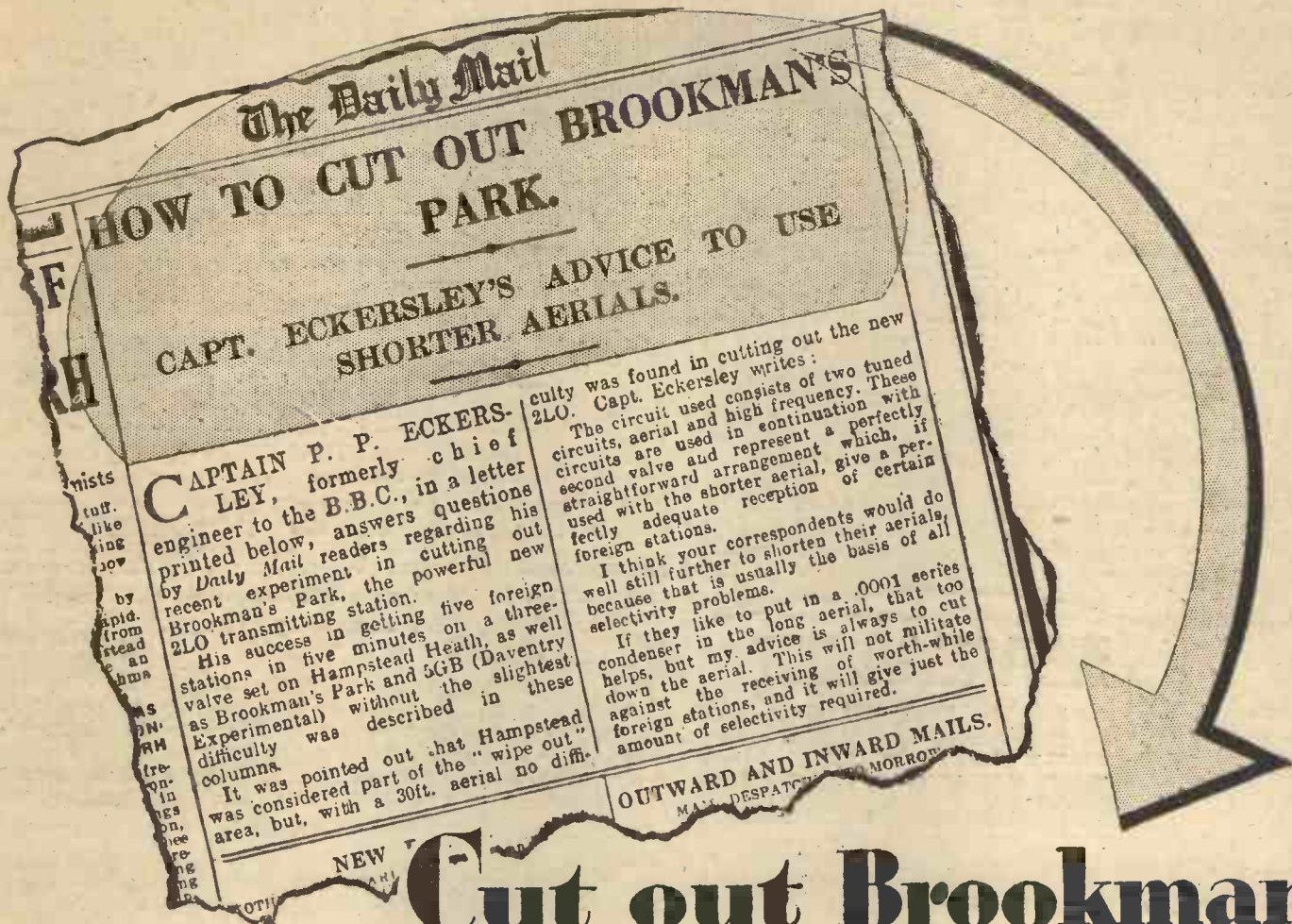


Price 1/3
complete with clip.

PROTECT YOUR VALVES AND METERS.

All Sifam products are obtainable from Radio Dealers everywhere.

Write for free leaflet, giving the uses of meters with diagrams, to
SIFAM ELECTRICAL INSTRUMENT CO., LTD.,
BUSH HOUSE, ALDWYCH, LONDON, W.C.2.



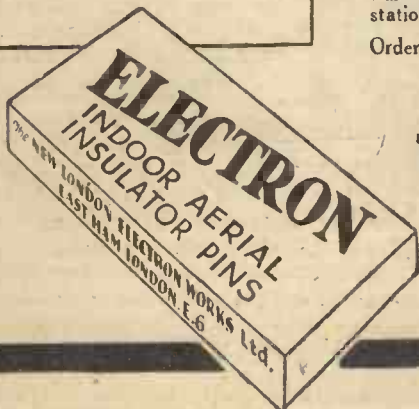
Cut out Brookmans Park with our 50ft. Superial

ELECTRON INDOOR AERIAL INSULATOR PINS.



With Electron indoor aerial insulator pins a directional aerial can be instantly removed and fixed at different angles at either end or across the room; simply pull out the pins and fix in varying positions until the best results are obtained.

6d.



Here is the advice of Capt. P. P. Eckersley, formerly chief engineer of the B.B.C., in the "Daily Mail":

"... your correspondents would do well still further to shorten their aerials because that is usually the basis of all selectivity problems."

Superial, ELECTRON'S "Super-Aerial," will overcome this problem.

Completely protected from end to end, it gives greater selectivity and damps out those irritating scratches and buzzes. The extra-heavy vulcanised insulation, finest braided cotton covering with a final coating of heavy wax, prevents rubbing at the insulators, and as a complete aerial and "lead-in" it does away with that vulnerable joint.

Superial, ELECTRON'S "Super-Aerial," solves the Brookman's Park problem. It is Super-Selective and tunes in those other stations you hitherto thought impossible.

Order a box to-day, 1/6 everywhere.



SUPERIAL
 ELECTRON'S SUPER AERIAL
 50ft. **1/6**

The NEW LONDON ELECTRON WORKS LTD.

TELEPHONE: GRANGWOOD 1408-09-1363.

TELEGRAMS: "STANNUM, LONDON."

1, East Ham, London.

Glimpses of Egypt

By C. FALCON.

YOU would think every English resident in Alexandria and Cairo would have made the 416 miles journey to Upper Egypt to visit the ancient temples and the tombs of the kings in their lonely valley of stone and sand. But this is not the case, and the Christmas holiday presents the first, and for many of them the only, opportunity to do so.

It is Egypt still, but it might be a new country, so different are the scenes and the people. Alexandria, as you steam towards it across the rolling Mediterranean on a December day,

Cairo might be Paris or Hamburg in late spring. The Arabs and Egyptians sitting solemnly in the open doorways of shops look strangely out of place till next morning, when you discover there are two cities: the Europeanised one and that of the Muski, where boys drive their camels and donkeys at a yelling gallop; where every shopman implores you to enter his humble store and serves you, in the interval of bargaining, with Persian tea, Turkish delight, and Egyptian cigarettes.

In Cairo you covertly stare at the women carrying their babies astraddle their shoulders, or washing their linen in the brown and muddy Nile; at the barefooted boys bicycling furiously through the streets, their long robes tucked up

baskets by means of which water is drawn for the land) labour four hours at a stretch, and that it takes three days to water an acre of land.

You will see the *sakieh*, or water-wheel, which is worked by a blindfold bullock, camel, or donkey under the control of a diminutive child; and watch modern tractors and a wooden plough which dates from the days of the Pharaohs at work in the same field.

On Christmas night, if the moon be full, you will desert the London hotel band and the ball-room floor to see Karnak, to watch the shadowy guides gliding through the great hall of pillars, and to hear the jackals in the ruins answering the mournful cries of the dogs in the native encampment across the river.



The Avenue of Sphinx before the Temple of Amora, Karnak.



The Sphinx and the Great Pyramid.

presents a picture of a long row of white, flat-topped houses, a clump of green palm trees to the left, and a yellowness around it all which might be sand, or sun, or just atmosphere.

The quayside introduces the cosmopolitan crowd which forms its people, French, Greek, Syrians, and Egyptians, with dark-skinned children adding to the clamour by singing English songs—"Tipperary" mostly—and standing on their heads; whilst veiled young mothers beg *bakshish* from carriage to carriage of the waiting Cairo express.

conveniently round their waists or gripped between their teeth, and at the men curled up for their midday sleep at any convenient spot on the pavement.

Cairo is surrounded by the desert on three sides, but Luxor, as you lean from the window of your sleeping-car after a luxurious night journey, displays acres of cultivated fields dotted about with strange straw palisades from which men and women, donkey and camel, are just emerging to begin a new day's toil.

From the train attendant you learn that the two men working the *shadoof* (rush

At Aswan, a day's journey from Luxor, you will get to know the singing boatmen, whose colour ranges from bronze to ebony black. Chanting their eternal song, they will row you round the temple of Philae, submerged now to its pillar-tops—and to be entirely so when the raising of the dam is completed—across the great reservoir to the Barrage and back to Elephantine Island, with its crumbling Roman village; and Kitchener's Island, with its banana trees, beautiful tropical plants, and the wrinkled old gardener who presents each lady visitor with a rose.

A New Zealand December Morning

By J. T. CRAWFORD.

THE Maori shearing gang has been at "Wainui" Station for four days, and during that time all has been bustle and hurry, dust and noise and heat. The shearing machines have droned their monotonous song, humming and buzzing like great bumble bees, the line of twelve brown, sweating bodies bared to the waist has bent over the sheep, shearing the thick fleeces from them, shepherds have mustered the "woolleys" and driven the "shorns" back to the hills, dogs have barked unceasingly, and the "boss" has stood, notebook in hand, and sucking his pencil, as he has counted the newly shorn sheep out of the tally pens.

It is six a.m. on a hot December morning and the men, clad only in trousers and rough slippers made of sacking, are ready to begin the day's work in the shed. The engine starts, and while newly sharpened cutters are being fitted to the handpieces of the machines, the shed rouse-about is filling up the catching pens with sheep which have spent the night in the shed lest the dew should wet their fleeces.

In a few minutes all is ready and the call to begin is given. The shearers each dive into

the pen behind their places on the board, seize a sheep and haul it out. They sit the ewe down, grip it between their legs, take up the machine and begin to shear. The strong brown arms guide the vibrating machine so skilfully that hardly a sheep is cut and no tufts of wool are left. Sheep after sheep is shoved out into the tally pens, the fleeces are kicked aside, gathered up by the "fleece-ohs," dumped on to the classing table, and deftly picked and sorted by the classer.

At seven-thirty comes forty minutes rest for breakfast, and the shearers make for the cook-house to get their huge meals of chops, sausages, and eggs. The "boss," deploring the appetite of the Maoris, goes to the homestead for his own meal, where he bemoans the low price of wool to his family, while his wife sniffs disapprovingly at the wool-shed smell he carries with him, and says that whatever the price of wool is she'll simply have to have a new fur coat this year, and the chairs in the drawing-room need re-covering too, and would he write out a cheque for Eliza. The "boss" grunts, attacks the loaf savagely, and leaves for the shed again, muttering something

ironic about the joys of a farmer's life and the easy rewards to be won.

Ten minutes past eight; the machines begin to buzz once more. The heat becomes greater and sweat begins to moisten the half-clothed bodies of the shearers. There is the noise of barking dogs and "rouse-about" are shouting and yelling as they fill the pens with "woolleys."

The "boss" is in the yards drafting off lambs—he's not shearing them this year as the price of their wool isn't equal to the cost of labour—a legging man is counting a mob of shorn sheep out into a paddock. They leap in the air as they come through the gate, and begin to feed immediately for they have been in the shed for over twelve hours.

"Smoko" comes the cry, and everybody adjourns for a short rest and refreshment. The men settle down on bales of wool with their pannikins of tea. There is just time for a hurried cigarette, and then work again till lunch time. An hour's rest, and then on till five o'clock with another "smoko" at three.

At five the engine ceases to drone, the shed is left filled with sheep for the next morning, the "boss" reads out the day's tallies, and the men wander back to the cookhouse.

The Maoris fill the early part of the night with the sound of accordions and melodious singing. Then silence falls and the countryside is left to the moon and the stars.



Television

of the Future

By C. G. PHILP

SOMETIMES a dream can be traced to its origin by its relation to something that was in one's mind just before going to sleep. I can account for the following interesting, if fantastic, one only by the fact that I had been thinking a lot about Television whilst dozing in my arm-chair, and that the last thing I read was an article on "Beam Transmission," by the Marquis Marconi, in which he stated: "You asked whether we had noted any peculiar effects. There are one or two of interest. For example, it has been found that engineers standing near very short wave transmitters sometimes become exceedingly warm in, say, the arm nearest the apparatus. This effect is not caused by radiation of heat from the set, but by currents induced in the human body from the apparatus. The heat is very appreciable at times, and it is possible that good use may be made of this phenomenon in medical research."

I remember that I meditated on this remarkable effect on the human body by these very short waves, and I communed with myself somewhat as follows: if short waves of the order of 26 metres can so affect the human sensory system, what effects might still shorter waves bring about? The feeling of warmth is probably the most elemental of all feelings, and is common to all living creatures. Perhaps, if we went further and further down the scale of wavelengths, from metres to centimetres, from centimetres to millimetres, and so on, other waves might be discovered which would be capable of producing sensory effects of a higher order pro-rata. Thus it might be possible one day to produce waves so small that they would, to quote the Marquis Marconi, "induce currents in the human body" and so—according to their length—produce all the emotions of love, joy, sorrow, anger, etc., or even sight and hearing. What a vista!

And just about at this stage I must have fallen asleep, for the next thing I remembered was that in some unaccountable way—quite easy in a dream—I had been translated to Mars, and, with the usual inconsequence of a dream, felt no surprise at my presence there or that I was able to converse freely with a Martian, with whom I was taking tea.

"Now, let us go to the Televima," he suggested.

"You mean the Cinema," I replied.

"No, we long ago abandoned that elementary method of producing visual images, as it was too cumbersome and wasteful. I mean, as I said, the Televima."

"Oh! You mean pictures by television," I said. "Now I understand you." And as we finished our meal, preparatory to going to a large building near-by, I described to him in detail the good progress we Earth inhabitants had made in that direction.

The meal finished, we made our way to the Televima. This was a large building somewhat

similar to our cinemas, so far as frontage went, but at least five times as long. I was therefore greatly surprised to find only a small auditorium, not one whit larger than ours. There were the usual tiers of banked seats, but instead of a screen on the stage, as I expected to see, there was only a blank wall with six large slits in it, similar in size and shape to those in the operating rooms of our cinemas. Overhead, in the centre of the hall, was suspended what looked like a super loud speaker with six horns. Although I felt curious, I refrained from asking questions, as I preferred to "wait and see."

Soon a faint light issued from each of the slits mentioned, and after a certain amount of focusing had taken place, I was able to note that the face of every one in the audience was faintly illuminated. The light was quite feeble, and in no way unpleasant. Then it suddenly dawned on me that here in Mars our cinema conditions were reversed. Instead of projecting the film on a screen for the audience to see, the film was to be projected on the audience themselves!

"What a mad-brained idea!" I thought contemptuously, as I waited for the "film" to begin. Then a gong was struck, and from the loud speakers above came a sound of a crowd in tumult. Almost immediately everyone seemed to come to attention, but, so far as I could see, nothing happened.

"This is a very fine view of the Marathon races taking place several hundred miles away," whispered my guide.

I stared hard at the slits in great perplexity. *I could see absolutely nothing!* And yet, judging by the sounds that now filled the hall, and by the attitudes of the audience, something very exciting was in progress.

"But I can see nothing!" I angrily whispered, goaded to desperation by the general enthusiasm.

"See nothing!" echoed my friend in amazement. "Why it is a splendid projection. Look! See that runner now straining every nerve to win. That is Tekla, the last year's champion. Look at the expression on his face. Ah! I thought so. He wins! He wins!"

"But I tell you I see nothing," I retorted so loudly that some of the audience looked round at me.

"It is, of course, possible, O Earth stranger, that the wavelength for us Martians differs from yours," said my friend apologetically. "I had not thought of that. I am sorry I have disappointed you. Come. We will go out."

"Oh, not at all," I remonstrated. "I will wait a while. I am in no hurry, and it is not necessary to spoil your pleasure."

This appeared to satisfy my companion, so I sat back in my seat, prepared to suffer half-an-hour's boredom, watching others seeing what I couldn't see.

The soft light emanating from the slits was just sufficient to enable me to observe the different classes and types of people, and whilst

I was idly doing so, I made the amazing discovery that everyone present, except myself, had his eyes closed!

"Well, well!" I thought. "If this doesn't lick creation! Fancy going to see a film with one's eyes closed!"

Still the fact remained that I was the only one who had his eyes open, and, on the face of it, *I was the only one who couldn't see!* So, for want of something better to do I too closed my eyes. The result was electrifying! For, clearly and most vividly, I saw what would rank with us as the finest film ever projected. The definition was perfect and stereoscopic; so that I could not have seen better had I been actually on the spot. There were the runners, the crowd, the scenery—everything, in fact, portrayed without blemish. Spellbound, I watched—with my eyes closed—every detail of the great race.

At the close of the performance we left the hall, and then my friend proceeded to apologise again for my disappointing experience. But, when I explained that I had been able to "see" later, he was very amused at the original cause of my failure.

"It was such an obvious thing to do, to close ones eyes, in order to see the projection," he said, "that I quite forgot to mention it."

"Obvious!" I exclaimed. "It is amazing to me, and the last thing I should think of doing."

"But, why? What screen of more intense blackness could there possibly be than that obtained by closing one's eyes? What clearer visions can one possibly get than those obtained by the brain alone—as in a vivid dream for instance? The brain sees much clearer direct, because there is not the loss in efficiency which results from passing the visual vibrations along the optic nerve."

As I had no answer to offer, he went on to explain in greater detail the methods adopted in Mars for Television transmissions.

First, he pointed out that the whole principle of the *tele-photo* process was fundamentally wrong, since no matter how perfect the result, it could not be termed television, or *seeing* by wireless. In Mars, on the contrary, the audience did actually see the scenes transmitted. And this was how it was brought about.

The transmitting apparatus consisted of a camera arrangement working in conjunction with a "mike" of special design, connected up with a wireless transmitter in the usual way.

By means of twin lenses, two stereoscopic images were reflected on to two diaphragms, each in a vacuum tube, shaped like the halves of an orange, and placed side by side. One of the diaphragms was black, the other silvered, and they were electrically connected in opposition to each other so that they operated on a differential basis. Owing to the different absorptive effect of light on a blackened surface, compared with that on a silvered surface, the reflected images exerted different pressures on these diaphragms, just as a ray of sunlight gives different pressures to the white and black vanes of our "Radiometers"—the little toy one can see in most opticians' shops in London to-day—and so causes the vanes to rotate.

Every change in the reflected image, however tiny, causes a different pressure on each of these diaphragms, and since these operate electrically, either on the microphone or condenser principle (both systems were in use), the variations in the image, or amount of light, by reason of the corresponding differential pressures of the diaphragms, modulated a carrier wave just as in ordinary broadcast transmissions.

"Yes, that seems feasible enough," I said, "except that the differential pressures you refer to are not caused by the light itself—light being imponderable—but to thermal causes."

"Scientific" Christmas Fun

By RALPH STRANGER

He smiled. "It does not matter, since different pressures *are* set up, as you already have proof. And granted that, it is obvious the carrier wave is modulated accordingly."

He then went on to explain that at the receiving end, the image modulations referred to were taken off the carrier wave, and super-imposed on to a "beam wave" of extraordinarily small dimensions—vastly smaller than any wave we had yet been able to produce.

"Ah! There's the rub," I said. "How do you make such tiny waves? We cannot make any smaller than a few centimetres."

"I am afraid it would take me too long to explain that in detail," he replied, "but the principle is, in effect, the *reverse* of that you are already acquainted with in your super-heterodyne sets, whereby you, by heterodyning two waves of, say, 750,000 and 810,000 cycles, produce a 'beat' note of 60,000—or approximately twelve times as *large* as your fundamental waves. In the same way, but on a principle yet to be discovered by you, you can produce smaller waves almost *ad infinitum*."

"The 'beam' wave is of a frequency which experiment revealed would set up currents in the human body—I started at this exact repetition of Marconi's own words—"and these currents by setting up a molecular disturbance in the brain produce the sensation of vision, thereby producing a 'picture' corresponding with the modulations on the wave, and so an exact replica of the scene transmitted."

"And was the light I saw emanating from the slits the 'beam' wave referred to?" I queried.

"Oh, no. That was merely a ray of ordinary light, indicating to the operator the direction and radius of the radiated 'beam' wave then in process of transmission—a visual guide so to speak. You must recollect that our operator's chamber is a very vast affair, on account of the beam aeriels therein, and is relatively far larger in proportion to the auditorium than your auditorium is to your operator's chamber. The beam effect so radiated is only felt at close quarters, similar to the 'hand capacity' effects you already experience with your radio sets."

"Why, the whole business is one great paradox to our ideas," I cried. "First, you put the audience in the operator's box, and the operator in the auditorium. Next you project the film on to the audience instead of on to a screen. Then you close your eyes to see. And your best seats are in front instead of behind. Why, you will be having *Televimas* for the blind next!"

"Blind!" said my friend in amazement. "Why, we have no blind people in Mars. No one with a *brain* need be blind. How cruelly ignorant you must be, to allow any human being to remain in a world of perpetual darkness, just because a single wire, or mass of wires—the optic nerves—have a 'fault,' or are broken. On the Earth, I understand, if you cannot send speech by wire, you already do so by 'wireless.' We apply that principle to the human frame. Those of our people who are so unfortunate as not to possess normal vision still may see their loved ones and all the beauties of nature at a *Televima*, just as clearly—aye, more clearly, than you do at present by direct vision."

"And how about the deaf?" I retorted, abashed. "Can they hear also?"

"Certainly, and by precisely the same principles. The *Televima* you have just visited is old-fashioned and out of date, compared with those at Kharka, our capital. The *Televimas* there are equipped with a 'beam' which is modulated with both vision and sound, like your 'talkie' films, and thus the inherent distortion of all loud speakers is done away with, and the purity of speech and music far surpasses anything you have yet heard by the crude medium of air waves. Why—"

But just then, confound it, I awoke!

THE Editor of *World-Radio* asked me to call on him the other day. Being commanded to put in an appearance in no uncertain terms, I had no choice in the matter, and so duly reported to the palatial offices of that journal.

"Yes, sir," said the commissioner.

"The Editor is expecting me," I said haughtily and, I trust, nonchalantly.

It is funny, but I always develop an inferiority complex in front of the worthy representatives of the Corps of Commissionaires. It is their medals, I presume; they make me feel as if I am standing in front of a Brigadier-General.

Eventually I was ushered into the Editorial sanctum and, amongst other things, the Editor said: "I feel that you owe something to our readers, Mr. Stranger. During the last year or two you have been giving them all kinds of scientific mysteries. Don't you think that for Christmas you could come off your perch for once, and tell them how your mysteries can be turned to some account—say, that of Christmas amusements?"

I looked at the Editor long and searchingly, with a sort of Sherlock Holmes expression . . . This was in order to gain time and ascertain if I could feel any sort of strain on either of my legs. However, there was no appreciable pull, so I decided that the Editor was serious.

"Do you mean Christmas games, based on scientific principles?" said I.

"Yes," said the Editor, "this is precisely what I mean. I am sure that you could devise something really amusing on these lines."

"Very good," said I. "I will see what can be done."

The Editor stood up and generally indicated that the matter was settled and the interview at an end, so I toddled along and started experimenting straight away with a few things I have in my study, magnets, iron filings, and so forth, and below I give you the result,

* * *

The Mysterious Handkerchief.

This little bit of fun should be performed, preferably, in some friend's house. Take along with you a quarter of a pound of fine iron filings, and a small nickel chrome magnet, similar to the one I described some time ago. It is a powerful little chap. Having reached the drawing-room and explained to all assembled that you found the packet in question in the street, and do not know what it contains, start unwrapping it . . . and clumsily upset the whole of the filings on the carpet.

Apologise profusely for your clumsiness, and wonder audibly how on earth the mess can be cleared up. Say you wonder if a handkerchief would do it, and everybody will start to laugh as you produce a handkerchief (with the magnet hidden in it) and proceed to mop up the filings in big bunches. Suggest that someone else does the same, and watch their surprise when they try. Explain the trick.

Hunt the Magic Thimble.

You require a little chrome magnet previously painted white. Arrange the family party in a circle, give them the magnet, and ask them to hide it in somebody's closed hand, all hands being extended shoulder high inside the circle, so that a ring of closed hands surrounds you. Take my patent "diviner" and tell unhesitatingly who has the "white stick." Allow some-

one else to attempt the same trick, lend them the diviner—and watch them fail.

Now, the "diviner" in question requires a little preparation beforehand. Make a wooden disc about two inches in diameter. Obtain a small compass with a well magnetised needle. Fit the complete compass into the wood by drilling a blind hole of the required diameter and of sufficient depth to take the compass and a thin covering disc of wood which will completely hide the compass except when you are using it yourself. Cover the wooden disc with cabalistic signs, and paint the thin covering disc to harmonise with the whole. Go out of the room every time the magnet changes hands. Having carried out a number of successful discoveries, retire, cover up the compass, and ask somebody else to try and do the same trick. You, no doubt, realise that every time you bring the "diviner" near the hand that contains the magnet the needle of the compass will point to it. Hold the disc between the palms of your cupped hands and the participants in the game, having their arms fully extended, won't see the compass within your hands. When somebody else tries the trick with the compass hidden by the covering disc, the issue will be further confused.

The Ancient Game of Oracle.

An oracle is one of the biggest swindles of ancient times. A hollow statue, or some other equally suitable object that would contain a priest or a witch-doctor, have served their purpose in the past, and it is a pity that one cannot run an oracle nowadays. I could have done quite well in this line of business with a microphone, amplifier, and a loud speaker, and everybody could have inspected the hollow figure to make sure that there was no deception. To become an oracle, in the way I have in mind, is very easy, and requires very little capital. All you do is to purchase an eight-inch bar magnet, find a piece of thin iron rod or fourteen-gauge iron wire, a common cork or a piece of wood, a deep soup plate (the larger the better), some water (H₂O) . . . and there you are.

The great idea is as follows. With Indian ink you mark off on the edge of the soup plate all the letters of the alphabet and figures from 0 to 9. Fill the well of the plate with water, fix the piece of iron rod or wire, painted white, to a disc of cork or wood, and let the whole contraption float on the surface of the water. The iron pointer or arrow should be four inches long, and should be floated as close to the surface of the water as possible. Now you sit in front of your soup plate, with the eight-inch magnet upright under the table, with one end close to and immediately below the plate. Bring your magnet under any of the letters or figures and the floating iron arrow will follow it like a dog at heel. You see the possibilities don't you?

In all these experiments you have to bear in mind one thing: the object you are trying to move with the help of the magnet must be well within the magnetic field of the magnet pole. For instance, if you put the soup plate on a stand, the magnetic pole under the table may not be powerful enough to affect the floating pointer. Cover the table with a table-cloth, put the soup plate on the cloth, and carry on with the good work. The "oracle" game can be played in two ways. People can ask

(Continued on page 966)

Dominion and Foreign Broadcasting Intelligence

DANISH LISTENERS' TASTES

IN the spring of this year the Danish broadcasting authorities decided to take a *referendum* among the listeners in order to discover how far the programmes were in accord with general tastes.

On the licence-card which was forwarded to each listener at the end of March was printed a classified list of 26 types of programme items in order that the listener might record beside each item his vote for "more," "as at present," or "less" time to be devoted to such programmes.

Of the total number of listeners, namely 254,000, 156,592, representing about 60 per cent., voted.

The Danish Statistics Department has prepared the material, and the results are now published.

In the summary below will be found an analysis table showing how the 156,000 votes were divided:—

The Statistics Department has compiled a table showing the proportion of votes in different parts of the country represented by various classes of listeners, graded according to trades or professions, as follows:—

Landed proprietors	659
Farmers	12,087
Cottagers	5,877
Agricultural workers	2,128
Fishermen	760
Manufacturers, wholesale dealers, directors, etc.	2,912
Other independent traders	24,620
Private functionaries	17,597
Workers in towns	28,667
Members of Professions	11,907
Public officials (superiors)	2,093
Public officials (subordinates)	9,046
Capitalists and retired persons	2,924
Women following no profession or business	8,888
Others	26,427
Total	156,592

	More	As now	Less	No declaration
	%	%	%	%
1. Serious music (incl. symphonies and Church music)	9.2	34.6	37.5	18.7
2. Light orchestral music	28.2	44.9	8.5	18.4
3. Brass and wind orchestra (incl. military bands)	53.4	26.5	6.3	13.8
4. Chamber music, piano and violin solos	13.4	32.4	33.4	20.8
5. Opera (incl. relays from the Royal Opera House)	6.1	14.1	65.2	14.6
6. Operettas and song-plays	22.3	33.9	25.6	18.2
7. Chorus and quartet songs	16.5	37.6	25.2	20.7
8. Solo songs	13.2	40.1	25.2	21.5
9. Old dance music	59.4	23.6	6.7	10.3
10. Modern dance music (incl. relays from restaurants)	24.0	37.5	21.3	17.2
11. Mandoline, balalaika, harmonica and special instruments	47.3	25.3	11.5	15.9
12. Plays, comedies, sketches from studio or from theatres	61.2	23.3	5.4	10.1
13. Readings of poetry and prose	12.5	34.8	32.6	20.1
14. Light entertainments, cabarets, etc.	56.5	21.1	9.1	13.3
15. Talks about history, literature, art, etc.	13.7	44.2	20.7	21.4
16. Talks about physics, geography, hygiene, technics, etc.	18.2	45.1	15.7	21.0
17. Talks about social, economic, and political themes	20.5	42.0	17.0	20.5
18. Special talks for farmers, horticulturists, housewives, etc.	19.3	39.7	19.2	21.8
19. Discussions	32.5	30.0	16.2	21.3
20. Relays of actual events, meetings, etc.	37.5	35.9	8.5	18.1
21. Lessons (languages, etc.)	5.9	38.5	30.4	25.2
22. Divine service, religious transmissions	13.8	53.4	16.6	16.2
23. Children's Hours	9.0	60.4	7.9	22.7
24. Boys' Hours	16.8	53.9	6.9	22.4
25. Communications from listeners' associations	3.0	44.8	27.1	25.1
26. News bulletins	21.7	60.9	2.1	15.3

In studying the results, the composition of the programmes prior to the plebiscite, must be taken into consideration. The official figures of programmes transmitted during the financial year 1928-29, is, therefore, printed below:—

	Number of hours	Percentage
Talks	348	11.1
Readings from literature	189	6.0
Plays and comedies	103	3.3
Operettas and cabarets	144	4.6
Classical and serious music	518	16.5
Light music	411	13.1
Dance music (incl. relays from restaurants)	431	13.7
Operas (incl. relays from the Royal Opera House)	293	9.3
Divine service	158	5.0
Relaying of sports events, meetings, etc.	54	1.7
Retransmissions	21	0.7
News bulletins	252	8.0
Communications from listeners' associations, etc.	30	0.9
Lessons (languages, etc.)	109	3.5
Transmissions for schools	81	2.6
Total	3,142	100.0

The plebiscite has awakened a great deal of interest and the Danish Press has given lengthy accounts of the results, both in tabular form and in leading articles.

THE SITUATION IN S. AFRICA

(From our Cape Town Correspondent)

Since its inception five years ago, broadcasting has made little progress in South Africa, except perhaps in the Mother City, Cape Town. Financial ruin was always imminent when the Cape Town, Johannesburg, and Durban stations were independently controlled, and now that the three are run by private enterprise—the African Broadcasting Coy.—prosperity for the promoters is still as far off as ever.

One of the first actions of the A.B.C. on taking over in June, 1927, was to erect a high-power station at Johannesburg costing £30,000. The upkeep of this station is considerable; its transmission covers a very wide area; but listeners have increased by only a few hundred in the JB area. It is rumored that Mr. Schlesinger, at the head of affairs, is losing a sum running into five figures annually. This cannot go on indefinitely, and the Press are now advocating State control of broadcasting, and

suggesting that Canada's example should be followed.

To-day there are approximately 16,500 licensed listeners in the Union of South Africa and they can get reliable reception from only one of three stations. Johannesburg claims 6,900, Cape Town 5,500, and Durban 4,100. Great distances and a small, scattered, white population are the chief difficulties. The isolated farmer who gets indifferent reception to-day is the one most in need of good wireless.

The Government of South Africa is noted for the generous aid it gives to farmers in every way, and with the advent of improved telephony and a larger network of landlines it is possible that the Government may realise that it controls the essential medium through which, with the aid of a few more broadcast stations, radio might be made a success in this country. Five or six stations, efficiently linked, would probably double the number of listeners immediately.

But that is for the future. Private enterprise can do no more, and how long conditions will linger as they are no one can say. To make broadcasting pay in Sunny South Africa is a tough problem for anybody.

One ray of hope is the cheap all-electric set which is being well received in the larger centres. But with the enthusiasm that it heralds comes also a wailing from hundreds who in years gone by purchased "the latest" in radio—the 200-guinea "tuned wardrobe"—which still requires expensive batteries!

AUSTRALIA

The New Australian Government and Broadcasting (From our Australian Correspondent)

SYDNEY, October.

The replacing of a Nationalist Government by the Labour Party as the result of the Federal Election raises the possibility of a change in policy in several aspects of wireless broadcasting.

The late Government recently accepted tenders for the first two of twelve relay stations. An American company secured the contract.

Mr. Scullin, leader of the Labour Party and now Prime Minister, announced in his policy speech that the Party stood for "Government ownership and control of wireless broadcasting." Just what he meant is not clear, but it seems likely that some form of control similar to the B.B.C. is contemplated. Only three months have elapsed, however, since a contract was made with the Australian Broadcasting Company to provide the programmes of the A Class stations for three years, so that the A.B.C. could hardly be displaced.

Immediately confronting the Government is the problem whether the licences of the B Class stations (which run without revenue from the Government) will be renewed. One expires on November 5, and it appears likely that the National Government will decline to renew it. The Labour Government is expected to agree to renewal of all the B stations—particularly because the Party has a station of its own—2KY, Trades Hall, Sydney.

The other outstanding point is whether the Labour Government can or will do anything to assist the broadcasting stations to resist the claims of the Australian Performing Right Association in respect of charges for the use of copyright items. The A.P.R.A. has just asked the B stations to sign a new agreement providing for the payment of a flat rate per week for the right to radiate as much copyright music as desired. Some of the stations refuse to sign and are appealing to the Government in the hope of obtaining sympathy.

(Continued on column 3, page 968.)

A HAPPY CHRISTMAS
A BRIGHT AND PROSPEROUS NEW YEAR
AND A LONG LIFE
TO ALL USERS OF THE EXIDE BATTERY



It will be unnecessary to convey to present users of the Exide Battery the wish that their wireless reception be constant and clear and that their cars shall start quickly from cold.

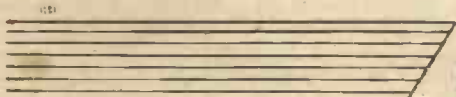
Exide

THE LONG LIFE BATTERY

FOR WIRELESS AND CARS

*Obtainable from all Exide Service Stations and reputable dealers.
Exide Service Stations give service on every make of battery.*

Command The Ether-



With the LEWCOS^{Regd.} 3 Valve Kit CONSTRUCTED IN 15 MINUTES!

This Lewcos Chassis constitutes the most compact Assembly Kit yet produced. All the vital wiring is done for you and the scientifically arranged lay-out permanently put into practice before you start. The Screened Grid Detector and Pentode Units are wired and mounted, as illustrated, on a chassis ready for connecting to condensers.

Results are certain with this Kit—the simplest job ever set in Radio Assembly.

Price £7, including coils (without valves).

Write for descriptive leaflet R.58.



LEWCOS^{Regd.}

THE NAME THAT STANDS
FOR SUPERIORITY!

COUPON
To THE LONDON ELECTRIC WIRE COMPANY AND
SMITH'S LIMITED,
In accordance with your offer in "World Radio," please
send descriptive leaflet R.58.

NAME.....
ADDRESS.....
DATE.....

Viâ Ether

Christmas Abroad

THE Christmas Number of *World-Radio* is concerned with the Yuletide season as it is kept in various countries; and I feel that it is all to the good that we should become acquainted, as far as possible, with the customs associated with that season as they are observed abroad. Nowadays, very many of us are acquainted with foreign lands, but, as a rule, in their summer aspect. It is unusual for the average Englishman to spend his Christmas in, at any rate, the northern part of the Continent, which happens to be mainly that part where Christmas is really kept as a festive season. Thus it is interesting to know that in Norway Christmas still is, as it emphatically used to be in this country, before else a family festival, and that family reunion appears to be almost a matter of honour. The habit of spending Christmas at hotels, or taking Christmas dinner in restaurants is far from being customary.

Festival of the Christmas Tree

It is good to know, too, that in Scandinavia, as well as in Germany and Czechoslovakia, the Christmas tree still occupies a central position in the festivities of the day, but in all these countries the real children's festival is kept on Christmas Eve. On the evening of that day—but not before 6 p.m.—the younger members of the family are first admitted to the entrancing sight of the tree, crowned with a large bright star, fully decorated and illuminated. Nor is the Christmas tree in these countries confined to the house as is the custom with us. A large and gorgeously illuminated specimen is frequently stood in some public place in the town, where all may enjoy its brightness—without, presumably, participating in its presents, if any. Among the more cynical of us, it is frequently observed, with a sigh of satisfaction, that Christmas comes but once a year, and that it lasts but a short time. In Germany, on the other hand, the season extends from St. Nicholas's Day, on December 6, to Epiphany, or, as it is known in Germany, "Dreikönigsfest" (the Feast of the Three Kings)—a solid calendar month of Christmas! But I shall probably be told that there are intermissions in the festivities.

The Next "International Evening"

WEDNESDAY evening next is another of the periodical International Evenings, and in this instance the programmes of most European stations are devoted to Germany. It is difficult to choose any particular station as having the most representative programme. From those that I have seen, one or two struck me as specially interesting. Hamburg opens the evening with scenes from Hebbel's *Nibelungen*, which are followed by selections from the *Meistersinger*, passages recited from Goethe and Schiller, selections from Lortzing's operas, and poems by Germany's humorist-philosopher, Wilhelm Busch, are also in the programme, which concludes with a composition by Pfitzner, the present-day German "romantic" composer. The mention of this name reminds me that Professor Pfitzner conducts the concert

broadcast by Munich on that evening. The programme at this station is entitled *German Romantic Composers*; and consists of compositions by Carl Maria von Weber, Schubert, and Schuman Professor Pfitzner, apart from conducting the orchestra, will also accompany on the piano, half-a-dozen Schubert songs to be sung by an eminent soprano.

Opera at Sixpence an Hour

IN music-loving Munich, every telephone owner can listen to the opera performances each evening by telephone on payment of a fee. Apart from that, there are listening-rooms in a special building open to the general public where one may listen to the opera for sixpence an hour with headphones. The photograph below shows the entrance to these public listening-rooms for the broadcasts of the Munich opera.



Helen of Troy in Music

ON THURSDAY, December 19, at 6.30 p.m., one of Strauss's most recent operas, *The Egyptian Helen*—which, I believe, had its first performance in June or July of last year—will be broadcast by Munich and its associated stations. The libretto of this work was written by Hugo von Hofmannsthal, who was the librettist of the majority of Strauss's operas. He died a few months ago, and Thursday's opera was probably one of his last. I have previously referred to his gifts as a poet and to the perfect harmony with which his poetry and Strauss's music are blended in most of their operas. I am looking forward to becoming acquainted with this work, and, from notes about it which have been published, I gather that Hofmannsthal bases his book on the stories of Helen of Troy in general and on the Euripides drama *Helen* in particular. A short overture indicates the theme of the music, the two acts that follow it are full of

melody, and the finale of the first act especially is worked up to a brilliant climax with Strauss's usual artistry.

"Those Talks"

I WAS much interested in the result of a programme questionnaire set by the Danish broadcasting authorities. I notice that 348 hours, or 11.1 per cent. of total programme time for the twelve months from April 1, 1928, to March 31, 1929, were given to talks (exclusive of news bulletins, language lessons, addresses from listeners' associations, transmissions for schools, readings from literature, relays of meetings and sports events, which together total 28.4 per cent.). Yet for talks of three classes—(a) on history, literature, art; (b) on geography, hygiene, technics, etc.; and (c) on social, economic and political subjects—out of one hundred possible votes for each, the first received 44.2, the second 45.1, and the third 42 per cent. in favour of their continuance as at present, while in the case of (b) and (c) a slightly larger number of votes was recorded from listeners who desired that increased time be given to these topics than was received from those who expressed a wish that the time at present so allotted should be reduced. This is the more remarkable when it is noted that the classified list of the occupations of voters shows that workers in towns and small traders largely outweighed other participants in the plebiscite.

Some Programme Changes Indicated

OTHER points of interest in this return are the items which the majority of listeners desire should receive the present allotment of time and those they wish reduced. Thus band music is given a large surplus of votes in favour of increase; so are plays and variety entertainments. On the other hand, opera receives a very great majority for a reduction—65.2 per cent. for reduction against 6.1 per cent. for increase, and 14.1 per cent. "as now." There is no other programme item the figures of which approach these. Those items whose retention as at present is desired by a considerable majority are Divine Services, Children's Hour, and Boys' Hour. Altogether the figures are very instructive, and doubtless will be found useful by programme builders, although the tastes of one nation are by no means the tastes of others.

Tooth Paste and Temper

THROUGHOUT the Western States of America there is a threatened boycott of a particular brand of tooth-paste. More: many listeners have even declared that they will cease brushing their teeth altogether! The cause of this commotion? Two artists, well known in the programmes, who sponsor a programme relating to tooth-paste, have changed their time of broadcasting. I understand that on publication of the new timings a storm of protests burst upon the tooth-paste proprietors' offices, and it was estimated that more than one hundred thousand persons registered their protests by letter, telegram, or telephone. Sweet are the uses of (broadcast) advertisement!

ETHERVIATOR

Letters to the Editor

Radio Reminiscences

The Editor, WORLD-RADIO.

SIR,—Whilst appreciating to the full the kindly manner in which "R. E. Sigs" has criticised my Reminiscences, in your issue of the 29th ult., I nevertheless feel that his remarks are open to misconstruction by your readers, and I should like therefore to make a few remarks in order to prevent this.

My reminiscences were intended to apply only to telephony, and my opening reference to W/T was mentioned merely to enable me to fix the date. I specifically stated that W/T "had 10 years start of me," and I could "never hope to pick up arrears." I had not the slightest intention of laying claims to any priority in that direction, as must be obvious to all.

Ninety per cent. of my article deals with telephony, whereas ninety per cent. of the criticism by "R. E. Sigs." deals with W/T. It seems unnecessary therefore to press this point further.

Whatever may have been the state of progress in America of wireless telephony in 1913, I suggest that "R. E. Sigs" is quite under a misapprehension regarding same in England, when he says "As to wireless telephony in 1913, this was well established." It is the accepted opinion in England that wireless telephony first became commercially practicable by the introduction of the three-electrode valve, and this was not introduced until just before the outbreak of the Great War. I am quite aware that Poulsen obtained telephonic signals as early as 1905 from his Lyngby station—two years prior to Fessenden—but it was not until 1915 that the first trans-Atlantic telephone message was sent (Arlington to Eiffel Tower).

The following extracts from "Broadcasting from Within" are also of interest:—

Page 5. "It may be said that wireless telephony was made possible by the invention of the thermionic valve. Before its discovery, it was hardly possible to transmit speech through the ether, though, as a matter of fact, very crude results had been accomplished by means of arc transmissions."

Page 8. "The question may well be asked, why was it that wireless telephony, whose possibilities were proved in late 1919 or early 1920, did not come into general use in the autumn of 1920, when things were just beginning to boom in America?"

The very first reference in the Historical Survey of Wireless Telephony given in the "Year Book of Wireless Telegraphy," 1924, (Radio Press), is dated 1913, when continuous waves by the reaction of a triode upon itself were first discovered.

The transmission of W/T signals from England to France in 1899 (a year before "R. E. Sigs" was connected with W/T) is quite comparable to the daily tests he carried out in telephony in 1907. Would he consider it fair criticism to say that W/T was well established in 1899?

Yours faithfully,
C. G. P.

SCIENTIFIC CHRISTMAS FUN.

(Continued from page 961.)

"spirits" questions, and the pointer, guided by the operator, will spell out the answers. Or you can affix to the edge of the plate a number of paper discs with "future" predictions written on them. The predictions can take any form you like, but from past experience I know that when a lady inquirer gets an answer to the effect that "a tall, dark man is interested in her"—a good deal of merriment is produced.

The Bewitched Knives

Get hold of all the stainless knives from the knife basket and magnetise them by stroking from the centre to opposite ends with alternate poles of your eight-inch magnet. Wait till the next meal time and, having hidden your magnet in a table-napkin, start moving it under the table beneath your neighbour's knife. The knife will start to twitch. Manipulate your magnet to and fro, but carefully so that your movements are not betrayed. If your victim is slow in noticing the "strange phenomenon," draw his or her attention to it, and let your friend on the other side have a surprise. Explain all your magnetic tricks, and this will lead you to a nice little talk on magnetism in general. With the help of iron filings and a sheet of white paper, you can demonstrate magnetic fields.

Telepathy

If you have a wireless receiver and loud speaker—and most readers of *World-Radio* will have both—you can give a few demonstrations of your "telepathic" powers. Your receiver being already connected to the loud speaker, add a pair of telephones across the output terminals with a long lead so that the 'phones may be used secretly in a spare room. You will find that you can hear in the telephones every word that is said in the other room in front of the loud speaker. For "telepathy" purposes you require an accomplice. Let him stand near the loud speaker and read slowly word by word a paragraph from a book, or repeat a name which the company has selected, while you are out of the room. You listen with the head telephones and note all he says. You then come into the room, and to everybody's surprise repeat the paragraph in question or the selected name. They can give you any tests they wish and you should score every time.

An Indispensable Adjunct to all keen Wireless Amateurs!

The Wireless World and Radio Review DIARY for 1930

Full of useful facts and figures for wireless users, and containing ample space for memoranda and personal notes on radio matters. A copy makes an admirable Christmas present to a wireless friend.

PRINCIPAL CONTENTS:

Summary of Regulations Relating to Amateur Transmitter and Receiving Licences, Conversion Tables, English measures to metric and vice versa. Decimal and metrical equivalents of fractions of an inch. Broadcasting Stations of Europe with their Call-signs and Wavelengths. Principal Short-wave Broadcasting and Commercial Stations of the World. Nationality Prefixes used by Amateurs. Morse Code. Symbols used in Wireless Diagrams. Typical Wireless Receiver and Eliminator.—Fourteen Different Circuits with Diagrams. Valve Data, giving the characteristic features of standard valves.

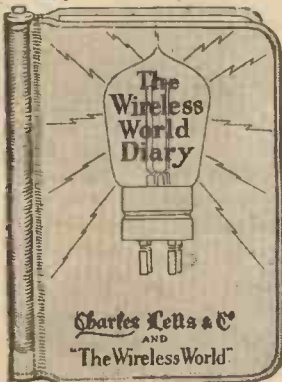
From all Booksellers and Stationers.

Published Jointly by

ILIFFE & SONS, LTD.,

Dorset House, Tudor Street, London, E.C.4,
and CHAS. LETTS, LTD.

PRICES:
Cloth Board, 1/- net. By post 1/1.
In Leather Case, with pockets, pencil and season ticket window, 2/6 net. By post 2/7.



ACCUMULATOR TROUBLES SOLVED

Join our **C.A.V. HIRE SERVICE**

It is better, cheaper, and safer to use our C.A.V. Low Tension and High Tension Accumulator Service. Regular motor delivery and collection of charged Accumulators at moderate fixed charges within 12 miles of Charing X. If necessary we will service your own accumulators, supplying duplicates wherever needed for continuous supply. Over 10,000 satisfied users.

SAVE MONEY & IMPROVE RECEPTION

Write or phone for Descriptive Folder, Post Free.

RADIO SERVICE (LONDON) LTD

105 Torriar Avenue, Camden Town, N.W.5.
Phone North 0623 (3 lines).



TAYLEX—H.T. for DISTANCE

LONG LIFE
SILENT
DEPENDABLE

Ideal for Multi-Valve receivers.
No. 3 Sac for PENTODE.



NO RE-CHARGING
NO ATTENTION

BOOKLET **FREE**
with illus.

Solve all H.T. Troubles. No charging. Long Life, absolutely silent, give ample output for sets of all sizes. Power Valves can be used without any disturbing thought of Battery expense, require no attention. If changeable terminals used no soldering needed. Complete cells can be supplied ready assembled.

Popular Sizes: Complete for use, suit any set.
60 cell, 90 volts, No. 1 Sac, £1 0 8. No. 2 Sac, £1 5 3.
84 cell, 126 volts, No. 1 Sac, £1 8 8. No. 2 Sac, £1 13 9.

60 cell Tray, 7/-, or Hinged Lid Cabinet, 12/-.

If terminals required, add 8d. per dozen cells extra.

Sample doz. (18 volts), complete with leads and electrolyte. No. 1, 4/1; No. 2, 5/-; post 6d., terminals extra. No. 3, with terminals, 7/6 (10,000 millamps).

Sample unit, 6d. Orders 10/- carr. paid.

FREE Bargain List of Receivers, Amplifiers & Components.



Parts. Per dozen.

	No. 1	No. 2
Jars (waxed)	1 3	1 6
Sacs	1 2	1 9
Zincs	10	11
Bands (24)	4	4
Terminals	8	10
Special sizes for Pentodes		
Size of Jars.		
No. 1	2 1/2 x 1 1/2	Sq.
No. 2	2 1/2 x 1 1/2	Sq.

S. TAYLOR, 57, Studley Road, Stockwell, London.

Foreign Languages

Aids to Listening

FRENCH

"Les Etrences."

TOUT anglophiles que nous sommes, et si anglomanes que nous puissions devenir, je ne pense pas que Noël puisse jamais supplanter en France le *jour de l'An*, que les *étrences* soient jamais remplacées par le "Christmas Box."

Modes anglaises, coutumes, expressions, oeuvres littéraires venues d'outre Manche, ont certes en ce moment une vogue indiscutable. Nous portons des blazère, des jumpère, des pullover; nous faisons du dancing, du camping, du canoëing; nous prenons le five o'clock, nous golfons, nous tenissons; nous applaudissons "*Le grand Voyage*," "*Shairlock Ohmès*," "*Rose-Marie*," et tant d'autres succès londoniens.

Mais la tradition du *jour de l'An* est trop bien établie pour être ébranlée; c'est le pur vers lequel tendent bien des pensées, bien des efforts. On distribue et reçoit des récompenses; on échange des preuves de bon souvenir, des visites, des lettres. . . . C'est un branle-bas général; et c'est surtout une gigantesque distribution de cadeaux, d'*étrences*.

Autrefois, c'était le 1^{er} Janvier même que s'offraient les surprises longuement préparées, et attendues par grands et petits. Les parrains, oncles, amis, chargés de paquets, arrivaient gâter le petit monde; les visiteurs allaient présenter leurs hommages aux belles dames munies de bouquets de fleurs, ou de boîtes de bonbons.

Aujourd'hui les *étrences* sont envoyées plusieurs jours à l'avance: 3 ou 4 jours avant le 1^{er} Janvier, parfois même encore plus tôt. Mais, si le hasard les amène le 25 décembre, ce n'est pas du tout Noël qu'ils sont destinés à célébrer; et s'ils devançant le grand jour d'une semaine, c'est uniquement pour être certains de ne pas être en retard.

Je ne veux pas dire que nous l'ignorions, ce jour de "joyeux Noël"; il ne passe certes pas inaperçu: Les gourmets s'y délectent de succulentes oies aux marrons; les petits, dans leurs plus beaux atours vont à des festivités enfantines où l'attraction suprême est l'arbre de Noël resplendissant de lumières, chargé de mystérieux petits paquets. Les magasins de comestibles, vendent les spécialités anglaises de la saison: le plum pudding (que beaucoup appellent 'plom pouding' ou 'ploum pudding'); et les mince-pies, dont le nom intrigue ceux qui ne sont pas initiés: j'ai connu une petite fille qui demanda à sa mère pourquoi les Anglais mangeraient des pies à Noël, et pourquoi ils les préféreraient minces (*slim*).

L'aspect de la ville à Noël est celui des dimanches; une partie des magasins sont fermés; on s'amuse au lieu de travailler.

Une semaine plus tard on travaille moins encore; et, si l'on s'amuse, c'est d'une façon active, presque ardue: La veille on a réveilloné gaiement avec force libations; alors dès le matin du premier janvier, après les cadeaux échangés en famille, de suite après le petit déjeuner, c'est un exode général de la partie masculine de la population: les femmes restent chez elle et les hommes vont de maison en maison amie, apporter leurs bons souhaits. Dans les classes aisées les salons sont pleins de fleurs de serre, de coquettes boîtes pleines des délicieux bonbons. . . . Dans les maisons bourgeoises, cadeaux plus pratiques: vêtements neufs, morceaux délicats pour le dîner, etc. Le "Bonne Année, M'sieu!" de la Concierge s'enfile presque au "Merci bien"

(Continued on page 968)



"I can get Toulouse on this"

But

can You understand what Toulouse says ?

WITH a good set it is easy enough to "get" a foreign station, such as Toulouse. What is far more unusual, and far more worth while, is to be able to enjoy it, for enjoyment is only possible when you understand the language. But

learning French, German, Spanish, Italian, or any other language, is no longer the tedious business it used to be. The Linguaphone Method has reduced the learning of a foreign language to a few weeks of easy and interesting study.

SEE HOW EASY IT IS—

The Linguaphone Method, by a combination of Language Records specially spoken by distinguished native linguists, and illustrated text-books to accompany the records, trains speech, ear and memory simultaneously. So that soon after begin-

ning the course you find that you can not only understand but speak the language with an ease that will delight you. Moreover, you will find yourself speaking naturally with a correct accent—because you will never have heard a word wrongly pronounced.



You can use any Gramophone.

Test this wonderful method **FREE** on your own GRAMOPHONE

There is no need for you to take the unique advantages of the Linguaphone Method on trust. You can have a whole week's trial of any Linguaphone Course in your own home, free of cost and without obligation. So fill up the coupon below at once, and obtain the 24-page book which tells you all about the Linguaphone Method and how to avail yourself of the free test.

LINGUAPHONE COURSES IN:	
French	German
Spanish	Italian
Russian	Dutch
Irish	English
Afrikaans	Esperanto
Persian	Chinese
Literary Courses and Travel Talks for Advanced Students.	

The **LINGUAPHONE** LANGUAGE INSTITUTE

POST THIS COUPON TO-DAY,

Or if in London call for a personal demonstration at our Head Office, 24-27, High Holborn, or at 30, Victoria Street, S.W.1, or 90, Gracechurch Street.

To THE LINGUAPHONE INSTITUTE, 650, Napier House, 27, High Holborn, London, W.C. 1.

Please send me (post free) your 24-page book about the quick, new and easy Linguaphone way of learning languages.

Name.....

Address.....

FOREIGN LANGUAGES

(Continued from page 967)

qui accueille le billet glissé par Monsieur dans la main à moitié tendue.

Le jour d'e l'an est celui où chacun a son moment de générosité où chacun donne ; ou du moins, comme le poète, songe à le faire :

"Pour vous, ce jour de l'an, je rêvais quelque étrenne."—(Gautier).

A. W.

SPANISH

La Radio y las películas habladas ("talkies")

MIS lectores recordarán como, al presentarse al público hace unos siete años el nuevo arte de la radiodifusión (broadcasting), muchos entusiastas predijeron (predicted) el rápido decaimiento (decay) de la afición al gramófono. Ya nadie compraría discos—deciando, sin moverse de casa, podían escuchar de balde (free of cost), no una mera reproducción de música y canto (song), sino los acordes (strains) mismos de las orquestas y la voz misma de los cantantes en el momento de producirse en el estudio. Y cuando, con el perfeccionamiento de las emisiones, se llegó a radiar hasta (even) las grandes sinfonías de Beethoven y de otros maestros clásicos con tan poca distorsión que el oyente (listener) se hacía la ilusión de estar sentado en un salón de concierto escuchando la ejecución directamente, muchos previeron (foresaw) la extinción, dentro de muy corto plazo (tiempo, período) de los conciertos públicos.

El micrófono siguió su marcha demoledora, e invadió otro campo: esta vez el del teatro, radiando comedias, dramas, óperas, zarzuelas (Spanish short musical comedies), y se profetizó la ruina de los teatros. ¿Quién iría al teatro, pagando precios tan subidos (altos) por las localidades (seats) cuando, sentado cómodamente en su sillón favorito, o echado (reclining) en el sofá, descansando de las fatigosas labores del día, podía escuchar a sus anchas (at his ease) a los mejores artistas y actores del día sin perder una sola palabra?

¡Gramófono, concierto y teatro: estaba escrito que todos habían de desaparecer ante los adelantos de la radio (radiotelefonía)!

Veamos, ahora, lo que realmente sucedió. La radio no tan sólo (not only) no acabó con el gramófono y la fabricación de discos, sino que hoy en día, gracias a las emisiones radiofónicas que le han servido de anuncio (advertisement), esta industria ha alcanzado ventas verdaderamente fabulosas, ventas con que las compañías de gramófono no soñaron jamás (never dreamt of), y cuyo volumen continúa en rápido aumento. Los conciertos—¡cosa rara!—también continúan sin notable cambio ni en un sentido ni en otro.

Y ¿qué diremos del teatro? Éste, que antes estaba en plena decadencia, e iba cediendo el puesto al cine (cinematógrafo), está sintiendo una marcada reacción, hasta el punto de poder contar ya muchos teatros con un lleno completo (full house) para cada función (performance). Es que la radio se ha convertido en un valioso aliado (powerful ally) del teatro, y las mismas empresas teatrales solicitan y procuran la retransmisión de sus espectáculos, que se traduce en (que resulta en) una mayor concurrencia (attendance) de público a los locales (places) donde se representa (is performed) la obra radiada.

Lo que dejo dicho se refiere mas bien (rather) a Inglaterra que a España, pero tiene aplicación a ambos países casi por igual (equally). Últimamente se han estrenado en Madrid algunas películas sonoras y habladas ("movitones" and "talkies"), y—al igual que (lo mismo que) nos está sucediendo aquí en Inglaterra—se ha colocado ya en el primer plano (forefront) de las discusiones la cuestión de las posibilidades de este nuevo invento y de sus efectos sobre el cine mudo y el teatro legítimo. ¿Desaparecerán

las películas mudas? ¿Llegarán las películas habladas a reemplazar las funciones de teatro? Otra vez estamos en el terreno de las predicciones y otra vez tanto lo nuevo como lo antiguo tiene sus partidarios (partisans), asegurando los unos que lo antiguo puede darse por (may be considered as) muerto definitivamente, y los otros que lo nuevo no es más que una manía del momento. Estos últimos no quieren darse cuenta de (realise) la marcha del tiempo, y quisieran que todo siguiese igual por los siglos de los siglos. Lo que a mí me parece probable es que la lucha entre las dos formas de cine terminará en una combinación o fusión, porque ambas tienen sus ventajas y sus limitaciones. Tendremos películas habladas por una parte, y películas mudas, con música y efectos añadidos, por otra.

En cuanto al porvenir del teatro legítimo, ni la radio ni las películas sonoras o habladas podrán dañarlo en lo más mínimo, sino que, al contrario, le servirán de estímulo.

En resumidas cuentas (in short), continuarán en pie todas las varias formas de expresión, evolucionando cada una dentro de su propia esfera, porque se diferencian tan fundamentalmente que no pueden perjudicarse una a otra. Pierdan cuidado, pues, los que temen por el futuro. Lo nuevo no puede matar ni reemplazar a lo antiguo; se le añade y lo enriquece.

W. F. BLETCHER.

ESPERANTO

ESTAS bona kutimo memori la laboron de famaj homoj e la okazo de la datreveno de ties naskotago. Tjun kutimon havas la Esperantistoj, kiuj la 15-an de decembro festos la naskotagon de d-ro L.L. Zamenhof, kiu naskiĝis en la jaro 1859. En ĉiuj landoj de la tero homoj el ĉiuj klasoj kaj religioj denove pripensos la genion de la aŭtoro de Esperanto. Oni preparolos liajn lingvon, verkojn kaj paroladojn en kluboj kaj societoj, kaj ankaŭ brodkastos paroladojn. Ni rekomendas al niaj legantoj auskulti ĉi tiun specialan brodkaston el Belgujo: Brussels, Radio-Belgique (590 k/c, 509 m., 1 kv.). Dato: mardo, la 17-a de decembro. Horo: 8.30 p.m. Oni brodkastos dum dek minutoj paroladon pri d-ro Zamenhof, kaj poste muzikon, kaj kantojn en Esperanto. Ni petas, ke vi sendu raportojn al d-ro Kempeneers, 20 rue aux Laines, Brussels. Vi certe aŭdos tre interesan programon.

Nun kvardek du jaroj pasis de la eldono de la unua Esperanto-lernolibro, kaj por Esperantistoj estas ĝojige konstati, ke la lingvo perfekte pruvis sian kapablecon por ĉiuj taskoj kaj celoj. Oni povas do konstati la mirigan genion de d-ro Zamenhof, kiu kreis tian perfektan instrumenton. La lingvo sukcesis ĉar ĝi meritis la sukceson; riĉaj homoj, ĵurnaloj kaj registaroj ne helpis ĝin, sed nur la solida taŭgeco de la lingvo mem.

Sed estis ankaŭ alia grava faktoro en tiu sukceso. Tiu faktoro estas la karaktero de la aŭtoro de la lingvo. D-ro Zamenhof estis tre modesta homo, kiu tre frue vidis, ke la lingvo devas esti la posedaĵo de ĉiuj, ne de unu persono; ke la lingvo devas esti uzata, kaj ne esti eterna eksperimentaĵo, kiu ŝanĝiĝas de tago al tago. Do je la plej frua oportuna momento li donis ĉiujn siajn rajtojn pri Esperanto al la Esperantistoj, kun la saĝa kondiĉo, ke la lingvo restu senŝanĝa. Tio ne signifas, ke ĝi ne povas kreski kaj evolui; tio signifas nur ke la fundamento de la lingvo estas fiksita. Efektive, Esperanto multe kreskis kaj evoluis dum la lastaj kvardek jaroj; ĝi nun estas multe pli riĉa kaj fleksebla, ol ĉe la komenco. Sed la esenca gramatika kaj strukturo de la lingvo tute ne ŝanĝiĝis, kun la rezulto, ke la nuna Esperantisto povas tute facile legi la plej fruajn tekstojn, kaj la plej fruaj pioniroj povus legi la plej modernajn tekstojn. Sen tiu saĝa konsilo de la aŭtoro, la lingvo estus jam mortinta.

D-ro Zamenhof estis tre honesta kaj sincera

homo, kiu tre klare vidis. Li ne estis trompata de la falsaj esperoj, kiuj sin prezentis de tempo al tempo; li komprenis, ke la internacia lingvo devas esti longe provata, malrapide disvastigata tra la mondo. Li komprenis, ke neniu konitoto el lingvistoj au profesoroj povos sukcesigi la lingvon, sed nur la pacienca laboro de la miloj da Esperantistoj. La periodo de provado jam finiĝis; ni pruvis Esperanton tanga por ĉiu tasko. Esperanto estas disvastigata kaj uzata tra la mondo; nun komenciĝas la periodo kiam la mondo ĝin akceptos—tion montras la kvindek radio-stacioj kiuj ĝin brodkastas.

NOVAJ VORTOJ: *Memori*, to remember; *datreveno*, "date return," anniversary; *ties*, that one's, his, their; *festi*, to celebrate; *festo*, a festival; *tero*, earth; *klaso*, class; *religio*, religion; *genio*, genius (the mind of a genius); *verko*, a (literary) work; *pasi*, to pass (intr.); *gojo*, joy; *konstati*, to establish as a fact, to realise; *pruvi*, to prove; *provi*, to test, to try; *celo*, aim, purpose; *krei*, to create; *registaro*, "collection of rulers," Government; *tauga*, suitable, fitting; *mem*, self, selves (for emphasis only); *posedi*, to possess; *sangi*, to change (trans.); *rajto*, a right; *kondico*, stipulation; *fiksi*, to fix; *trompi*, to deceive; *disvastigi*, to make known widely, to spread; *komitato*, committee.

RADIO-DUO.

ZAMENHOF-FESTOJ.

Saturday, December 14.
3.5 p.m. Berlin.
6.30 p.m. Lyon-la-Doua.
7.40 p.m. Hilversum.
Sunday.
3.0 p.m. Warsaw.
Tuesday.
6.30 p.m. Brussels.

FOREIGN INTELLIGENCE

(Continued from page 962.)

CANADA

The Broadcasting Commission's Report
(From our Montreal Correspondent)

Early consideration is to be given by the Government to the Report of the Radio Commission. Since it was made public last summer the report with its recommendations for a nationalised system of broadcasting financed by the Dominion Government, with the programmes furnished under Provincial auspices, has been in the hands of departmental experts. About it there has been much correspondence. The main volume of it is seemingly in favour of the recommendation of the Commission, but some dissent comes from broadcasting concerns, now in the business, who might be compensated and then disappear. They object to being wiped out. Any measure which affects the public Treasury must emanate from the Government, but there is no disposition by any party at Ottawa to treat this as a party question. It is possible that a tentative Bill will be drafted embodying the recommendation of the Commission and then referred to a special committee of the House to decide upon its exact form after hearing representations.

AUSTRIA

(From our Vienna Correspondent)
Possible Reduction of Licence Fees

The most interesting present for the poorer of radio enthusiasts in Austria, if it materialises, is that foreshadowed, though not positively promised, by ex-Minister Dr. Heindl, President of the Ravag Council, when he announced in the course of a Theatre Debate in the Budget Committee of the Austrian Parliament, that the monthly fee of two schilling, about fourteen

(Continued on page 982.)



THEY LAST LONGER

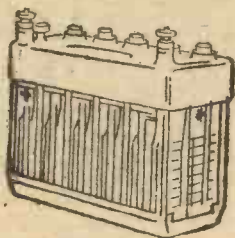


FULLERS' LDG BATTERY WINS

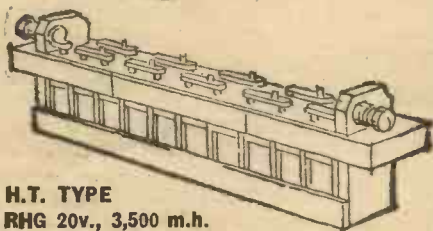
THE TRIUMPH OF MICRO-POROUS PASTE

To-day so many people are turning to Fullers super batteries that our works have had to treble their output! Super batteries are now acknowledged to have set an altogether new standard, both for Low and for High Tension. This LDG type, for instance, is without question the finest battery of its kind that is manufactured. Its small brothers SDG (25 a/h., 5/6d) and MSG (22 a/h., 4/6) are popular, too. A note on the HT types appears on the left. Super batteries, and the LDG particularly, have won largely because their unique micro-porous paste is not only more porous, more active, but of finer grain, stronger, more lasting. Incidentally there are wonderful Sparta guaranteed Dry Batteries, too—see the list on the left. Give super batteries this Christmas—starting with yourself! Of Fuller Service Agents, or first-class dealers—

TYPE LDG. 2v., 60 a/h, PRICE 9/6d WITH FREE CARRYING HANDLE



H.T. TYPE
DMHG
10v. 6,500 m.h.
monobloc
6/9d.
MHG 3,000 m.h.
5/-



H.T. TYPE
RHG 20v., 3,500 m.h.

Separate insulated cells 15/-

ALSO SPARTA DRY BATTERIES.

60v. (reads 66v.) Standard 7/11, 60v.
Super 13/6, 100v. (reads 108v.)
Standard 12/11, 100v. Super
22/-, 120v. (reads 126v.)
Standard 15/10. 9v. Grid
Bias 1/6., 16v. Grid
Bias 2/10.



SPARTA
SUPER-BATTERIES
FULLER ACCUMULATOR CO.(1926) Ltd.
CHADWELL HEATH ESSEX.

MAINS IN A MOMENT!

It contains a battery, of course. But that's only for outdoor occasions . . . few and far between these winter days. In the meantime, the **TRIX Five** becomes an all-mains set . . . becomes one in a moment. A simple plug is pushed into a socket. This simple action connects the set up with the mains eliminator and automatically and simultaneously disconnects the internal H.T. battery. Apart from the ease of the change over from batteries to mains, you find that the tone and volume is even better. There simply isn't another set quite so efficient as this.

TRIX Portable FIVE

17 GNS.
PLUS ROYALTY.

Manufacturers:
ERIC J. LEVER (TRIX)
LTD., 8-9, Clerkenwell
Green, London, E.C.1.
Phone: Clerkenwell
3014-5.

Write now for details and particulars of hire purchase terms.



Prov. Patent 37582/29.



THE WATMEL IMPERIAL WAVE TRAP

Connect this Wave Trap in series with your aerial and you will be able to eliminate completely undesired stations, and also "background."

With the 4 sockets in the base, 6 different inductance values can be obtained, thus assuring that your particular aerial conditions can be suited.

This is an ideal Christmas present for a set owner, because it is certain to improve the tuning and selectivity of any set. Price only **8/6**

Watmel

WATMEL WIRELESS CO. LTD.
Imperial Works, High Street, Edgware, Mx.
Telephone: Edgware 0323.

P. & T.

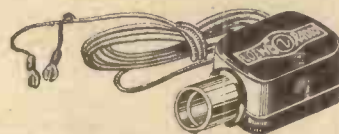
LOEWE RADIO



HIGH VACUUM RESISTANCES
1/6

HIGH VACUUM CONDENSERS
1/3 & 1/6

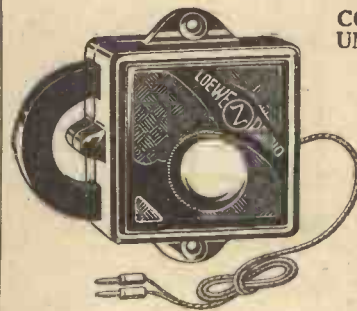
CONE SPEAKER E.B.71. 45/-



GRAMOPHONE PICK-UP
L.R.92 13/6



CONE SPEAKER UNIT L.S.71 13/6



All Loewe Radio Products amounting to a total sum of not less than £5 can be obtained on attractive H.P. terms.

Full details from your dealer.

The Loewe Radio Co. Ltd.,
4, Fountayne Rd.,
Tottenham, N.15.

YOUR Christmas Programme



will be so much better if you are using a **POWQUIP ELIMINATOR!**

Christmas is well on the way . . . with the Christmas programmes to entertain you. And as Christmas "comes but once a year" it is well to make certain that no mishaps will occur. Batteries aren't to be trusted, but a POWQUIP Eliminator is. No disappointing "fade out" in the middle of a programme! No "crackling"! And certainly no hum! That's the big POWQUIP feature—silent operation! A POWQUIP Eliminator makes an ideal Xmas present for a radio friend, too. Here're two models—Model A for 4-Valve Sets, Price 65/-, Royalty Paid, Valve Extra. Model B for Multi-valve Sets, Price 5 Gns. Royalty Paid, Valve Extra. Write for complete range TO-DAY!

POWQUIP ELIMINATORS

THE POWER EQUIPMENT CO., LTD.,
Kingsbury Works, The Hyde, Hendon, N.W.9.

Every tail should wear a tab.

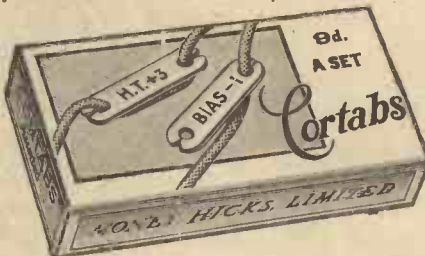


Save your Valves!

Very few valves live long enough to die a "natural death." That's the reason why valve makers don't like

CORTABS

which save the lives of valves by preventing accidents. Metal labels for battery cords are corrosible and conducting. CORTABS (made of ivorex) are both non-corrosible and non-conducting. Buy a carton of thirteen popular wordings to-day for 9d. and save the lives of your valves.

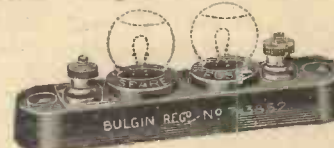


Don't be put off with substitutes. See the special slots as illustrated above. These enable the CORTABS to slip on to the battery cords without undoing plugs and terminals. But they will not slip off! CORTABS can be obtained of all good dealers or (1d. postage extra) from

MONEY HICKS, LIMITED,
The largest Makers of Radio Labels in the World.
54-60, BRITANNIA ROAD, LONDON S.W.6.



FUSEHOLDER AND SPARE
1/3 EACH.



VALVES ARE EXPENSIVE!
A touch of the H.T. + wire on the L.T. and a sadder but wiser man is compelled to purchase new valves.

Fit a "BULGIN" fuse fitting now—they can be incorporated by any amateur in five minutes.

FUSES 6d. EACH.
SINGLE TYPE FUSEHOLDER
PRICE 9d. EACH.



Send 2d. stamps for our new 56-page fully illustrated cata loguo

BULGIN RADIO PRODUCTS

A.F. BULGIN & CO.,
—Radio Manufacturers—
9-10-11 CURSITOR STREET,
CHANCERY LANE, LONDON E.C.4.

TECHNICAL SECTION

A Short Wave Adaptor

An easily-constructed unit which enables practically any ordinary receiving set to be used for short wave reception

IN this country the short wave adaptor does not seem to be as popular as one might suppose. Consider its many advantages. It allows any receiver, which has one or more L.F. valves, to operate efficiently on the short waves without any alteration. Its cost is very small, generally slightly less than a one-valve broadcast receiver. It requires no extra valves or batteries, etc., and finally, it is very simple to operate.

In the design and construction of such a piece of apparatus, there are one or two points to consider which do not occur in the ordinary way. First, the number of valves it shall contain. Two valves might be used—a screen grid valve and a detector—but this would defeat one of the objects of the adaptor, namely, that it shall not consume any more current than the ordinary detector valve of the broadcast receiver. Also, the cost would be higher because of the extra valve. Also, of course, an extra screen grid valve means an extra tuning control. Therefore, for the sake of simplicity and low cost, one valve only should be used in our adaptor.

A short wave adaptor will be more liable to give hand capacity effects than a complete short wave receiver built up in one unit. It is advisable, therefore, to build the whole adaptor in a metal case. This may consist of practically any non-magnetic metal such as copper, aluminium, or even zinc. If possible, solder all seams in the box as this will reduce crackling due to bad joints, but, failing this, make the best possible contact by means of small brass screws and nuts.

and the receiver, this condenser will certainly be of use, for it will by-pass H.F. currents from the adaptor to earth. These currents could not be by-passed by long filament leads so this condenser is used as an extra filter. In practice, it will lessen hand capacity effects and reduce threshold howling.

Solder all connections where possible. When two-volt valves are being used with a two-volt accumulator it is especially important to solder all connections to the filament sockets and plug, as to lose a fraction of a volt here would probably mean that the set would refuse to oscillate on the shortest wavelengths. No filament switch or rheostat is necessary as the filament current is cut off when the switch on the broadcast set is operated.

Short Wave Coils

In the original model of this short wave adaptor, four coils were used to cover the wavelengths from 14 to 45 metres with the variable condensers specified. While short-wave plug-in coils of standard manufacture may be used with suitable bases or holders, and will, no doubt, give perfectly satisfactory results, a description of the actual coils used by the writer, although not a new or original idea, will be interesting to many. The four coils are wound on bases with pins which fit into a standard valve holder. The two small coils, covering the wave band of 14 to 26 metres are wound on bases of burnt-out valves, to the following specifications:

Coil No. 1. (Wave range 14 to 20 metres).
Grid coil — 4 turns. Reaction—5 turns.

Coil No. 2. (Wave range 18 to 26 metres).
Grid coil — 5 turns.
Reaction—7 turns.

It may be thought that these coils cover a tuning range which is too small for ordinary purposes, but, for ease of operation, this is preferable because the tuning will not be too critical. The grid coils are all wound with No. 22 S.W.G.—d.c.c. wire, the turns being spaced slightly by means of some heavy gauge cotton wound alternately with the wire. The reaction coils are all wound with No. 26

S.W.G. enamelled wire, and all windings are in the same "sense" or direction. It is preferable to leave a small space between the reaction and grid coil windings, although, if the adaptor will not oscillate satisfactorily, the reaction winding may be placed close to the grid winding. It should be noted, however, that if the two windings are very close together, the reaction condenser will affect the wavelength to some extent, and tuning will be more difficult.

If you have some old or broken valves on hand, the bases can be used for these coils and should be removed from the valve bulb, either by heating the bulb very gently (this will soften the cement mixture used and the base should come off easily), or by breaking the valve bulb and scraping all the cement away. Most types of valves have the wires fastened at the tip end

of the pin and the soldering iron should be placed here in order to remove the old connecting wires.

Valve bases are not large enough to take all the wire required by the next two coils, so a former has to be made. A piece of ebonite tubing, $1\frac{1}{4}$ inches in diameter, is cut into two $1\frac{1}{2}$ -inch lengths. A small circular piece of ebonite carrying four valve pins, correctly spaced to fit a standard valve socket, is fitted into one end of each "former," and secured by means of small brass screws passing through the sides of the tube. The specifications for these two coils are as follow:

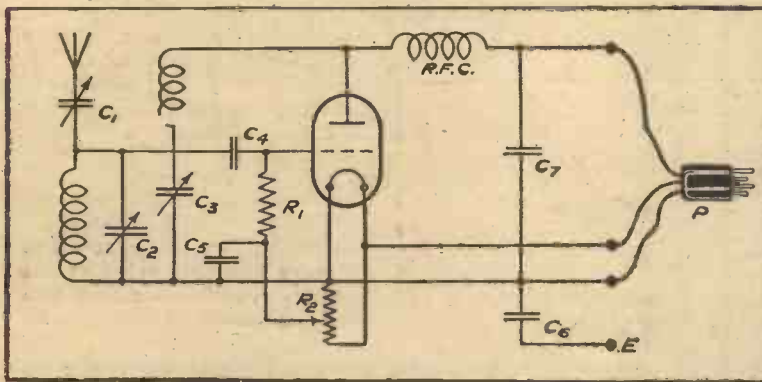
Coil No. 3. (Wave range 23 to 33 metres).
Grid coil—7 turns. Reaction—9 turns.

Coil No. 4. (Wave range 30 to 45 metres).
Grid coil—12 turns. Reaction—12 turns.

The plug P is the base of a burnt-out valve with the output connection made to the plate pin and the filament connections made to the two filament pins. The H.F. choke may be a standard commercial article or can be made at home by winding one layer of No. 36 d.c.c. for a length of three inches on a half-inch diameter ebonite rod. A piece of lead-in tube with the brass rod removed will do excellently. The potentiometer R₂ may be a panel mounting instrument, although a base board mounting pattern will do quite as well, because, once it has been set in the correct position, it will not be used very often. This potentiometer is desirable owing to the fact that the grid leak must go to L.T. positive and not everyone can take the broadcast set to pieces to see which leg is connected to L.T. plus. If oscillation begins or ceases with a "plonk" as the reaction condenser is varied, turn the potentiometer arm slightly until reaction is smoother. Likewise, if oscillation "fades out" too gently and the set seems to lose sensitivity on the edge of oscillation, turn the potentiometer arm in the other direction.

The adaptor, as described, is quite easy to build and to operate. Do not place any of the components too close together and, if a metal box is used, keep the coils away from the sides as much as possible. If, at first, the adaptor refuses to oscillate when the reaction condenser is moved, adjust the neutrodyne condenser in the aerial lead. If this will not do the trick, try increasing the H.T. voltage a little, or try another valve. If oscillation cannot be obtained the reaction coil connections may require to be reversed.

M. B.



Circuit diagram of Short Wave Adaptor

The circuit adopted is shown in the accompanying diagram. It is nothing more or less than an ordinary one-valve circuit with condenser reaction and one or two minor additions such as extra filter condensers, etc. The components used and the appropriate values are as follow:

C₁—Neutrodyne condenser; C₂—.0001 mfd.; C₃—.0002 mfd.; C₄—.0003 mfd.; C₅—.001 to .1 mfd.; C₆—2 mfd.; C₇—.001 mfd.; R₁—4 megohms; R₂—200 ohms. The use of C₆ is questionable. Adaptors in use on some sets may not require it, while on others it will make all the difference between easy operation and instability. It is intended that the terminal E be connected to the earth terminal on the existing broadcast receiver. If long leads are used between the adaptor

The Christmas number of the
LISTENER
will contain a special Supplement on
**THE SUPERNATURAL IN
LIFE AND LITERATURE**

to which Miss Margaret Murray
Mr. E. F. Benson, and Dr. C. D.
Broad will contribute

THE LISTENER CHRISTMAS NUMBER
DECEMBER 18, PRICE 2D.

The Tears of a Child in pain

—Nothing is so pitifully helpless as a suffering child. Every Year thousands of Mothers bring their little ones to the

BELGRAVE HOSPITAL for CHILDREN

CLAPHAM ROAD, S.W. 9.

THEY COME TO US FOR RELIEF, We come to you for the sympathy and financial help of which we are in urgent need.

Between us we can save them.

Will you generously co-operate by sending a Donation to Thos. Clapham, Secretary, 1, Clapham Road, London, S.W.9.



Assemble an Osborn Cabinet
its cheaper!

NO. 215.
Carriage paid to your door.

THIS latest Osborn production is the very last word in Ready-to-assemble Wireless Cabinets. It is a beautiful piece of furniture, and every inch of it represents good, solid workmanship. Its measurements are 4ft. high, 2ft. 2ins. wide, 1ft. 6in. deep. Size of baffle board behind fret is 24in. by 24in. Metallic Fabric for the fret front is included. Cabinet takes panel 2 ft. by 9ins. (or smaller.)

RADIO GRAMOPHONE COMBINATION.

For 5/- extra the cabinet can be made four inches higher and converted into a Radio Gramophone Cabinet, complete with Motor Board.

Machined, Ready to Assemble: Oak, 60/-; Mahogany, 65/-; Walnut, 75/-; Assembled ready to polish, Oak, 75/-; Mahogany, 80/-; Walnut, 90/-; Assembled and Polished Oak, 90/-; Mahogany, 95/-; Walnut, 105/-.

"ASSEMBLE YOUR CABINET THE OSBORN WAY."

Post coupon to-day for illustrated catalogue. Enclose 3d. in stamps.

CHAS. A. OSBORN.
OFFICES, SHOWROOMS AND MILLS:
The Regent Works, Arlington Street, London, N.1.
Telephone: Clerkenwell 5095.
Open to 7.30 p.m. Saturdays, 4.30 p.m.

And at 21, ESSEX ROAD, ISLINGTON, N.1. (1 minute from the Agricultural Hall.) Open until 8 p.m. WEEKDAYS; 9 p.m. SATURDAYS. Phone: Clerkenwell 5634.

Please send me your 56 page illustrated Catalogue for which I enclose 3d. in stamps.

Name.....

Address.....

Dept. W.R.

Technique of Broadcasting

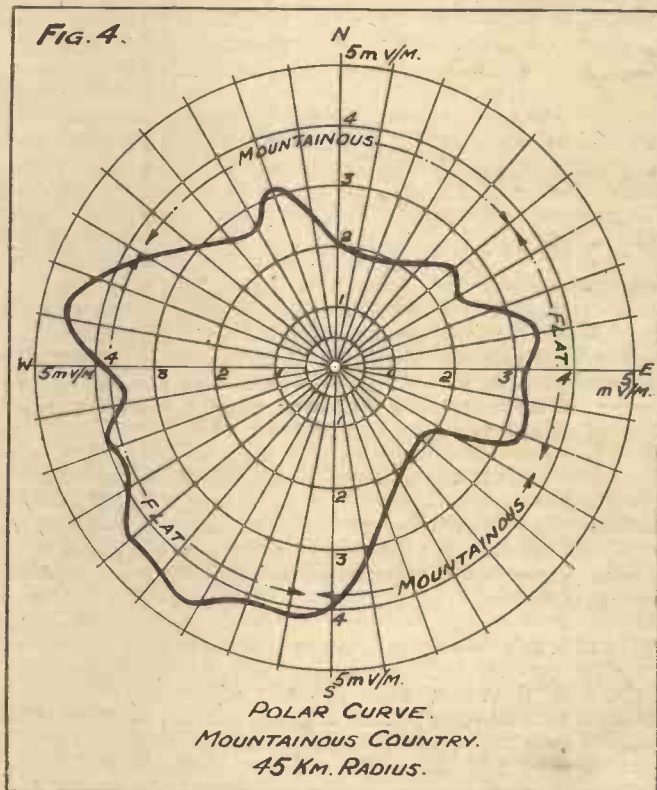
III.—Selecting Sites for Transmitters (2)

THE mobile transmitter which is used for the work is completely self-contained and is mounted in the body of a motor-lorry, from the engine of which the transmitter derives its power. It is capable of radiating about $\frac{1}{2}$ kilowatt to 1 kilowatt according to the wavelength employed which ranges from 200 to 500 metres. The transmitting wavelength is determined by a master oscillating valve which is connected to a power amplifier, and in practice the wavelength remains constant within a few hundred cycles. No modulation of the carrier wave is used on the lorry transmitter except for emergency purposes. The aerial is suspended between two 72-ft. sectional tubular steel masts, which, when not in use, are carried in the lorry.

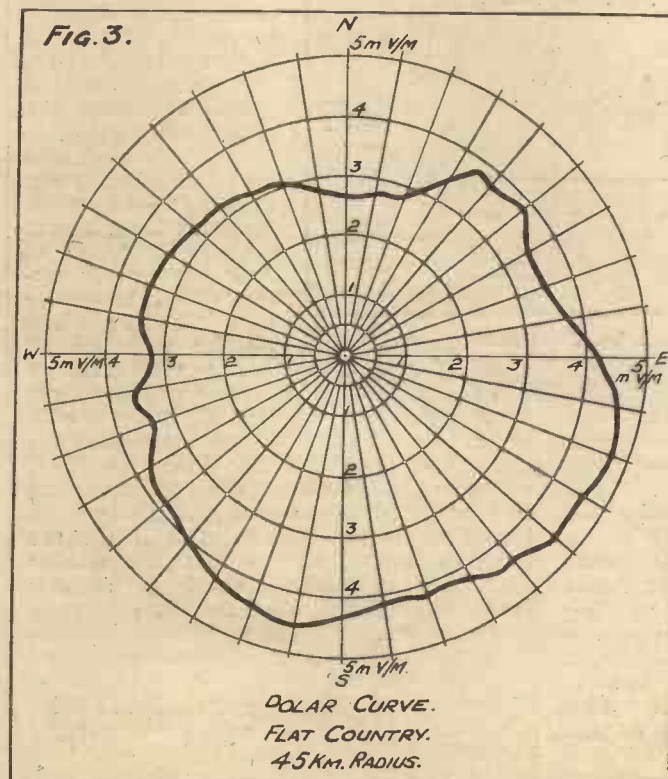
In order to measure the field strength produced by the mobile transmitter, a receiving set specially designed for the purpose, is mounted in a light motor-van. This set, illustrated in the accompanying photograph, comprises a superheterodyne receiver, with frame aerial, and a separate external oscillator, both receiver and oscillator being carefully screened to prevent any undesired pick-up which might affect the accuracy of the observations made during the course of the tests.

The method of measuring is as follows: The signals received from the lorry are tuned in to a maximum on the superheterodyne receiver, the overall sensitivity being reduced or increased at will by a continuously variable resistance and by

cutting in or out one or more of the intermediate frequency stages. A unipivot type of galvanometer is provided with a cord and plug, and is plugged into the output of the super-



The irregular distribution over mountainous country



Signal strength distribution over flat country

heterodyne receiver. On this instrument a convenient reading of rectified current from the receiver signals is obtained, the steady D.C. from the batteries, which would normally flow through the instrument in addition to the current from the distant station, being balanced out by a potentiometer and battery.

The frame aerial is then rotated through 90 degrees until the received signal is reduced to zero, and the separate oscillator is switched on and tuned to the same frequency as the distant station. A connection from this oscillator feeds the frame aerial circuit of the superheterodyne receiver through a resistance of either 1 or 51.26 ohms, according to the strength of the received signal. The strength of the output from the oscillator (i.e. input to the receiving set) may be varied at will by two controls, and is so adjusted that the galvanometer in the output circuit of the superheterodyne gives the same reading as was obtained from the distant station. It is thus only necessary to measure the strength of the locally generated oscillation to ascertain the strength of signal from the distant station.

This is accomplished by means of a thermo-couple included in the oscillator circuit and calibrated with the galvanometer. By means of a suitable jack

provided, the galvanometer is transferred from the receiver output circuit to the thermo-couple, and a certain current in milliamperes is indicated, according to the equalising adjustments of the oscillator controls, and referred to a calibration chart. One of the controls mentioned is an attenuator or current divider of fixed ratios; hence, the current flowing through the resistance is known, and from that the voltage induced in the frame aerial may be calculated. If this is divided by the effective height of the frame in metres, the strength of the received signal in millivolts per metre will be obtained. The effective height of any frame

aerial is given by the formula— $H = \frac{2\pi AT}{\lambda}$

where H = effective height in metres; A = area of the frame aerial in square metres; T = number of turns; λ = wavelength in metres.

The value of H has been calculated for the frame aerials in use and, for that used on the broadcast range, is— $H = \frac{35.5}{\lambda}$ The field strength is then given by the formula—

$$E = \frac{I r \lambda}{35.5}$$

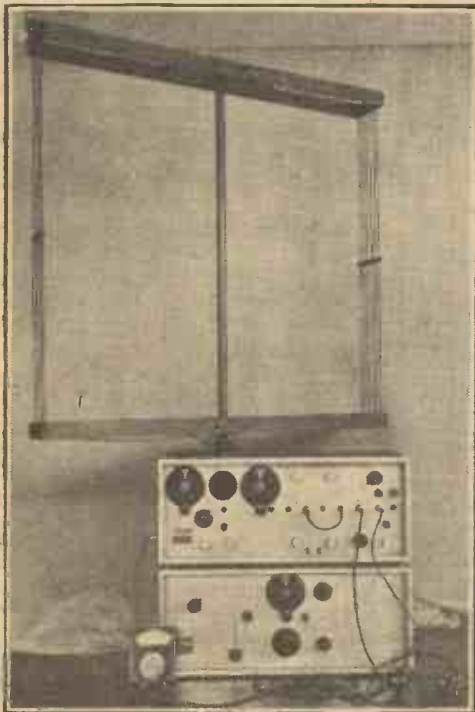
when using the 1 ohm resistance,

$$\text{and } E = \frac{51.26 I r \lambda}{35.5}$$

with 51.25 ohms resistance,

where E = field strength in millivolts per metre; I = current in milliamperes flowing through the thermo junction; r = ratio on the current divider and λ = wavelength in metres.

The field strength measuring set can be taken to any convenient point where it is desired to make an observation.



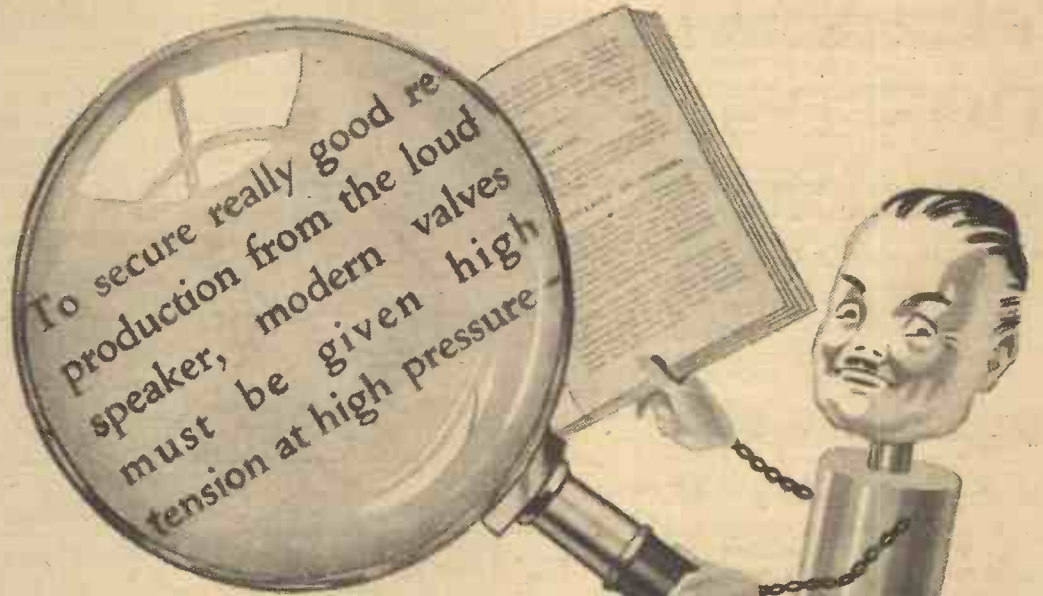
Field strength measuring apparatus

Figs. 3 and 4 are reproductions of typical polar diagrams plotted from observations taken around a prospective site at a radius of 45 kilometres. The former diagram shows the distribution of field over comparatively flat country, and the latter shows clearly the disturbing effect of nearby mountains. The photograph above shows a general view of the complete field strength measurer. The superheterodyne receiver is on the top, with the local oscillator beneath. The telephones shown in front of the set are used merely to assist in rapid tuning.

(To be concluded)

Another Essential Point dealt with

By Mr. Full O'Power

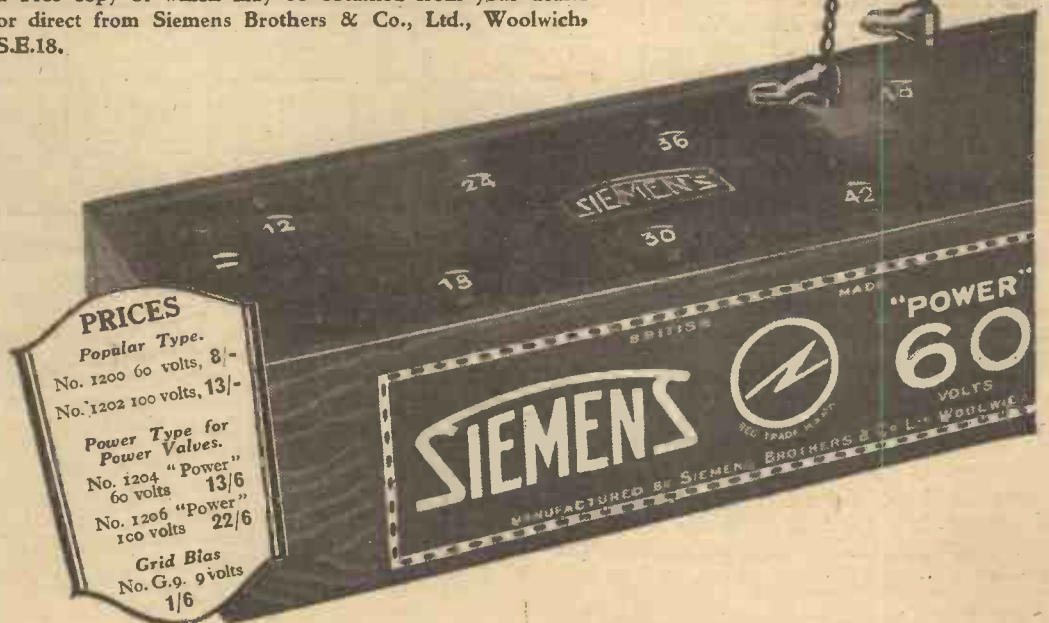


THE need for High Tension at high pressure if the best results are to be obtained from modern valves is not always recognised. This point is dealt with in Mr. Full O'Power's booklet,

"INSIDE KNOWLEDGE"

(on the correct use of Radio Batteries),

a Free copy of which may be obtained from your dealer or direct from Siemens Brothers & Co., Ltd., Woolwich, S.E.18.



SIEMENS BROTHERS & CO, LTD., WOOLWICH., S.E.18.

Telephone: Woolwich 1161.

Tuning Coils and Circuits

How to Calibrate a Receiving Set

LISTENERS, especially those in possession of their first receiving set, are sometimes at a loss to understand the particulars noted against the lists of stations, which appear in *World-Radio*. A form of inquiry frequently received is somewhat as follows: "My set is a 'Melody Musician,' and I have coils Nos. 40, 50 and 75. How do I tune in Hilversum (long wave) and Leeds? I live in London."

Now, a satisfactory answer to a query of this nature is not possible, neither is the information sufficient to enable the person dealing with such correspondence to give a helpful reply. Furthermore, coils 40, 50 and 75 will not usually, on a standard set and with .0005 mfd. condensers, tune to Hilversum, which is a long-wave station. Much depends also upon the working range of the desired station, and, although a listener may hear Hilversum on quite simple and inexpensive apparatus, despite his distance from it, the Leeds station is a low-power relay transmitter and its maximum range is only about 3 miles under favourable conditions of reception.

Another type of inquiry is: "What coils should I use to receive New York?" Also, "I have two indicators 0 to 180. Where should I set them to get London, Madrid and Paris?" Both these questions are equally impossible to answer, and the following notes have been prepared to assist listeners who have problems of this nature.

The reader has perhaps heard that the range of all medium wavelength stations (about 200 to 500 metres) is limited by propagation conditions quite apart from interference. These conditions depend upon the reflective and refractive properties of the Heaviside layer which controls the indirect wave, and the absorption, or attenuation, effects of the earth and atmosphere on the direct wave. The maximum distance at which it is possible to receive satisfactorily any medium wavelength station on the direct wave, i.e., not reflected by the Heaviside layer, is about 100 miles. At distances of 80 to 100 miles, fading, and, maybe distortion, becomes noticeable. The station may, however, be receivable at greater strength with little or no fading at greater distances. This is known as receiving on the reflected or indirect ray, and it is not always possible to predict the effect which may be experienced in any given district, although it is quite certain that fading in one form or other will be noticed beyond 80 to 100 miles. The power of the station in kilowatts (kW.) is also an important factor, and it is only stations using high power, say, 15 to 25 kilowatts, which are receivable, without bad fading or distortion, at 80 to 100 miles. Increasing the power does not overcome this effect because the strength of the direct and indirect rays are increased proportionately.

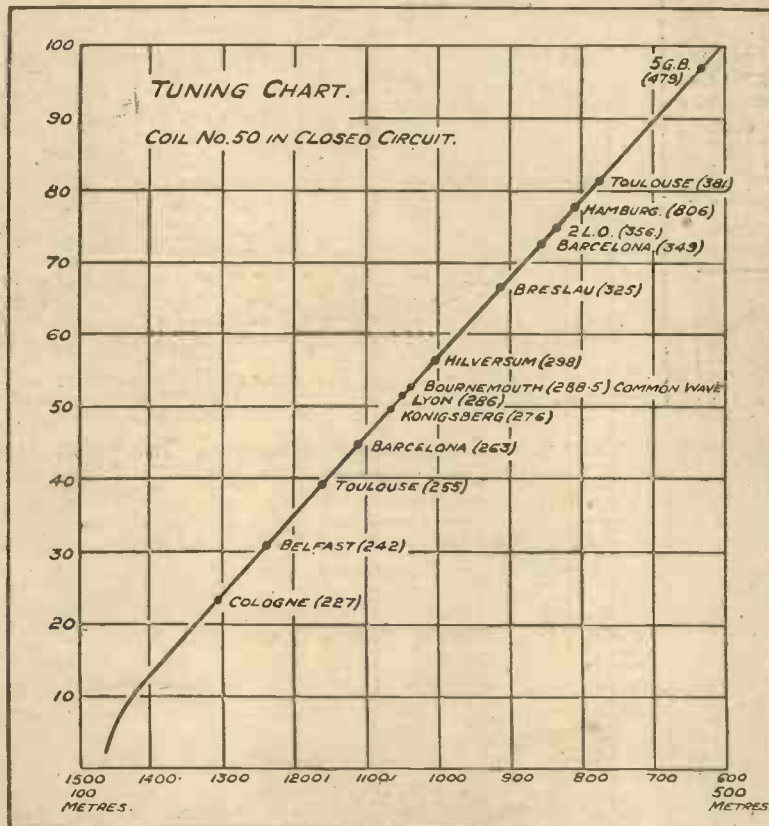
Transmission Ranges

When studying the lists of transmitting stations, the listener should bear in mind these factors which limit good reception, even though he may possess extremely sensitive apparatus capable of giving good sharp tuning.

The various classes of British transmitters and their ranges, etc., are as follows:—

- 5XX—150 miles (using 2 stages of H.F. amplification).
- Regional Stations and 5GB—80 to 100 miles (using 1 stage of H.F. amplification).
- Other main stations—About 25 to 30 miles (1 H.F. desirable).
- Relay stations—3 miles (maximum).

We will suppose, however, that the listener desires to hear long distance stations and is not extremely critical of the quality of the received signal. It might be said right away that the circuit arrangements and electrical constants of the set govern the size of inductance or tuning coils which must be used. Such arrangements vary with almost every make of set, and the makers are the best authorities to advise. Certain makers issue tuning charts which show



A calibration curve constructed as described and covering the medium wavelength band

the coils necessary, and the approximate adjustments of the tuning dials.

Many reputable makers of tuning inductances publish lists showing the wavelength ranges of their coils with a given size of condenser. A typical list is reproduced below:—

No. 20	Coil	.....	100—300	metres
No. 25	"	.....	175—525	"
No. 35	"	.....	235—700	"
No. 50	"	.....	280—840	"
No. 75	"	.....	325—1070	"
No. 100	"	.....	450—1380	"
No. 150	"	.....	650—1950	"
No. 200	"	.....	925—2770	"

Other makers designate their inductances by letters of the alphabet instead of numbers. It may, therefore, be of assistance to the listener to approach the makers of his existing inductances with a view to obtaining information of

this nature. Assuming that the listener has obtained tuning inductances (or coils as they are sometimes termed), which cover the desired wavelength range, he may still require to know the setting of his tuning dials.

Condenser Capacities Vary

One difficulty here is that various types of tuning condensers, which are usually operated by the knob on the front of the panel, possess widely different capacities for a given setting. The capacity depends upon the shape of the moving vanes. For this reason alone it is, therefore, impossible to predict the exact position at which the tuning dials are to be set. Also, even if the capacity of the condenser at all settings is known, the value of the tuning inductance is not known. Therefore, unless the listener is able to have the set calibrated by means of a wavemeter he will have to rely upon searching to find the stations. Once a station is found, a careful note should be made of the setting of all knobs and tuning dials on the receiver for future reference.

After two or more stations have been heard and identified their wavelengths can be determined from the lists contained in *World-Radio*. It will then be clear that any other station with a wavelength between those of the stations noted, will be heard on an intermediate setting if the same inductance coil is in use and providing the set is sufficiently sensitive and the stations are within reasonable range of the receiver.

Calibration

The most useful plan is to obtain a piece of graph paper from a draughtsman's stationers, and use this for logging purposes. The paper should be squared in tenths of an inch, or in millimetres. The procedure is to note alongside the horizontal lines the figures shown on the condenser dials and, at the foot of the vertical lines the frequency in kilocycles per second (kc/s), taken from the list in *World-Radio*. One sheet should be used for each condenser dial, and a separate set of sheets for each set of inductances. If possible, a station should be found which will tune in at the bottom of the tuning scale and another which can be heard at, or near, the top end. These are each noted by a star or dot at the intersection of the horizontal line corresponding to the dial reading, with the vertical line indicating the appropriate frequency of the station. At the same time the name (or call sign) of the station in question may be noted in small letters alongside the dot. Subsequently other stations

may be heard and noted in a similar manner. After a number of stations have been duly recorded, it is possible for the listener to obtain a very good idea of the approximate settings of his condenser dial for a given frequency (or wavelength) by running a pencilled line through the dots denoting stations. An example is shown in the accompanying diagram.

When examining the list of stations in *World-Radio* (see page 1004), it will be seen that both the frequency and wavelength are shown. Listeners may, therefore, mark the frequency (kc/s), or wavelength (M) against their graph, but in most cases the frequency is the best figure to use because with certain designs of condenser known as "straight line frequency," or S.L.F. condensers, this will result in the production of an almost straight line on the graph, as shown in the illustration.

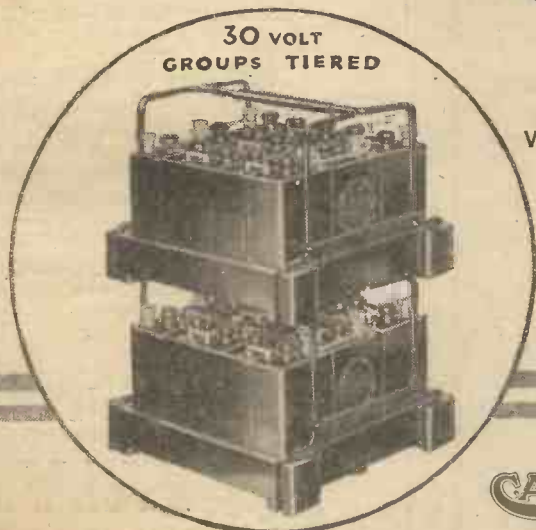
We're giving Father a new H.T. for *our* radio



I'm sure nothing will please him better—or us! From the time that we first had the wireless set Dad has continually preached the virtues of what he calls a wet H.T. of the C.A.V. make; how it will improve reception by cutting out those funny crackling noises, and then he goes on to talk about less trouble, constant volume and all that.

Anyway, if all the things are true that he said about the new C.A.V. type, the one which he says is “built like a car battery” it will be a good investment. So we have taken the hint, and I'm certain that the improvement will make it worth while, for Dad does know what he is talking about on the subject of wireless.

The new **C.A.V.** of course!



10 VOLTS **6/3** 5000 MILLIAMPS

ALSO IN 2500 & 10,000 MILLIAMPS



WRITE FOR CATALOGUE W/7a

C.A.V. Vandervell & Co. Ltd.
ACTON, LONDON, W 3

SPECIFY THE C.A.V. JELLY ACID BATTERY—THE PERFECT L.T. FOR ALL PORTABLES.

\$100 Guarantee

If found unsatisfactory and returned within seven days of purchasing from us direct, we guarantee to return your money in full or forfeit the sum of £100. A similar arrangement can be made with your dealer.



LOCAL STATION CUT OUT

UNWANTED STATION CUT OUT

DISTANT STATIONS WITHOUT INTERFERENCE

INCREASED VOLUME FROM FOREIGN STATIONS

TWO MODELS.
 A. 200-700 metres (for 2LO, 5GB, etc.)
 B. 700-2,000 metres (for 5XX, etc.)

If desired, either model will be sent on receipt of 12/6 or per C.O.D. upon receipt of Post-card.

12/6 ONLY

Brookman's Park cut out at will. No alterations to set. No Valves to burn out. No drilling. Easily plugged in between aerial and set.

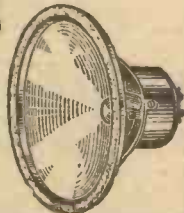
Harlie WAVE SELECTOR

A Moving Coil Speaker at half price!

Reproduces every note. Patent 10 inch cone abolishes drumminess and chatter. Absolutely human and lifelike.

MODEL 28, 220v. D.C. } £3 10s.
 MODEL 29, 4-6v. }

In Oak or Mahogany Cabinet £7 15 0

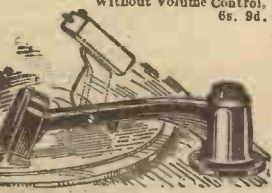


Harlie MOVING COIL Loud-Speaker.
 Also special model for A.C. Mains.

Reproduces Realism from your Records!

Pick-up, Tone Arm, Volume Control, £1 17 0
 Without Volume Control, £1 15 0. Pick-up only, £1 7 0. Tone Arm and Volume Control 2s. 6d. Without Volume Control, 6s. 9d.

Tuned to catch every light and shadow. Amazingly realistic. Height and tension adjustment obviates wear.



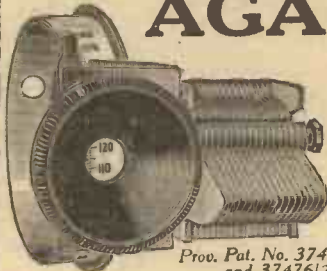
Harlie GRAMOPHONE PICK-UP AND TONE ARM.

Write for particulars of these and other Harlie Components.

HARLIE BROS.
 (Dept. B7),
 Balham Road,
 Edmonton, London, N.9.
 Tel: Tottenham 3446.

Utility

SCORE AGAIN



Prov. Pat. No. 37475/28 and 37476/28.

with a wonderful line for Portables

In view of the scanty accommodation in the small set, SIZE as well as efficiency must influence you when buying the necessary components. The

"MITE" CONDENSER with NEW DRUM DIAL

is a "Utility" product that will help materially on both sides of the panel. The Condenser is a very diminutive instrument moving on a ball-bearing spindle. With this smart Dial you are offered an efficient combination, one in fact that is already selling in large numbers and giving satisfaction wherever used. Prices, complete, are as follows:—

PRICES		
Cat. No.	Cap.	Price.
W. 201.	0005	11/6
W. 202.	0003	11/-
W. 203.	0002	10/5

Ask your local Dealer for "Utility" Components—SWITCHES DIALS and CONDENSERS

Most good dealers stock "UTILITY" Lines. If any difficulty is experienced in obtaining supplies, apply direct to the makers. A copy of our new illustrated List may be had post free on application.

WILKINS & WRIGHT LTD
 HOLYHEAD & BIRMINGHAM

WHALES SIGHTED!



When whaling ships range the seas, Marconi Valves link them with home

SCHOOL of whales reported 50 miles N.E. by E. Fleet steam in pursuit. Orders wirelessly... through Marconi Valves. Whales sighted! Ships close in. Volley of harpoons accounts for four...

Weeks away from land, but never lose touch. Messages constantly exchanged with shore. Broadcast programmes relieve monotonous hours—thanks to Marconi Valves.

In whalers at sea for long periods, Marconi Valves are fitted. Because of their reliability. Because of their long life. Try them in your radio set. Give you longer range, clearer tone, greater volume. Fit any set. Cost not a penny more.

MARCONI VALVES

The first and greatest name in wireless

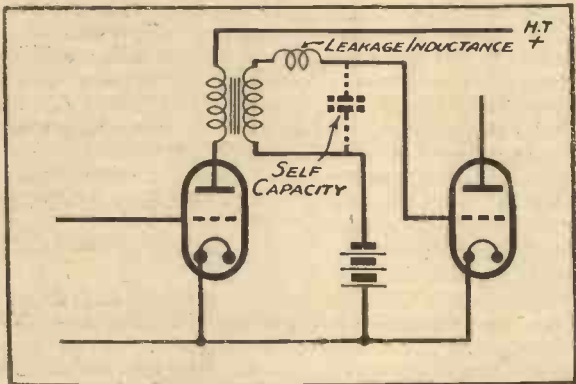
MARCONIPHONE COMPANY LIMITED
 210 Tottenham Court Road, London, W.1

L.F. Inter-valve Coupling

Part II.—Transformer Coupling

IT was not until the thermionic valve was invented that low-frequency amplification became practicable. The Great War brought this need into prominence and probably the first important use of low-frequency amplifiers was in connection with the reception of earth currents in order to overhear telephone conversations and telegraph signals. The use extended to reception of wireless telegraphy signals, and in all these cases frequencies above about 1,000 cycles were not considered, as they were not of appreciable importance.

The obvious method of coupling one stage to another was by means of a transformer, which itself gave a certain amount of voltage amplification, and this method was therefore adopted. The characteristic of the transformer was not of much importance, provided the amplified signal was intelligible and was actually amplified, consequently the amplification of middle frequencies only was necessary, and the use of transformers with a small number of turns on the primary giving adequate anode impedance was possible. A large number of turns on the secondary could therefore be used without making the transformer unduly large, thus giving a fairly high step-up ratio, and delivering a suitable voltage to the grid of the next valve.



Transformer Coupling—illustrating leakage inductance and self-capacity

When broadcasting commenced after the war similar amplifiers were naturally employed, but as the necessity arose for reproduction of frequencies produced by musical instruments as well as those of the human voice, the earlier amplifiers were found to be unsatisfactory for both transmission and reception. Consequently attempts were made to produce amplifiers with a better frequency characteristic than had been employed previously. The valves in those days were not much different from those used during the war, hence transformer coupling was still the obvious arrangement to use until suitable valves were available for other types of coupling.

Improved transformers were therefore developed to give better reproduction of all frequencies within the audible limits, but, as telephones and such loud speakers as existed in those days were unable to give good reproduction, there was not much point in producing a perfect transformer. In fact, a combination of an amplifier with bad transformers and a bad loud speaker often gave better results than when using amplifiers employing better transformers; simply because the respective faults of the amplifiers and loud speaker corrected each other to some extent. However, the development of transformers and loud speakers proceeded side by side, together with the development of improved valves and other components of transmitters and receivers, until to-day it is possible to design an amplifier employing transformer coupling to give results equal to those obtainable by any other form of coupling. Naturally precautions have to be taken to produce the best results it is possible

to obtain, and these precautions will now be considered.

It has been shown in an earlier article that the impedance in the anode circuit of a valve must be several times greater than that of the valve impedance if the amplification obtained is to be anything like the amplification factor of the valve. Hence, the impedance of the primary winding of the transformer must be of this order. This means that the primary winding must have a large inductance which necessitates a large number of turns and adequate iron cross-section in the core. Since the impedance is equal to the inductance multiplied by 2π times the frequency, it will be greater for high frequencies than for low frequencies; consequently if low notes are to be reproduced adequately the impedance at such frequencies must be several times that of the valve.

If the transformer is to step up the voltage, the secondary must have more turns than the primary, but as there are limits to the size which can be constructed, economically, a compromise must be made between the step-up ratio employed and the number of turns on the primary. A further complication is introduced by the self-capacity of the secondary winding (and any other capacities which may be effectively connected

across it) which begins to have appreciable effect at the higher frequencies when its reactance become comparatively low, and it therefore by-passes signals of those frequencies. The higher the frequency, the greater will be the reduction in the voltage applied to the next stage.

The flux produced by the transformer primary does not cut every turn of the secondary and there is therefore a certain amount of leakage. This is represented in the diagram where part of the secondary is the effective part across which the voltage is induced and the rest is ineffective due to leakage. The leakage inductance and the self-capacity will resonate at a certain frequency and the voltage applied to the next stage at this frequency will be greater than it would be but for the leakage inductance. In practice, this frequency is arranged to be near the upper limit it is desired to reproduce, as beyond it there is a sharp drop in amplification due to the self-capacity.

This resonance effect is damped out if a high impedance valve is used because it results in a reduced effective impedance in the anode circuit which has more effect on the amplification of such a valve than it has in the case of a low impedance valve. A high impedance valve will therefore cause both high note loss and low note loss, and the importance of using a valve of the correct impedance for which the transformer was designed will be realised. Owing to the limitation in size, due to cost of production of transformers already referred to, commercial transformers are only suitable for

(Continued on page 978, col. 3.)

CLIX

FOR CONTACT

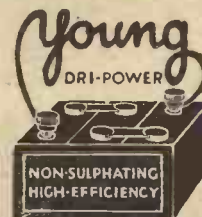
No. 1. CLIX COIL PIN. 2d.
No. 15. CLIX ALL-IN PLUG AND SOCKET.
No. 8. CLIX SPIRAL WANDER PLUG 2d.
No. 14. CLIX WOOD SCREW SOCKET. 2½d.
No. 3. CLIX "FIT-ALL" SPADE TERMINAL. 2d.
No. 14. No. 3.

Write for the Clix Folder.
LECTRO LINX, LTD., 254, Vauxhall Bridge Road, S.W.1

A REAL ACCUMULATOR GUARANTEE

There is no accumulator or battery to compare with the "YOUNG," either for perfection of reception or long life. Definitely, they embody the results of the most exhaustive researches and have features not to be found in any other make. What do you want more than this positive guarantee:

"Young Accumulators are guaranteed against all electrical defects for 12 months from date of purchase, and against harmful sulphation for ever."



ACCUMULATORS

Write for illustrated booklet and name of nearest dealer.
YOUNG ACCUMULATOR CO. (1929) Ltd.,
Dept. 13, Burlington Works, Arterial Road,
New Malden, Surrey.
Telephone: Malden 1171 (3 lines).

PHILIPS RECTIFYING VALVES

PHILIPS RECTIFYING VALVES have been incorporated in all the leading makes of electric receivers, battery eliminators and chargers.



REPRESENTATIVE TYPES:

- Type 506. Full wave. Filament voltage 4 volts. Anode voltage 2×300 v. R.M.S. maximum Rectified current 75 mA. Price 20/-.
- Type 2506. Full wave. Filament voltage 4 volts. Indirectly heated. Anode voltage 2×300 v. R.M.S. Rectified current 40 mA. Price 22/6.
- Type 505. Half wave. Filament voltage 4 volts. Anode voltage 400 R.M.S., maximum. Rectified current 60 mA. Price 15/-.
- Type 373. Half wave. Filament voltage 4 volts. Anode voltage 200 R.M.S., maximum. Rectified current 40 mA. Price 15/-.

PHILIPS for Radio

Made by the Manufacturers of Philips All-Electric Radio Receivers and Argenta Lamps.

Advt. of Philips Radio, Philips House, 145, Charing Cross Road, W.C.

"RADIO-LEGS" REC? TRADE MARK

AN IDEAL XMAS PRESENT



ONE MODEL FITS ANY SET OR TABLE GRAMOPHONE

15/6

Oak or mahogany finish.

"Radio-Legs" is adjustable in width and depth, and so converts any set or table gramophone—no matter what size—into a pedestal model. Clips on in a minute. Firm as a rock. Beautiful finish—oak or mahogany.

Your dealer can supply you immediately.

BELLING-LEE

Advt. of Belling and Lee, Ltd., Queensway Works, Ponders End, Middlesex.

Heinrich Hertz

A Great Physicist

DURING his all too brief life—he died in 1894 at the age of thirty-seven—it fell to the lot of Heinrich Rudolf Hertz to be the first to verify by demonstration the predictions of Clerk Maxwell regarding electromagnetic waves. Maxwell's work had been speculative and remained but a theory that had not been proved. Hertz, by means of his oscillator, was able to illustrate the truth of Maxwell's remarkable mathematical deductions. A few years ago it was customary to speak of wireless as "Hertzian wave telegraphy," but this seems to be forgotten now, and the work of Hertz is only remembered and appreciated by those who have to deal with the less spectacular side of wireless transmission.

A fine tribute to his memory is paid by Sir Oliver Lodge in his "Work of Hertz." It is so straightforward and simple that no apology is needed for quoting it:—

"In matters of speculative physics others had sown the seed. It was sown by Faraday, it was sown by Thomson and by Stokes. . . . but in this particular department it was sown by



Heinrich Hertz 1857-1894

none more fruitfully and plentifully than by Clerk Maxwell. Of the seed thus sown, Hertz reaped the fruit. Through his experimental discovery, Germany awoke to the truth of Clerk Maxwell's theory of light, of light and electricity combined, and the able army of workers in that country (not forgetting some in Switzerland, France and Ireland), have done most of the gleaning after Hertz. . . . His name is not over-well known, and his work is immensely greater than that of several who have made more noise."

Hertz did not discover wireless transmission as we now know it, but there is little doubt that had he lived another six years he would have been an important factor in the development of the new application of electrical discharge. His original "oscillator" consisted of a Leyden jar as a transmitter, and a copper ring, with an adjustable spark gap so that the ring could be almost closed if desired, as a receiver. In 1887, he showed that with the gap properly adjusted, a spark flashed over each time the jar was discharged in its neighbourhood. Thus by means of the "Hertz resonator" as it was afterwards called, he showed that the discharge of a condenser could, under suitable conditions, send out into space an electric wave. It is true that his ring resonator was not suitable for purposes other than demonstration, but more sensitive devices were to follow. Meanwhile Hertz had added another stepping stone to the one first placed by Maxwell. Only two more were necessary to make wireless an accomplished fact.

After his schooldays were over, he decided to take up engineering as a vocation and this subject he was studying up to the age of twenty at Munich, when he felt the call of physics too strong for him, and giving up his course, became a pupil of Kirchhoff and von Helmholtz at Berlin. Prior to attending these lectures on physics, he put in some six months' serious study of the leading textbooks on mechanics and mathematics, at the same time attending laboratory courses on practical physics. This work stood him in good stead, for in 1878 he was deeply immersed in original research on electric inertia, and two years later carried off the prize offered by the University of Berlin for the best paper

on the subject. Other important physics papers followed and one on "Induction in Rotating Spheres" earned for him his doctor's degree, with the unusual distinction of *summa cum laude*. About this time he had the good fortune to become assistant to von Helmholtz and for three years he held this position in the Berlin Institute physical laboratory, where he carried out numerous original researches.

Three years later he set to work upon Maxwell's electro-magnetic theory, and by 1899 had succeeded in making the discoveries with which his name will always be associated. The Berlin Academy of Sciences were offering a prize for an experimental proof of Maxwell's deductions, and Helmholtz judged rightly that the problem would make a strong appeal to his favourite and most brilliant pupil. If he did not at once take up the challenge, Hertz kept it in mind; meanwhile other investigators were getting near the solution, though none found it. Finally, in 1887, Hertz was able to supply the solution, and, continuing his work, went on to the discovery of the progressive propagation of electromagnetic action through space and the measurements of length and velocity of electro-magnetic waves. He also showed that they could be refracted, reflected and polarised just as in the case of light and heat waves. To quote Helmholtz: "he established beyond doubt that ordinary light consists of electrical vibrations in an all pervading ether which possesses the qualities of an insulator and a magnetic medium."

In 1889 he succeeded Clausius as Professor of Physics at Bonn, where he died in 1894, after a long illness, his last treatise, "Principles of Mechanics," being completed shortly before his death.

L. R. G.

L.F. INTER-VALVE COUPLING

(Continued from page 977).

valves of low impedance and consequently low magnification, the resulting overall amplification due to the valve and transformer may therefore be very little, if any, greater than can be obtained by other methods. A number of special alloys of considerably greater permeability than that of iron are now being employed fairly largely. These enable a smaller magnetic core to be used with consequently greater available space for windings in a transformer of a given size, or alternatively a smaller transformer can be made, using these alloys, to give a performance equal to that of a considerably larger transformer with an iron core.

Considerable difficulties have been experienced in the past owing to breakdown of the very fine wire it is necessary to use in low-frequency transformers in order to get sufficient turns into the available winding space. Corrosion is very liable to occur owing to the presence of minute quantities of acid in soldering fluxes or wax used in the construction of these transformers. Even the handling of this wire by a person with moist hands has been found to give trouble.

These difficulties are now being largely overcome, and in some instances special wire, such as silver wire, is being used to minimise any tendency to corrode.

It will be realised, therefore, that it is possible to obtain satisfactory inter-valve coupling by means of modern transformers, but care must be taken that the transformers are well designed and constructed, and are used with valves of the correct impedance as specified by the makers of the transformers. An important point in this connection is that the value of the steady direct current through the primary of the transformer must not exceed the figure given by the makers, otherwise the primary inductance may be appreciably reduced owing to change in the permeability of the magnetic core, and in addition the winding may be burnt out.

(To be continued)

Mystery of Magnetism

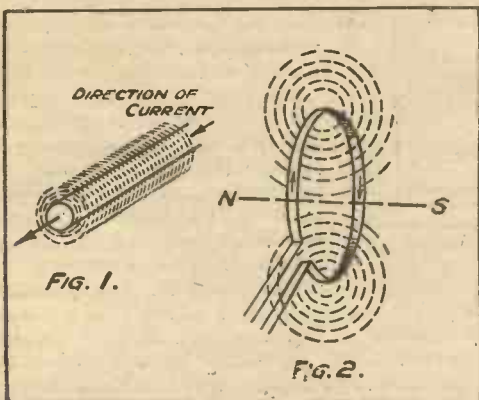
By RALPH STRANGER

Author of "Wireless—the Modern Magic Carpet." "Mystery of Electricity," etc.

X.—Electro-Magnetism (3)

IN the last issue of *World-Radio* we discussed the magnetic effect of electrical currents, and we established that whenever a current is flowing in a conductor there is a magnetic field around that conductor. If the current is "direct," the magnetic field will remain steady while the current is flowing, i.e., it will remain constant in extent and will have a definite number of lines of force per square unit of area. If the current is "alternating," the magnetic field will also be of an alternating nature, it will vary in strength, in extent and direction with the variations of current. Thus, while in the neighbourhood of a conductor carrying a direct current the magnetic field will remain stationary, the field around a conductor in which an alternating current is flowing will vary in extent and will move to and fro, following each variation of the current strength.

Let us now map out the field around conductors in which a current is flowing. In Figure 1 we see the field around a straight conductor. If the wire is bent into a single loop the field will appear as in Figure 2. In the case of a long coil (solenoid) it will resemble the field around a magnet (Figure 3). A very interesting case is that of a coil of wire wound on an iron ring,



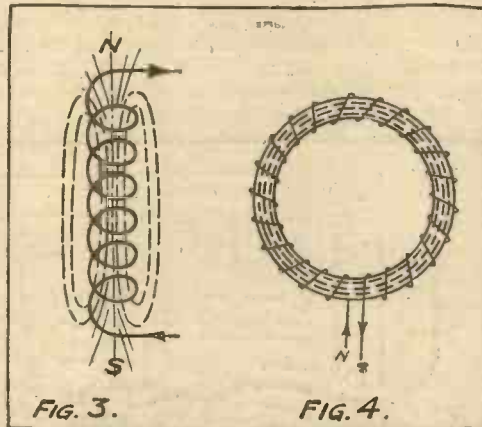
Magnetic Field around straight wire and loop

as shown in Figure 4. In this particular instance you will notice that the magnetic field is confined in the iron. (We shall discuss this phenomenon later.) It is worth while to remember the arrangement of the lines of force of these fields as they will have to be taken into consideration a little later. Now let us consider another aspect of the magnetic effect of electric currents and see how electrons of a conductor behave under the influence of a magnetic field.

If the lines of force of a magnetic field cut a closed conductor at right-angles, a current will flow in the conductor. Here we meet with a new phenomenon which demonstrates clearly the connection between electrons in a conductor and the magnetic field. Just consider the two facts. If electrons are jumping from atom to atom in a conductor, a magnetic field will come into existence around the conductor. If, on the other hand, the magnetic field is moving so that the lines of force cut the conductor at right angles the electrons will move.

It is clear that, somehow or other, a moving magnetic field will give rise to an electro-motive force. Let us refresh our memory on the subject of the electro-motive force. When one end of a conductor has a surplus of electrons and the other end has a deficit of them, electrons

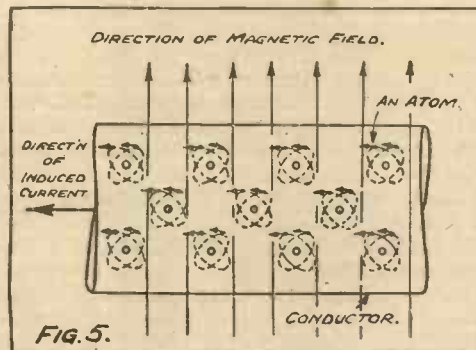
will tend to migrate from the former to the latter end. Thus there is a force existing that compels the electrons to migrate. This force is due to the difference in the number of electrons at the two ends of the conductor, and is called electro-motive force. Therefore a moving magnetic field will cause a difference in the number of electrons at two points of a closed circuit, and cause a current to flow. The necessary condition is that the lines of force cut the



Field around a solenoid and within an iron ring

conductor at right angles. In the previous article I mentioned that, in the case of a stream of electrons, if a magnetic field is applied at right angles to the stream, the electrons will be deflected to one side and the direction of their motion will be at right angles both to their original direction and the direction of the applied magnetic field.

In a conductor in which there is no current flowing, the electrons are in motion within the atoms. Consider Figure 5. If the electrons are moving in their usual orbits, and the magnetic field is moving in the direction through the paper from above or below, the free rotating electrons in each atom will be deflected from their original paths and will start migrating



Electro-magnetic Induction

to other atoms in a direction at right angles to their original direction and to the direction of the magnetic field. Thus there will be a trek from one end of the conductor to the other. Naturally, we do not know what is actually happening inside a conductor under the influence of the magnetic field, but it is quite reasonable to suppose that, if the electrons are magnetic, they will be acted upon by a magnetic field in the manner indicated in our diagram.

To be continued.

Ralph Stranger's Wireless Library for the Man in the Street.

The following six volumes are now ready :

- I. Matter and Energy
- II. Electrified Matter.
- III. Electronic Currents.
- IV. Magnetism and Electro-Magnetism.
- V. The Mathematics of Wireless.
- VI. Batteries and Accumulators.

Each volume contains 64 pages with numerous illustrations.

Price, 1s. each ; Post free, 1s. 2d. each.

Ralph Stranger is no stranger to readers of *World-Radio*. His lucid crystal-clear style makes the study of Radio technicalities a real pleasure. The above six volumes will form an indispensable part of your library, and will help to understand radio reception as it should be understood. Ralph Stranger writes for those who do not know.

Get your copies to-day, or you may be disappointed—Ralph Stranger is a quick seller.

Have your read

"WIRELESS—THE MODERN MAGIC CARPET"

by the same author? If not, do not delay obtaining a copy of this fascinating book. It explains wireless reception from the Aerial, to the Loudspeaker. Not a single technical term is used without being clearly explained.

Some of the Press opinions of the above book :—

- "Extraordinarily good value." *Daily News*.
- "A book that should go on every listener's bookshelf."—*The Star*.
- "A good book simply written."—*Daily Mirror*.
- "The best of its class we come across."—*The Engineer*.
- "Simple and sensible exposition of Broadcasting and Reception."—*The Listener*.
- "A happy medium between the absurdly simple and the incomprehensibly technical."—*The Wireless Trader*.
- "Guaranteed to inculcate knowledge without pains."—*Amateur Wireless*.

Crown, 8vo, Cloth bound, 312 pages. Second Edition. Profusely illustrated. Price, 3s. 6d. net, Post free, 3s. 9d.

"WIRELESS, STEP BY STEP."

by Dictron.

This is a reprint in book form of the interesting series of articles by Dictron, published in *World-Radio* last year. This is another indispensable volume on your bookshelf.

Octavo, 185 pages with numerous illustrations.

Price, 2s. 6d. Post free, 2s. 9d.

Make your Wireless Library complete. The above books are on sale at all book-sellers.

Published by :

GEORGE NEWNES, LTD.

8-9 Southampton Street, Strand, W.C.2

The same people who publish the "Strand," the "World" magazines, as well as "The Flunorist," "London Opinion," etc. Don't miss the Christmas numbers of these journals.

An Efficient Crystal Set

A description of the equipment which enables our contributor to obtain exceptionally good results

MANY people have an idea that a crystal set is a very poor affair and think that, except within a few miles of a transmitting station, it is of no use. In Gateshead-on-Tyne, I can receive regularly transmissions from Budapest, Berlin, Kalundborg, Langenberg, Eiffel Tower, and numbers of other stations on the Continent. One night I heard, within an hour, four stations close down with the German national anthem. These were all below three hundred metres. When they had finished, I tuned in Zeesen, and then, for half an hour, listened to Kalundborg. I say listened, and, I may add, comfortably followed the programme in every case. There is occasional fading on these distant stations, but one may listen for a considerable time without diminution of strength.

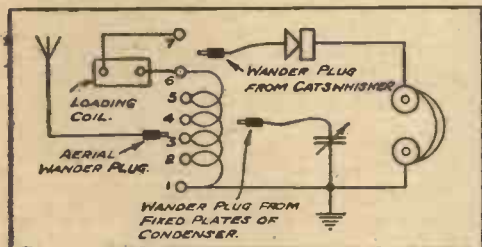
Now, not a few will doubt the accuracy of the above statements. And many, those who dwell in flats, for instance, will be unable to obtain such results. The necessary factors are:

- (1) A good aerial, (2) a good earth, (3) a good set, (4) a good pair of telephones.

In addition, you must be prepared to display some patience and perseverance; though not more than you have to display with some valve sets. Given these conditions, you will be able to get results as good, or perhaps better, than I have obtained. It will be possible to get better results, because many readers will be better situated for reception than I am. For instance, the whole length of my aerial is over the roof of the house. Therefore, though it is good, it is by no means ideal. Many of you are so situated as to be able to put up aerials uninfluenced by proximity to buildings. I will give you an exact description of my apparatus. It contains no extraordinary gadgets to cause its excellent performance, and the only current in the circuit is that picked up by the aerial.

The Aerial

The house is a corner house, and the aerial runs across the corner, over the roofs of the two wings of the house. It is attached to poles fixed on chimneys at the extremities of these wings. Its height above the ground is about 45 feet.



Circuit diagram of the set

Whilst the ends are within a few feet of the chimneys to which they are attached, the central portion is more than 15 feet above the roofs, which slope away beneath it. The down-lead is attached to the centre. Thus the aerial is T-shaped, with top arms each 25 feet long, and a down-lead of about 50 feet. A thin guy-rope, fixed about 15 feet from its lower end, keeps the down-lead well away from the buildings. Solid porcelain rods, 15 inches long, insulate each end of the aerial, whilst the guy-rope, mentioned above, is insulated from the down-lead by a 2-foot ebonite rod. These insulators are important.

Aerial and down-lead are composed of narrow bronze tape braided over a cotton core. The wire thus formed was so thin that I strengthened

it; doubling it throughout by just twisting two similar wires together. A few feet from the point where the lead-in enters the house, through the woodwork at the top of the window, cab-tyre cable is substituted, to provide the necessary insulation. Lastly, a stout spiral spring, about six inches long, is inserted at one end of the aerial to provide a measure of safety when rain tightens the halyards.

The Earth

Two phosphor-bronze boiler tubes, about six feet long and two inches in diameter, are driven into the soil, about a foot apart. Six inches are left projecting and the tubes are connected together by a quarter-inch copper rod soldered to each. The earth lead, consisting of about eight feet of cab-tyre cable, enters the house

of the condenser. These flexible leads enable one to vary the circuit, so as to get the best results. The terminals of these leads are the combined-plug-and-socket variety, so that they may be pushed one into the top of the other if necessary. The six tappings from the coil are connected to six sockets, placed conveniently on the panel. Into these sockets the aerial plug and the two flexible leads, which have been brought to the front of the panel through convenient holes, may be inserted as desired. We are thus able to place them in separate sockets, or all in the same socket, as required. If made as described above, the set will cover a range of wavelengths from about 200 to just over 600 metres.

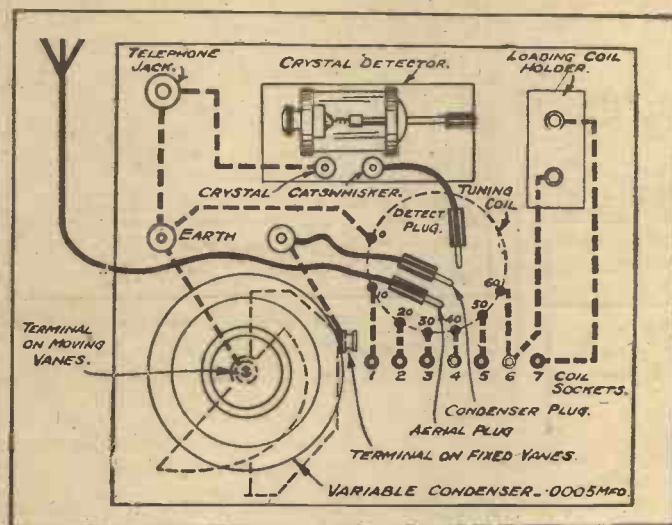
To tune in the longer waves a loading coil is provided. A coil-holder is placed on the front of the panel. To one terminal of this holder is connected the free end (that is the tap at the 60th turn) of the medium-wave coil. The other terminal of the holder is connected to a socket, similar to the other sockets, on the front of the panel. Let us call this socket number 7.

From the foregoing it will be evident that we can put all the plugs into socket No. 7, and complete a long-wave circuit by inserting in the coil-holder a coil of any desired size. We can thus cover all wavelengths above 600 metres. Among the long-wave stations, Daventry (5XX), Eiffel Tower, Zeesen, and Kalundborg may be heard.

The adjustment of the crystal detector which brings in the local station at its best will not necessarily be suitable for a more distant station. To assist in finding stations, it may be assumed that the following is a rough calibration of the set. Each ten turns of the coil represents 100 metres. Whilst about 50 degrees of the condenser also represents 100 metres. Thus, supposing we want Budapest (550 metres),

we plug our three flexible leads (from aerial, catwhisker, and condenser) into tap 5 (500 metres). Then we slowly turn the condenser from zero to 50 degrees or so, listening for some sign of the station. Something is there—barely audible. Attention is now given to adjusting the detector with the greatest nicety. Perhaps an almost infinitesimal movement of the crystal will bring in the station clearly. The initial difficulties in picking up stations may discourage one. A little practice, however, and it is possible to become an enthusiast. Not only to present crystal users is this set of interest. It can give a thrill to the multiple-valve "fan," jaded by the ease with which he brings in broadcasts from all over the world. It is a new world to conquer.

R.H.S.



Details of front panel

through the lower window frame, about four feet above the soil. The outer end is soldered to the centre of this rod, completing a most satisfactory earth. If the ground is dry, it can be moistened by pouring water into the tubes.

The Receiving Set

The circuit arrangement and details of the front panel lay-out are given in the accompanying diagram. The former for the coil is a bakelite tube 3½ inches long and 3 inches in diameter. It is wound with 60 turns of 23 D.C.C. wire, and tapped every ten turns. The condenser is a variable (.0005 mfd.), connected in parallel with the coil by means of a plug inserted at any suitable tapping point. The crystal is a piece of hertzite, preferably of fine grain and of high resistance. Any good catwhisker will do, provided it is not too flexible. Complete control of the "whisker" is essential and a crystal holder with a micrometer adjustment is absolutely necessary, unless you wish your patience strained to breaking point. The crystal cup is also adjustable. The telephones are of 2,000 ohms. total resistance. The panel has been used many times and measures 11 inches by 12 inches. The exact size is immaterial as long as you can get all components on it comfortably. Provision may be made for fitting a wave-trap if desired.

The connections are as follows. One end of the coil, the movable plates of the condenser, and the negative side of the telephones are, all three, connected to the earth terminal.

Flexible leads and plugs are attached to the aerial, to the catwhisker, and to the fixed plates

KEEP YOUR "WORLD-RADIO" CLEAN

Your "WORLD-RADIO" lying about in the house gets so easily torn, gets dirty and dog-eared, gets lost when you most want it. Keep it neatly in the special reading cases which the B.B.C. has prepared for current issues. In blue cloth, with cord down the back to hold your copy, and a pencil in a convenient slot at the side. Price 2s. 6d., of all newsagents; or 2s. 10d., post paid, of the B.B.C. Bookshop, Savoy Hill, W.C.2.

WONDERFUL NEW GOLDEN P.R. VALVE

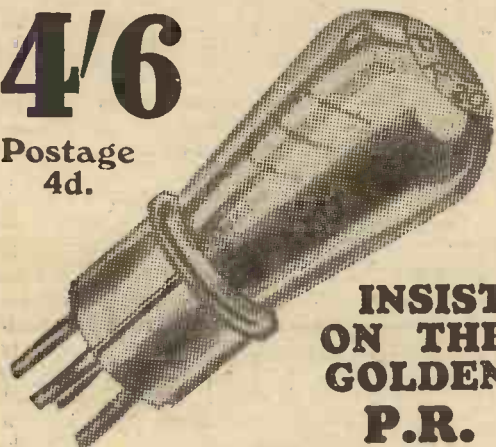
By a special process employing an extremely rare element in minute and precise quantities, in the coating of our Golden Series, we have been able to turn out a valve of extraordinary efficiency.

ABNORMAL SELECTIVITY and VOLUME

Although the L.T. Filament consumption has been kept more or less to our standard to secure robustness, the emission has been increased BY OVER 50 PER CENT. For selectivity and volume, we believe a better valve cannot be obtained anywhere with such a low consumption of H.T. and L.T. The glass bulbs are of a distinctive golden colour and each valve has a golden guarantee band.

4/6

Postage
4d.



**INSIST
ON THE
GOLDEN
P.R.**

Ask your Trader for a Golden P.R. Valve, and do not be put off with any other. You will be positively amazed at the greatly increased efficiency of your set. Remember, insist on the Golden P.R.

LIST OF P.R. SUPER GOLDEN SERIES.

4/6	Type	Fil. volts.	Amp.	Imp. (ohms)	Amp. fac.	
EACH Post 4d.	GPR 2	2	.095	24,000	13.5	H.F. Det.
	GPR 3	2	.095	12,000	9	L.F.
	GPR 4	2	.095	40,000	32	R.C.
	GPR 9	3.5-4	.09	22,000	14.5	H.F. Det.
POWER 7/6 EACH Post 4d.	GPR 10	3.5-4	.09	10,000	9	L.F.
	GPR 11	3.5-4	.09	44,000	41	R.C.
	GPR 17	5-6	.14	20,000	17.5	H.F. Det.
	GPR 18	5-6	.14	11,000	9.5	L.F.
SUPER-POWER 12/6 EACH Post 4d.	GPR 20	2	.15	6,000	7	Power
	GPR 40	4	.15	6,000	7	"
	GPR 60	6	.15	6,000	7	"
SCREENED GRID 15/- Each Post 4d.	GPR 120	2	.3	3,000	4.5	Super-Power
	GPR 140	4	.2	3,500	4.5	"
	SG 25	2	.2	220,000	150	S.G.

2 Valves or more sent POST FREE. Matched Valves 1/- extra per set.

GET PERFECT RESULTS OR GET YOUR MONEY BACK

Each valve has attached to it a written guarantee covering 7 months. In the event of the valve losing emission or becoming inefficient in any way during this term a new valve will be supplied under the terms of the guarantee. If not fully satisfied that the valves received are equal to any they should be returned within a week, full refund will be made by return of post.

Sent C.O.D. if desired. Ask your dealer for them. Accept no other. Matched Valves 1/- extra per set.

P.R. PRODUCTS
27, P.R. HOUSE, NEWGATE ST.,
LONDON, E.C.4.

(Opposite G.P.O. Tube Station.)

Telephone: CITY 3788.



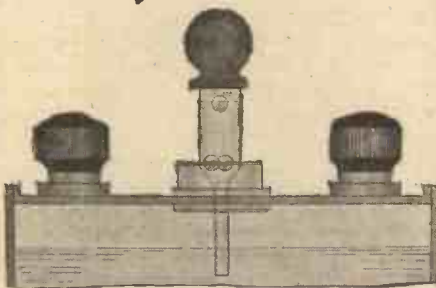
Master Your Volume

Do you realise that by de-tuning your receiver or dimming your filaments you are adopting hopelessly inefficient methods to control your volume. Such practice results in poor quality and is liable to cause unnecessary interference from other stations transmitting on near-by wavelengths. Centralab Modulator plugs obviate all these difficulties and enable you to control your volume from a mere whisper to full loud-speaker strength without spoiling reception. Just connect the two cords on the Centralab Modulator to your loud-speaker terminals and then connect your loud-speaker cord tips into the two receptacles in the side of the modulator. You can then master your volume by just turning the small bakelite knob on top of the modulator plug. If your set is equipped with an output jack there is another model modulator plug to suit. No. 2 type for sets with terminals for loud-speakers, 10/6 each. No. 1 type for sets with jack for loud-speakers, 10/6 each. No. 3 type has a 2-foot cord which enables you to control your volume from your armchair, 12/6 each. Write for a copy of the Centralab Circuit Booklet; it's free on request.

Centralab

THE ROTHERMEL CORPORATION, Ltd.,
24, Maddox Street, London, W.1.
Phone: Mayfair 0578/9.

Perhaps your Battery's run down!



A CHASLYN VENT TYPE CHARGE INDICATOR

A Chaslyn Battery Charge Indicator will tell you when your battery is fully charged, half-charged, and when it requires re-charging.

A new Hydrometer which can be left permanently on High or Low Tension Accumulators and shows at a glance the state of charge by the way the three balls of different specific gravity sink or swim.

Guaranteed Accurate.
No Mess.
Checks faulty Charging.
Increases life of Battery.
Easy to see.
Simple to read.
No bothersome scales.
No burden on memory.

OTHER TYPES:
Full-sized Chaslyn S.O.S. Hydrometers. 3s. post free
Junior S.O.S. Hydrometer. Unbreakable. Specially suitable for motorists 2s. 6d. post free
Stacked for 1280, 1250, and 1215 Specific Gravity Batteries
Price 1/9, Post Free.

OVER 300,000 IN USE.

Sole Manufacturers:

J. H. COLLIE & Co.,
10, CANNING PLACE,
LIVERPOOL

=H. & B.= SETS, KITS, COMPONENTS

Buy the H. & B. Way.
It's Easier. It's Better.
No References. Strictly Confidential.

MAKE IT A RADIO XMAS.

Build the OSRAM 1930 Music Magnet screened grid 3-valve 30 STATION set. No wave traps needed with this set.

NO RADIO EXPERIENCE needed to construct this set successfully. Full kit in sealed carton with 3 OSRAM 1930 valves. Heavy polished oak cabinet and Fullest instructions.

Cash price £9,
or 16/- down and 11 monthly payments 15/10.

COSSOR. COSSOR. COSSOR.

Brings European Stations to your home. COSSOR 1930 Sealed kit contains all you need to construct one of the finest 3-valve Screened grid receivers. ONE knob tuning. Simplicity in itself. No drilling. No soldering. 3 1930 Cossor valves and full instructions included, together with beautiful metal cabinet.

CASH PRICE £8. 15 0,
or 15/9 down and 11 monthly payments 15/9.

PYE POPULAR TWO, Remarkable efficient Two, One dial tuning, Dual range. Cash Price £4. 17. 0, or 15/- down and 10 monthly payments 9/-.

Why Not a Speaker for this year's Xmas present?

M.P.A. popular Cabinet speaker, Oak Cabinet. Cash Price 45/- or 5/- down and 9 monthly payments 5/-.

BROWN'S VEE Units and Chassis. The perfect speaker. Cash Price 40/- or 8/7 down and 4 monthly payments 8/7.

ULTRA AIR CHROME, 14 x 14 Chassis Speaker. Cash Price 52/- or 11/- down and 4 monthly payments of 11/-.

AMPLION A.C.4. Oak Cabinet Speaker. Splendid tone; handsome appearance. Cash Price £3 or 15/- down and 5 monthly payments 10/-.

LISSEN ELIMINATORS.

D.C.—Model A. Cash Price, 27/6, or 5/- down and 5 monthly payments of 5/-.

A.C.—Model A. Cash Price, 60/-, or 8/- down and 5 monthly payments of 11/-.

Full details sent of any of the above sets or components.

H. & B. 1930 CATALOGUE NOW READY. 115-page full of the very latest in Radio. Price 9d. Refund on first order over 5/-.

Special purchase of WESTERN ELECTRIC Headphones, Lightweight Model. Were £1. Our price, 7/6 post free.

Bring your set up to date. We will advise you free of charge, and can supply you with your Radio requirements for Cash or upon our GRADUAL PAYMENTS SYSTEM. NO REFERENCES. STRICTLY CONFIDENTIAL.

MONEY REFUND IF NOT ENTIRELY SATISFIED.

ALL GOODS SENT CARRIAGE PAID. C.O.D. Charges Paid on Orders over £1.

H. & B. RADIO Co.
34, 36, 38, BEAK STREET, REGENT ST.,
Gerrard 2834. LONDON, W.1.



PROGRAMME FROM HILVERSUM

SUNDAY, DECEMBER 15

(1,071 metres) 5.40 p.m.

By the Kolster-Brandes Radio
Orchestra, under the direction
of Hugo De Groot.

- | | |
|--|-----------|
| 1 MARCH. "Wien Bleibt Wien" | Schrammel |
| 2 MARCH. Jolly Fellows | Vollsteds |
| 3 Game of Polo | Tetras |
| 4 WALTZ SONG. Nina | Raynert |
| 5 Humorous Variations on "The Carnival of Venice" | Ritzau |
| 6 WALTZ. Jeanine
Solo on the V.A.R.A. Standaard Organ | Shilkret |
| 7 ZIGEUNER SERENADE. Violin Solo | Valdez |
| 8 Hungarian Rhapsody No. 2 | Liszt |
| 9 WALTZ INTERMEZZO. Moss Rose | Boso |
| 10 SIAMESE MARCH. | Lincke |
| 11 Fantasy from "La Bohème" | Puccini |

For fine reception use the K-B 161
or 169 All-Mains 3-Valve Screened-Grid Pentode receiver. Price
£17-10-0 including valves and
royalty.



KB 161 & 169

PROGRAMME SECTION

Continental Programme Events

SUNDAY, December 15.

- Concerts*
- 2.30 p.m. Königsberg: Orchestral concert.
7.0 " Prague, Bratislava, Moravska-Ostrava: Symphony concert.
7.30 " Warsaw: Orchestral and vocal
7.55 " Hilversum: Orchestral concert.
8.15 " Brussels: Chamber music.

- Operas and Operettas*
- 7.0 p.m. Cologne: "Der Fidele Bauer" (Leo Fall).
7.5 " Munich: "Die Försterchristel" (S. Jarno).

MONDAY, December 16.

- Concerts*
- 6.30 p.m. Frankfurt, Stuttgart: Orchestral concert.
7.0 " Hamburg: Christmas Oratorio by P. Wolfrum.
7.30 " Warsaw, Vienna: Orchestral concert.
8.0 " Cologne: Chamber music.
8.10 " Breslau: Piano and song recital of works of modern British composers.
8.20 " Munich: Chamber music.
8.30 " Brussels: Wagner concert.
10.5 " Barcelona: Orchestral and vocal.

- Operas and Operettas*
- 7.0 p.m. Königsberg: "The Sleeping Beauty" (Humperdinck).
10.5 " Barcelona: Opera relay from Lyceum Opera House.

- Plays*
- 8.0 p.m. Radio-Paris: "Beyond Human Might" (Björnson).

TUESDAY, December 17

- Concerts*
- 7.30 p.m. Breslau: Orchestral concert.
7.40 " Hilversum: Orchestral concert.
8.15 " Brussels: Orchestral and vocal.

- Operas and Operettas*
- 6.30 p.m. Stuttgart, Frankfurt: "The Mountain Queen" (a fairy-tale opera).
6.30 " Vienna: "Othello" (Verdi).
8.0 " Radio-Paris: "Don Quixote" (Massenet)
10.5 " Barcelona: Opera relay from Lyceum Opera House.

- Plays*
- 6.35 p.m. Munich: "Heimg'funden" (a Christmas comedy).

WEDNESDAY, December 18

- Concerts*
- International evening. The programmes of the principal European stations are devoted to Germany.
6.30 p.m. Vienna: Jubilee concert by the "Akademischen Orchesterverein."

- Operas and Operettas*
- 8.0 p.m. Radio-Paris: "Werther" (Massenet).

THURSDAY, December 19.

- Concerts*
- 7.0 p.m. Vienna: Violin recital followed by orchestral concert.
7.55 " Hilversum, Brussels: Concert from Concertgebouw Amsterdam.

Operas and Operettas

- 6.30 p.m. Frankfurt, Stuttgart: "Marriage of Figaro" (Mozart).
6.30 " Munich: "The Egyptian Helen" (R. Strauss.)

Plays

- 7.45 p.m. Cologne: "S.O.S. . . . Rao, Rao . . . Foyrn."

FRIDAY, December 20.

- Concerts*
- 7.0 p.m. Prague: Orchestral concert.
7.5 " Vienna: Chamber music.
7.15 " Warsaw: Symphony concert.
8.30 " Munich: Orchestral concert.
9.30 " Prague: Contemporary music.

Plays

- 7.30 p.m. Breslau: Silesian Christmas plays.
8.25 " Königsberg: "The Violet" (Molnar).

SATURDAY, December 21

- Operas and Operettas*
- 7.0 p.m. Königsberg: "The Empress" (Leo Fall).
7.30 " Breslau: Selections from Kálmán's operettas.

Plays

- 7.40 p.m. Vienna: "Das Land im Rücken" (a radio play).

DOMINION AND FOREIGN INTELLIGENCE (Continued from page 968)

pence, for people with small incomes, may shortly be reduced, thus bringing crystal sets within the reach of almost everybody. This promise is not likely to remain too "ethereal." The great majority of Austrian hearers are on the lowest scale, and many find even two schilling monthly hard to raise.

FRANCE

(From our Paris Correspondent)

F.I.D.A.C Broadcast

Lieut.-Col. F. W. Abbot, the president of the British Legion in France, and who has this year been elected President of the Fédération Interalliée des Anciens Combattants (Fidac), gave a short address from the Eiffel Tower station on Friday, November 29, in which he described the history, deeds, and objects of this association, representing 8,000,000 ex-soldiers of all the allied nations. Prior to the broadcast he had rekindled the flame burning on the tomb of the Unknown Warrior at the Arc de Triomphe.

Radio-Algiers

The new station at Algiers which was opened on November 19 last has a power of 12 kw.—aerial—and is being heard very distinctly throughout France. It is understood that an increase in power is also to be made in the near future to the station of Rabat (Radio-Maroc).

Right of Reply

An individual who considers that he has been attacked by a French newspaper has a right of reply which must be published in a similar position and given a similar amount of space in the paper in which the attack has been made. A recent decision by the Court of Paris rules that a similar right cannot be invoked against a wireless station for broadcasting news to which exception is taken.

SHORT WAVE STATIONS

The times quoted are reduced to G.M.T.

M.	Kc/s.	Station	Time
104.5	2780	Perth (Australia), 6 WF,	0.25 kw.
99	3030	Motala (Sweden), Relays Stockholm.	
80	3750	Constantine (Algeria) 8KR,	MON., and FRI.
70	4285	Vienna (OHK2), Transmits on SUN. for	15 minutes after each hour from 5 p.m.
67.65	4434	Döberitz (AFK), 5 kw. MON., WED., and	FRI., 10 a.m. to 11 a.m. and 6-7 p.m.
62.5	4800	Pittsburg East (Westinghouse Electric),	W8XK, Relays KDKA.
61	4916	Radio LL (France).	
58	5172	Prague (Czechoslovakia).	
56.7	5291	Nauen (AGI), occasionally after 5 p.m.	
52	5769	Bergedorf (Germany) AFL, 3 kw.	
50	6000	Moscow RFN. TUES., THURS., and SAT.,	12-1 p.m.
50	6000	Barcelona Radio Club EAJ25. SAT.,	8 p.m. to 9 p.m. News and gram. rec.
49.83	6020	Chicago, Ill. W9XF, Relays WENR.	
49.83	6020	New York NY. W2XBR. Relays	WBNY, 1 kw.
49.67	6040	New York (W2XAL). TUES., 12 mdnt.—	5 a.m. WED., 12 mdnt.—2 a.m. FRI., 12 mdnt
49.5	6060	Cincinnati (Ohio) W8XAL, 0.25 kw.	Relays WLW from 11.50 p.m., except
49.5	6060	Council Bluffs (Iowa) W9XU, 0.5 kw.	Relays KOIL.
49.4	6072	Vienna (UOR2), 0.4 kw. Testing TUES.	and THURS., 12.10-1.10 p.m.; WED. and
49.34	6080	Newark (N.J.) W2XCX, Relays WOR.	
49.02	6120	Richmond Hill, N.Y. (W2XE). Relays	WABC Weekdays, 11 p.m. to 5 a.m.
49	6123	Motala (Sweden), Relays Stockholm.	
48.8	6147	Manila (Philippine Islands) KZRM. Daily	8 a.m. to 3 p.m. (except Monday).
44	6818	San Lazaro (Mexico) XC51, 7 a.m. and 7 p.m.	
43.8	6850	Georgetown (British Columbia) KRY.	
43.6	6881	Coethen (Germany) D4AFF. Testing.	
43.5	6896	Rome (Italy) 1MA. SUN., 4-6.30 p.m.	
43	6976	Madrid EAR 110. TUES. and SAT. from	10.30 p.m. to 12 midnight.
42	7142	Perth (Australia) 6AG, 10.30 a.m. and 3 p.m.	
41	7316	Radio Vitus. Testing.	
40.2	7463	Lyons (Rhône) YR. Daily except SUN.	from 4.30-5.30 p.m.
40	7500	Döberitz AFK (or DOA). 5-7 p.m.	daily; occasionally other times.
37	8108	Vienna (EATH). MON. and THURS.,	9.30 p.m.-11 p.m.
34.5	8696	Schenectady W2XAC. (General Elec. Co.)	Relays WGY to Byrd Antarctic Expedition.
32.5	9230	Sydney (2BL).	
32.5	9230	Paris, Eiffel Tower (FL). Time Signal	8.56 a.m. and 8.56 p.m.
32	9375	Berne (Switzerland) EH90C.	
31.8	9434	Posen (Poland), 0.25 kw. TUES. 6.50-	9.30 p.m. SAT., 6.25 p.m.-1 a.m.
31.65	9479	Paris Experimental Radio, 2 kw. 9 p.m.	weekdays, 3 p.m. on Sundays.
31.6	9494	Lynby (Denmark) (Experimental)	
31.48	9530	Denver (Col.) W9XA, Relays KOA, 0.75 kw.	
31.48	9530	Schenectady (General Electric Co.), N.Y.	W2XAF, 10 kw. (Aer.). MON., 11 p.m.
		to 5 a.m. TUES., 11 p.m. to 4.30 a.m.	THURS., 11 p.m. to 5.30 a.m. SAT., 11 p.m.
		to 5 a.m. Relays WGY.	
31.4	9554	Eindhoven, Holland PCJ, 25 kw. THURS.,	7-9 p.m., in English; 12 midnight-
		1 a.m., in Spanish. FRI., 1-2 a.m., in	Portuguese; 2-4 a.m., in Spanish;
		7-9 p.m., in English. SAT., 1-2 a.m. in	Dutch; 2-5 a.m., in English, French,
		and Spanish; 5-7 a.m., in English.	
31.38	9560	Zeesen (Germany). Relays Königswus-	terhausen daily from 7 p.m.
31.28	9590	Sydney 2FC.	
31.25	9600	Bergen LGN.	
31	9877	Nairobi (Kenya) 7LO. Daily, 4-7 p.m.	Relays 5W occasionally from 7-8 p.m.
30.75	9756	Agen. TUES. and FRI., 9-10.15 p.m.	
25.6	11,718	Winnipeg (Canada) CJRX, 2 kw. DAILY	(except SUN.), from 10.30 p.m.-12.30
		a.m. SAT., 6 a.m.-7 a.m.	
25.53	11,751	Chelmsford (5SW), 15 kw. (Aer.). DAILY	(except SAT. and SUN.), from 12.30-1.30
		p.m. and from 7 p.m.-12 mdnt.	
25.25	11,800	Pittsburg East (Westinghouse Electric)	W8XK, Relays KDKA from 11 p.m.
		(TUES. and THURS., 10 p.m.)	
24.5	12,240	Manila (Philippine Islands) K1XR. Relays	KZRM. Week-days, 10.30 a.m. to noon.
23.35	12,850	Oakland (Calif.) W6XN. Relays KGO.	TUES., WED., and FRI., from 5.30-9.0 p.m.
		(G.M.T.), 5 kw. WED., also 2 a.m. to 8 a.m.	
23.35	12,850	Schenectady W2XO. TUES., THURS., and	SAT., 5-10 p.m. Relays WGY (Tests).
22.2	13,513	Vienna, 0.24 kw.	
20.8	14,428	Pittsburg East (Westinghouse Electric)	W8XK, Relays KDKA.
19.56	15,340	Schenectady (General Electric Co.)	W2XAD, 6 kw. SUN., 7.30 p.m.-
		4 a.m. MON., WED. and FRI., 3-5 p.m.	and 11 p.m.-5 a.m. SAT., 5 p.m.-5 a.m.
		Relays WGY.	
17.34	17,300	Schenectady (W2XK). MON., WED. and	FRI., 5-10 p.m. Relays WGY. (Test.)
17.2	17,441	Nauen (AGC).	
16.9	17,750	Bangkok (Siam) HSP, 20 kw. 12.30-2.30	p.m. SUN only.
16.88	17,789	Huizen (Holland) PHI, 40 kw. Usually	transmits from 3-5 p.m.
16.8	17,850	Bandoeng, Java, PLF, 30 kw.	
16.3	18,404	Kootwyk (Holland) PCK. From 6 a.m.	
15.94	18,820	Bandoeng, Java (Radio Service) PLE.	WED., 12.40-2.40 p.m.
15.5	19,351	Nancy (France), 9-10 p.m.	
15.02	19,973	Buenos Aires (Monte Grande) LSG.	

For Long and Medium Wave Stations see p. 1004.

Last Week's Log

By "THE SEARCHER."

OWING to the coming of Christmas it is necessary for *World-Radio* to go to press earlier than usual, for which reason the present log covers only the four days from Sunday, December 1, to Wednesday, December 4, inclusive. In this period the weather has been very unsettled. The barometer has been most unsteady, with a general tendency to fall. Stormy weather often brings good conditions for long-distance reception, provided that the glass is steady, even if its readings are distinctly on the low side. Very seldom, though, have I found that a large number of entries in the log of stations rarely well received could be made during a period of unsettled weather.

Actually, the Sunday and Tuesday were extremely good nights on the whole, whilst the Wednesday, though far from bad, did not come quite up to the same level. On this last night atmospheric were exceedingly troublesome, and they were quite a nuisance on the Monday. The number of stations recorded, however, was a large one on each evening. Here, for instance, is the record for Sunday, December 1: Dublin, fair; Frankfurt, very strong, slightly heterodyned; Toulouse PTT, very good; Kaiserslautern, very good; Luxembourg, very good; Cologne, very good; Münster, good, but not quite up to the strength of Cologne; Nürnberg, very strong, but slightly heterodyned; Hamburg, very good; Petit Parisien, weak and heterodyned; Breslau, weak; Bordeaux, very good; Turin, very good; Berlin relay on 283 metres, very good; Bratislava, very good; Königsberg, very good; Rennes, very good; Budapest, good, but not so strong as he is at his best; Toulouse Midi, very good; Katowice, very good; Berlin Witzleben, rather weak; Rome, weak and slightly heterodyned; Milan, only fair; Brussels, good; Vienna, weak; Munich, weak; Belgrade, fair in strength, but slightly heterodyned.

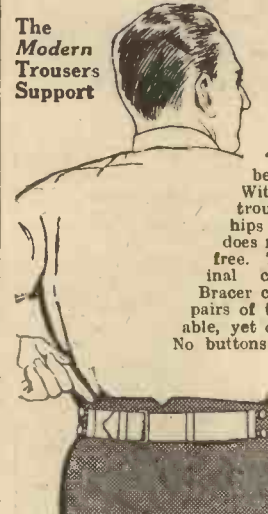
Thus, of twenty-seven stations recorded, thirteen obtained a "very good" mark. Twenty-five were logged on the Monday, twenty-six on the Tuesday, and twenty on the Wednesday. There are one or two newcomers to the pages of the records just now, which are well worth the attention of readers. The chief amongst these is Luxembourg, who comes in so strongly that he has at times quite a noticeable wipe-out. Schaarbeek is another. A third, though not a newcomer, has not been very well heard for some time. This is Radio Catalana, who, on the Wednesday night, was coming in with tremendous strength.

A good many stations showed very considerable variations during the four days. Milan, for example, was fair on the Sunday and Tuesday, but excellent on the Wednesday. Münster went from good on the Sunday to very good on the Monday, but was weak on the Tuesday. On the Wednesday he had fair strength, but was suffering from spark interference. Hamburg, though clear on the Sunday, was heterodyned on the Monday, clear on the Tuesday, and completely jammed on the Wednesday. Hörby was not received on the Sunday, but came in at great strength on the other nights, though on the Monday spark interference occurred. Leipzig was not found on either the Sunday or the Wednesday; on the Monday he was very good, but on the Tuesday so weak as to be almost inaudible.

The Scandinavian stations are now coming in much better than they were; both Göteborg and Hörby may be strongly received; and I frequently hear something of the relays down towards the bottom of the band, though it is exceedingly difficult to identify them individually.

Men! You can say 'good-bye' to ugly Braces!

The Modern Trousers Support



Braces are ugly, inconvenient. Belts are uncomfortable, cause harmful compression. That is why well-dressed men, Army officers, doctors, sportsmen, are adopting the "SPAN" Bracer patent half-belt, the modern trousers support. With the "SPAN" Bracer, trousers are balanced from the hips and hang perfectly. The shirt does not "ride up." Shoulders are free. There is no unhealthy abdominal compression. One "SPAN" Bracer can be used for any number of pairs of trousers. Quickly interchangeable, yet once fixed, always in position. No buttons constantly to be fastened or unfastened. For flannels, breeches, plus-fours, evening dress or business wear. The only sensible, hygienic, and elegant trousers support ever invented. Amazingly comfortable! Made of finest silk-web elastic, adjustable, and will last for years. A welcome and original Xmas Gift.

The "SPAN" BRACER

All-British Patent Half-Belt
General Sir Aylmer Hunter-Weston, K.C.B., D.S.O., R.E., M.P., writes:—"Your 'SPAN' BRACERS are excellent." A Lancashire Doctor writes:—"I feel I owe you a debt of gratitude for your special invention. I have put the 'SPAN' Bracer on my trousers and am enjoying wonderful freedom."

HOW TO GET YOUR 'SPAN' BRACER

If your outfitter does not stock, order by post direct from the sole manufacturers. In BLACK, BROWN, GREY or WHITE, with set of self-fixing threadless buttons (additional sets of buttons 3d. per set). Give waist measurement. No goods sent C.O.D. Enclose Cheque or Postal Order. Illustrated folder free on request.

THE SPAN BRACER CO.
(Dept. 17), Castle Green, Bristol, England
Trade enquiries invited. Foreign post 3d. extra

49

Only 2 more "Revelation Hours" this year!

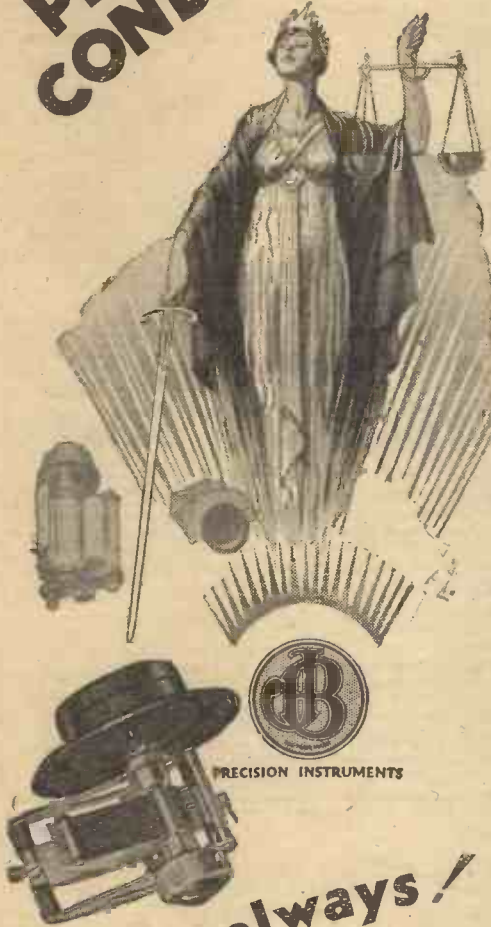
Remember to listen in to Radio Paris (1,725 m.) on Sunday the 15th and Sunday the 22nd of this month . . . when the last two 1929 Revelation Sunday Evening Programmes of light music will be broadcast! Cheery tunes, excellently rendered by the Revelation Novelty Orchestra, turns by eminent artists, and . . . a simple broadcast competition with handsome prizes. Don't forget! The "Revelation Hour" starts at 10 p.m. with the theme song, "Pack up your Troubles."



Which Station Was That?

Answers to Correspondents

PRECISION CONDENSERS



PRECISION INSTRUMENTS

J.B. SLOW MOTION CONDENSER.

now as always!

There is an impressive finish and neatness about J.B. Condensers which give an atmosphere to a set. They are always "in tone" with the Receiver as well as "in tune." Behind their excellent appearance lies skilful designing and unerring manufacturing—in fact all the qualities of a good job.

J.B. SLOW MOTION CONDENSERS
S.L.F. or LOG

.0005	- 14/-	.0003	} - 13/-
		.00035	
.00025	- 12/6	.00015	- 12/6



PRECISION INSTRUMENTS

Advertisement of Jackson Bros., 72, St. Thomas' Street, London, S.E.1. Telephone: Hop 1837.

QUEST (Rotherham): Cannot confirm but believe San Sebastian (gramophone records). **PENGUIN** (Scarborough): Surely Vienna, which was broadcasting dance music at the time. **3 V DON** (Darlaston): We cannot say, but it was advertised to do so. **CUCKOO** (Manchester): (D) Milan; a light comedy. The call heard was "Radio Milano-Torino" as it was also relayed to Turin. **MILLS** (Radnor): Bratislava relaying Prague (Philharmonic concert). **WHY WORRY?** (Lincoln): Moscow (C.C.S.P.) on 938 m. **PATHFINDER** (Cardiff): Katowice relaying concert given by the Prague Prize Winners at Warsaw. **R. O. P.** (Bradford): (1) Frankfurt relaying Stuttgart; (2) Rome. **BELL** (Teddington): Cannot trace without some estimation of wavelength. **EUGATNOM** (Erith): If after midnight, WPG (Atlantic City). **MELROSE** (S.W.17): Rjukan relaying Oslo. **E. L.** (Rugby): When the Toulouse programmes arrive in time they are given in the columns of *World-Radio*. **N. A. S.** (E.C.3): Moscow Komintern; a play. **R. A. G.** (Alness): Yes, Kharkov (Narkompshtel); the other station you hear is Stamboul (Turkey). **PSITTACUS** (Edinburgh): Leningrad relaying a concert from the Radio Theatre. **CUCKOO** (Manchester): Posen (Poland); this station broadcasts a late concert every Saturday night; a lady announcer (announcements in Polish and occasionally French). **CURIOUS G. A. G.** (Coventry): Yes, Turin was relaying U.S.A. stations at that time; impossible to say which; quite likely the foreign relay was from South America, and the language heard was Spanish. **P. M. RAYLEIGH** (E.15): Moscow Komintern; early morning broadcast of physical exercises, and gramophone records. **MONTUS** (Goine): (42) Yes, Turin relaying Milan; the latter's interval signal is the Morse letter T(-), (44) Stockholm (Sweden); the opera *Lohengrin* (Wagner), (45) WTC, Mount Avon, Hartford (Conn.) on 283 m. **SPANSACE** (Willesden): W2XAF, short-wave relay of WGY (Schenectady) on 31.48 m., received direct. **ESSEX**: Kharkov (Russia) on 427 m. Early morning exercises, possibly relayed from either Moscow or Leningrad. **TEDCAR** (Wilts): WGY (Schenectady) received direct. **MAC** (Southampton): Nearly all the German stations were working late on that night, broadcasting a fête, given in celebration of the departure of the occupying troops from Aachen or from Coblenz. Apparently you heard Flensburg. **SNOWFELL** (S.W.7): PTT Toulouse relaying the Padeloup Concert from Paris. **WAITING** (N.21): Bratislava (Czechoslovakia) relaying cabaret from Brno. **CHARMONT** (Hartlepool): Turin (Italy) relaying WGY (Schenectady); running commentary on a baseball match between California and Yale Universities. **MIMI** (Cardiff): Surely this was PTT Rennes (possibly own transmission); no other station on about that WL. **SPANSACE** (Edinburgh); 6BM, Bournemouth, testing. **NAN** (Maldon): Radio Toulouse: interval signal: strokes on a bell. **WIRELESS FIEND** (Birkenhead): W2XE, short-wave relay of WABC, Richmond Hill, New York, on 49.02 m. **Z. 5135 J.** (W-S-M): (1) Radio Luxembourg (Grand Duchy) on 223 m. Announcements in French and German, (2) can trace only GGM, Bar Light vessel (Liverpool); fog beacon on 1,000 m. **SHORT WAYER** (Longsight): W2XF, Chicago, 49.83 m. **P.F.R.H.** (Staffs): (1 and 2) details tally with Wilno and Katowice (Poland); both stations relaying a concert from Conservatorium at Warsaw. **RADNOR**: Graz relaying organ recital from Vienna. **GRID** (Manchester): Bucarest (Roumania); pianoforte recital. Woman announcer. **GINGER** (Bristol): Surely you have made a mistake in the WL. Turin (Italy) has a nightingale interval signal. **TYRO** (Ghelttenham): Moscow high power station on 938 m. **CORONA** (Salford): Aerodrome transmission on 900 m.; most probably Croydon. **BROWN** (Benwell): The only English lesson on the long wavelengths was from Königswusterhausen, advertised to take place at 11 a.m. G.M.T. Subject: "Nelly Awaits her Friend in Town." **TEL-ME** (Syston): (a and b), both Cologne: (a) gramophone records. **G. R.** (Ewell): (1) W2XBH, Brooklyn, New York, on 54 m., (2) W2XCX, Newark, N.J., on 49.34 m. **MOONBEAM** (Lanarkshire): Louvain (Belgium) on 338 m. Flemish broadcasts. **FERRELL** (St. Yarmouth): PTT Algiers (North Africa). **HILLHEAD** (Glasgow): Dublin's programmes for November 28 and November 29 were reversed; *Bohème* on Thursday and on Friday relay of the opening of the Savoy Cinema. **SCREENED WORKER** (Dublin): Kalundborg relaying Copenhagen. Finnish songs. **MILLIE** (Liverpool): U.S.A. station testing at that time (about 1.30—3 a.m., E.S.T.); cannot confirm, but possibly W3XAL, Bound Brook, N.J. **ESLUH** (Sunderland): Nürnberg relaying dancing lesson from Munich. **SCHOOL-BOY** (Southampton): Frankfurt-on-Main relaying concert from the Liederhalle. **TUG** (South Ealing): WIOD, Miami Beach, Fla. on 242 m. **KURDOO** (Birmingham): See reply to Mac (Southampton). Apparently received through Breslau and Gleiwitz. **W. J. GILLATT** (Birmingham): Turin (Italy) relaying WGY (Schenectady); a broadcast of a baseball match between California and Yale Universities. **SMILAX** (Thornton Heath): Surely this was Malmö, relaying *Lohengrin* from Stockholm. **E. P.** (Kingstown): Stockholm relaying *Lohengrin*. **DUCHESS** (Isle of Wight): Langenberg, relaying Cologne. **S.O.S.** (Worthing): Huizen (Holland) giving gramophone records until midnight (Dutch time, is twenty minutes in advance of G.M.T.). **NÉMO** (Bromley): Cologne, relaying Aachen. See reply to Mac (Southampton). **BOY LISTENER** (Wales): Estimate of WL wrong; this was 6BM, the Bournemouth station, testing (5SX is official engineers' call). **AJAXN** (Eastbourne): PLE transmits gramophone records on 15.94 m. The distance of Java from London is roughly 7,600 miles. **BROTHER BILL** (Ailreton): (1) PTT Paris, Ecole Supérieure, Göteborg relaying Malmö, (3) details are rather vague, but would tally with Gleiwitz which first relayed a concert and later gave dance music, (4) no, not Cork. Although not advertised to give dance music, all details would point to Cologne. Most of the Continental stations announce the titles of dance tunes in English. **BONNO** (Kent): W2XAD, (Schenectady). **SHELL** (Sydenham): Yes, WGY (Schenectady) received direct. We have confirmation that Stockholm broadcast *Lohengrin* on November 30. Apparently you heard Belgrade (Yugoslavia); no other likely station between Rome and Madrid. **TRENT** (Nottingham): WPG (Atlantic City, New Jersey) on 273 m., received direct. **NOALL** (Southport): (1) surely this was Leipzig relaying Berlin; no other station on about that WL was advertised to work so late. (2) either Königsberg or one of the Berlin relays on 283 m. **CORNISHMAN** (Caterham): Berne (Switzerland) relaying concert; the programme included the item you mention. **FLANDERS** (Ealing): Regret details are too vague to trace. **BOY LISTENER** (Dublin): Yes, Tallinn relaying Stockholm. Tallinn also frequently relays church services from the Swedish stations. **MAC** (West Hampstead): Moscow Popoff on 1,100 m. **REPUTITION** (Kingswood): Croydon Aerodrome testing (900 m.). **ROBUES ROOST** (S. Devon): Nürnberg relaying Munich.

DOUGHNUT (Ledbury): (1) Short wave transmissions are very difficult to trace unless more definite details are given, (2) cannot trace, (3) would tally with W8XK (East Pittsburgh), (4) W2XAD short-wave relay of WGY (Schenectady) on 19.56 m. **CHRONICLE 2** (Liverpool): 6BM Bournemouth testing. **CANTOR** (Beaconsfield): Surely this was Münster relaying Cologne. **A. C. 1494** (New Cross): WGY (Schenectady) received direct; concert followed by talk at 2 a.m. G.M.T. **SIGNALS** (Belfast): Tallinn (Estonia) relaying Stockholm. **PENGUIN** (Christchurch): Yes, this was Dublin; (Outside relay not advertised). **F. A. FARR** (Trowbridge): An amateur transmitter; write to the Radio Society of Great Britain, 53, Victoria Street, London, S.W.1. **SCREEN GRID** (Southampton): (1) Yes, Radio LL, Paris, (2) PTT Algiers (North Africa). **C. A. C.** (Lincoln): Cannot trace without some estimate of WL. **TRACING** (Margate): We can trace no station on or about that WL advertising English talk or lesson at that time; apparently an amateur transmitter. **ERICUS** (Newcastle): Not advertised in any programme, but details point to Bratislava, giving gramophone records. **NOVICE** (N.4): **MEDICUS** (N.W.11): Apparently this was Kosice (Czechoslovakia), relaying Bratislava; not advertised in any programme. **HAMISH**: (1 and 2) Impossible to trace as you give no estimate of WL, and we cannot understand your readings. **BARNEY** (Wolverhampton): Yes, apparently Göteborg relaying Stockholm; a modern game of Bridge was advertised, but it is quite possible that a song recital was given instead. **DEX-TROUS** (Newport): This is Radio Schaarbeek (Belgium) on 250 m. Apparently you mistook the Belgium National Anthem, *La Brabançonne*, for the *Marseillaise*. **G. S. H.** (Musseburgh): A late transmission by Berlin, not advertised in the programme. You received this through Berlin (Witzleben), one of the Berlin relays on 283 m. and also Breslau. **CHOPIN** (Cornwall): PTT Algiers (North Africa). **TWISTERNOB** (Tooting): Radio LL, Paris. **GUS** (Nofts): Katowice (Poland); interval signal: a metronome. **MAC** (Hyndland): Frankfurt-on-Main (see reply to Mac (Southampton)). **WASH** (Walthamstow): Nürnberg relaying Munich. **F. L. H.** (Exeter): PTT Algiers (North Africa). **JINKS** (Reading): This was a "pick up" of Daventry 5GB. **HOOT** (Surrey): You do not say what you heard, but according to WL this would be Moscow on 938 m.

The Alternative Postal Service.

In addition to the free published service of "Which Station was That?" replies to queries can be obtained within forty-eight hours of receipt of details on payment of 6d. in stamps or P.O., accompanied by coupon and stamped addressed envelope. 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. Envelopes to be marked in left-hand top corner "Postal Query Service."

IDENTIFICATION COUPON (No. 47).

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. 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.)

WORLD-RADIO STATION IDENTIFICATION PANEL BOOK

Complete with Call Signs, Opening and Interval Signals.

Price 1/-.

From B.B.C. Bookshop, Savoy Hill, W.C.2.



**See
for
yourself!**

NEW Construction

See the NEW Cossor Construction—firmly braced elements—electrically welded joints. Look at the grid—each turn spaced with micrometer accuracy. See the new Anode—strong—rigid—designed for efficiency.

NEW Filament

See the NEW Cossor filament with its tungsten core—tougher than steel yet as pliable as whipcord—tough for strength, pliable for long life. The NEW Cossor Filament gives enormous emission, far greater than ever before.

NEW Process

The NEW Cossor Process cost thousands of pounds to perfect—it ensures absolute accuracy—absolute uniformity of all valves of a type. It ensures maximum results from every valve—greater volume, longer range and sweeter tone. Get better Wireless—use the NEW Cossor throughout your Receiver.

**2-volt types now
obtainable from
all Dealers.**

A. C. Cossor, Ltd., Highbury Grove, London, N.5.



The **NEW**
COSSOR
It's a wonderful Valve!



*The
Pioneer
of Quality
Reproduction
& Low
Price!*

The **ORMOND CONE-UNIT & CHASSIS**

A combination of the famous "Ormond" 4-pole Adjustable Loud-speaker Unit with the new Ormond Chassis and Cone. Something to bring joy to the radio owner who delights in powerful volume yet has an ear for tonal quality.

The Chassis is constructed of Aluminium, specially strengthened, 11 $\frac{3}{8}$ in. in diameter and provided with two brass pillars, complete with lock nuts, to ensure easy assembly of the Unit. The whole may be secured to a baffle board if desired, screw holes being provided in the outer ring for this purpose.

Supplied unassembled and securely packed in carton at the exceptionally low price of 20/- complete.

*For PUNCH
POWER &
PURITY*

20!
COMPLETE



*Licensed under the Patents of the
Standard Telephones & Cables Ltd. &
Lektophone & Hopkins Corporations
for amateur use only*

Or supplied separately:
Chassis and Cone, 7/6; Unit, 12/6



The ORMOND ENGINEERING CO., LTD.,
ORMOND HOUSE, ROSEBERY AVENUE, LONDON, E.C.1.

Telephone :
Clerkenwell 5334-5-6 and 9344-5-6.

Telegrams :
"Ormondengi, Smith."

(5XX)

DAVENTRY PROGRAMME

(December 15-21)

(25 kw.)

193 kc/s (1,554.4 metres).

SUNDAY (DEC. 15)

10.30 a.m.—Time Signal (Greenwich), Weather Forecast.

3.0-3.30 p.m.—Church Cantata (No. 125)—Bach: "Mit Fried' und Freud' ich fahr' dahin" ("In Peace and Joy shall I depart"). Doris Owens (Contralto). Tom Purvis (Tenor). Stanley Riley (Bass). The Wireless Chorus. Frank Almgill (Flute). John Field (Oboe d'Amore). Leslie Woodgate (Organ). The Wireless Orchestra (Flute, Oboe d'Amore, Trumpet and Strings). Conducted by Stanford Robinson.

3.45-5.15 p.m.—A Military Band Concert. Olive Kavann (Contralto). Hubert Eisdell (Tenor). The Wireless Military Band, conducted by B. Walton O'Donnell: Festival March, "Tannhäuser" (Wagner). Olive Kavann: Morning Hymn (Henschel); The Star (Rogers); I hear a Thrush at Eve (Cadman). Band: Fairy Suite, "The Pixies" (Dunhill). Hubert Eisdell: Ces aires joyeux (These joyous airs) ("L'Enfant Prodiges") ("The Prodigal Son") (Debussy); Nell (Fauré). Band: Scherzo (Symphony, "From the New World") (Dvorák). Olive Kavann: Big Lady Moon (Coleridge - Taylor); Ships of Arcady (Head); When Love is kind (arr. A. L.). Band: Suite from the Ballet "Les Erinnyes" ("The Furies") (Massenet). Hubert Eisdell: Cradle Song (Bax); Go, lovely Rose and Fill a glass with golden wine (Quilter). Band: Barcarolle, "A Night in Lisbon" (Saint-Saëns); Czardas (Hungarian Dance) from "Ritter Pasman" (Johann Strauss).

5.15 p.m.—Children's Service, conducted by the Rev. Canon C. S. Woodward, relayed from St. John's, Smith Square, Westminster.

5.45-6.0 p.m.—Bible Reading—Paul's Letters: "Paul's Letters"—I, Romans i, 1-25 and 28-32 and Romans ii, 1-16.

8.0 p.m.—A Religious Service (from the Studio). Address by the Reverend Father John Baptist Reeves, O.P., of St. Dominic's Priory, Haverstock Hill: "When thou prayest."

8.45 p.m.—The Week's Good Cause. Appeal on behalf of the National Hospital for Nervous Diseases, Queen Square (for the Relief and Cure of Diseases of the Nervous System, including Paralysis and Epilepsy), by Sir Johnston Forbes-Robertson.

8.50 p.m.—"The News." Weather Forecast, General News Bulletin; Local News, Shipping Forecast.

9.5 p.m.—A Concert by the Hastings Municipal Orchestra, conducted by Basil Cameron: Overture, "Morning, Noon and Night in Vienna" (Suppé); Four Pieces for Strings from the Suite in D (Bach). Gavotte; Bourree; Air; Gigue. George Baker (Baritone): Scena, "Hiawatha's Vision" ("Hiawatha's Departure") (Coeridge-Taylor). Orchestra: Suite, "Neapolitan Scenes" (Massenet); The Dance; the Procession; the Extremopier; the Fête. Andante cantabile (String Quartet in D) (Tchaikovsky); Jutish Medley (based on Danish Folk Songs) (Percy Grainger). George Baker: Song, "The Devout Lover" (Maud Valerie White). Orchestra: Præludeum (Jarnefelt); Tone Poem, "Finlandia" (Sibelius).

10.30 p.m.—Epilogue.

MONDAY (16)

10.0-10.25 a.m.—Commemoration Service relayed from King's College, London.

10.30 a.m.—Time Signal (Greenwich), Weather Forecast.

10.45 a.m.—Miss Barbara Cartland: "Making the Best of Oneself—V. How to Relax."

11.0 a.m.—Gramophone Records.

12 noon.—A Ballad Concert. Ethel Lewis (Soprano). Harry Costigan (Baritone).

12.30 p.m.—Organ Music played by Edward O'Henry.

1.0 p.m.—Piano-forte Interlude.

1.15-2.0 p.m.—A Concert by The National Orchestra of Wales.

3.0 p.m.—A Concert. Kathleen Hartley (Soprano). William Busch (Piano-forte).

3.30 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

4.15 p.m.—Light Music. Alphonse du Clos and his Orchestra from the Hotel Cecil.

5.15 p.m.—The Children's Hour.

6.0 p.m.—Mrs. Marion Cran: "Painting the Earth with Flowers."

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Musical Interlude.

6.45 p.m.—The Foundations of Music. Handel Suites. Played by James Ching (Piano-forte).

7.0 p.m.—Mr. Desmond MacCarthy: Literary Criticism.

7.15 p.m.—Musical Interlude.

7.25 p.m.—A Reading from English Letters.

7.45 p.m.—Light Music. Olive Sturgess (Soprano); Robert Easton (Bass); The Gershom Parkington Quintet.

9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News; Shipping Forecast and Fat Stock Prices.

9.20 p.m.—Ian Hay: "The Last Thousand."

9.35 p.m.—A Recital. Jelly d'Aranyi (Violin); Myra Hess (Piano-forte). Sonata (K 304) (Mozart). Sonata in D Minor (Brahms).

10.15 p.m.—A Newspaper Office at Night, relayed from "The Daily Express" Offices. The Creed Room. Simultaneous production in provincial towns is ensured by means of apparatus which is capable of sending out 160 words a minute per machine. The News Room. One wall is lined with telephone booths, where messages from outside reporters are received and subsequently discussed with the News Editor. Sub-editors check the stories and get them into their allotted spaces on the various pages. The Editor-in-Chief's Office. The Linotype Machines. By operating a keyboard like that of a typewriter, molten metal is forced into dies, to form a "line of type." The Foundry. Semi-cylindrical metal plates are cast from papier-mache moulds of the type-set page, cooled, and trimmed to an exact length. Starting up the Press. The plates from the foundry are placed on the printing cylinders of the presses, which by a series of push-button controls are slowly started up till they attain full speed, when the night's work begins in earnest. Envoi. (From the Studio). (Produced by Gordon McConnel.)

10.45 p.m.—12 midnight.—Dance Music.

TUESDAY (17)

10.15 a.m.—The Daily Service.

10.30 a.m.—Time Signal (Greenwich) Weather Forecast.

10.45 a.m.—Mrs. E. M. Stephenson: "More about Folding Table Linen."

11.0 a.m.—Gramophone Records.

12 noon.—Organ Music. Played by Edgar T. Cook. Relayed from Southwark Cathedral.

1.0-2.0 p.m.—Light Music. Alphonse du Clos and his Orchestra. From the Hotel Cecil.

3.0 p.m.—A Ballad Concert. Beatrice Alexander (Soprano); Herbert de Leon (Baritone); Spence Malcolm (Violin).

4.0 p.m.—Light Music. Fred Kitchen and The Brixton Astoria Orchestra.

5.15 p.m.—The Children's Hour.

6.0 p.m.—Poems by F. L. Lucas, read by Ronald Watkins.

6.15 p.m.—"The First News." Time Signal (Greenwich); Weather Forecast, First General News Bulletin.

6.30 p.m.—Musical Interlude.

6.45 p.m.—The Foundations of Music. Handel Suites. Played by James Ching (Piano-forte).

7.0 p.m.—Lady Petrie: "The Lords of the Philistines: Recent Discoveries by Sir Flinders Petrie in Palestine."

7.15 p.m.—Musical Interlude.

7.25 p.m.—Sir Barry Jackson: "Impressions of my Canadian Tour."

7.45 p.m.—A Wagner Programme. Josephine Wray (Soprano); Walter Widdop (Tenor); Arthur Fear (Bass-Baritone). The Wireless Symphony Orchestra. (Leader, S. Kneale Kelley.) Conducted by Charles Webber. "Faust" Overture. Josephine Wray, Arthur Fear, and Orchestra. Duet, Act II, "The Flying Dutchman." Orchestra: Siegfried's Journey to the Rhine ("The Dusk of the Gods.") Josephine Wray, Walter Widdop and Orchestra: Duet, Act I, "The Valkyrie."

9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News;

Shipping Forecast and Fat Stock Prices.

9.20 p.m.—Sir Walford Davies: "Music and the Ordinary Listener—Series IX, Words and Music."

9.40 p.m.—Vaudeville. Charles Hayes. Norman Lond. Jean Melville. Cadolban's Tzigane Orchestra. Jack Payne and his B.B.C. Dance Orchestra, and An Item from The Alhambra.

10.45 p.m.—12 midnight.—Dance Music.

WEDNESDAY (18)

10.15 a.m.—The Daily Service.

10.30 a.m.—Time Signal (Greenwich); Weather Forecast.

10.45 a.m.—Mrs. Oliver Strachey "A Woman's Commentary."

11.0 a.m.—Gramophone Records.

12 noon.—A Ballad Concert. Adelaide Turnbull (Contralto). Frederick Sturge (Tenor).

12.30 p.m.—Gramophone Records.

1.0-2.0 p.m.—Light Music. Frascatti's Orchestra. Directed by Georges Haeck.

3.0 p.m.—Miss Marjorie Barber: "Stories and Story-telling in Prose and Verse—XII, Ballads."

3.25 p.m.—Jack Payne and his B.B.C. Dance Orchestra.

3.45 p.m.—A Light Classical Concert. Mildred Watson (Soprano). The Stratton String Quartet.

4.45 p.m.—Organ Music. Played by Alex Taylor.

5.15 p.m.—The Children's Hour.

6.0 p.m.—A Short Programme of Carols. Sung by The Masked Carol Singers.

6.15 p.m.—"The First News." Time Signal (Greenwich); Weather Forecast, First General News Bulletin.

6.30 p.m.—Musical Interlude.

6.45 p.m.—The Foundations of Music. Handel Suites Played by James Ching (Piano-forte).

7.0 p.m.—Major Walter Elliot, M.P.: "Central Africa—the Newest Export Market" (under the auspices of the Department of Overseas Trade).

7.15 p.m.—Musical Interlude.

7.25 p.m.—Mr. J. S. Bainbridge: "Waste Products."

7.40 p.m.—Vaudeville Turn.

8.0 p.m.—"Königsinder" ("Royal Children"). A Fairy Opera in Three Acts from the story by Ernst Rosmer. Music by Humperdinck. English translation by C. H. Meltzer. The Wireless Chorus (Chorus Master, Stanford Robinson). The Wireless Symphony Orchestra (Leader, S. Kneale Kelley), conducted by Percy Pitt. (Relayed from the Parlophone Studio by the courtesy of the Parlophone Company). Cast: The King's Son, Parry Jones; The Goose Girl, Norah Sabini; The Fiddler, Dennis Noble; The Witch and The Stablemaid, Enid Cruickshank; The Woodcutter, Foster Richardson; The Broom-binder, Sydney Russell; The Child, Elsie Otley; A Burgess, Ashmoor Burch; The Innkeeper, Frank Phillips; The Innkeeper's Daughter, Helen Alston; The Tailor, Tom Purvis; Two Guards, Stanley Riley and Samuel Dyson; Villagers, Magistrates, their Wives, Citizens, Citizenesses, Craftsmen, Musicians, Girls, Lads, and Children. Narrator, Filson Young.

9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News; (Daventry only) Shipping Forecast and Fat Stock Prices.

9.20 p.m.—Miniature Biographies—V. Mr. Andre Maurois: "Lady Caroline Lamb."

9.40 p.m.—"Königsinder" ("Royal Children"). Acts II and III.

11.0 p.m.—12 midnight.—Dance Music.

THURSDAY (19)

10.15 a.m.—The Daily Service.

10.30 a.m.—Time Signal (Greenwich), Weather Forecast.

10.45 a.m.—"Parents and Children"—XVI. The Hon. Mrs. St. Aubyn: "Questions and Answers."

11.0 a.m.—Gramophone Records.

12 noon.—A Concert. Essie Simpson (Soprano). Geoffrey Heather (Bass-Baritone). Olive Cloke (Piano-forte).

1.0 p.m.—2.0 p.m.—Organ Music. Played by Reginald Foot.

3.0 p.m.—Evensong. From Westminster Abbey.

3.45 p.m.—Mr. J. W. Robertson Scott: "Our Great Grandfathers' Countryside—VI, How the Women Lived."

4.0 p.m.—A Concert. Winifred

Ransom (Soprano). Edward Nichol (Tenor). The Bernard Russell Harp Quintet.

5.15 p.m.—"The Children's Hour."

6.0 p.m.—Musical Interlude.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Market Prices for Farmers.

6.35 p.m.—Musical Interlude.

6.45 p.m.—The Foundations of Music. Handel Suites. Played by James Ching (Piano-forte).

7.0 p.m.—Mr. Francis Toye: "Music in the Theatre."

7.15 p.m.—Musical Interlude.

7.25 p.m.—Dr. J. W. Breadie: "Lord Shaftesbury."

7.45 p.m.—A Military Band Concert. Nellie Walker (Contralto). Trefor Jones (Tenor). The Wireless Military Band. Conducted by B. Walton O'Donnell. Band: Overture, "The Lily of Killarney" (Benedict). Trefor Jones: A Prayer to Our Lady (Donald Ford), Dai campi, dai prati (From the fields, from the groves) ("Mefistofele") (Boito). Nellie Walker: A Summer Night (Goring Thomas), A Little Coon's Prayer (Kennedy Russell). Band: Ballet Music ("Romeo and Juliet" (Gounod). Trefor Jones: Cordovan Love Song (York Bowen), Diaphenia (Harold Samuel), Hoist thy Sail (Florence Aylward), Nellie Walker: None but the weary Heart (Tchaikovsky), Sink, Red Sun (del Riego), I have twelve Oxen (Ireland). Band: Two Dances, "Faust" (Coleridge-Taylor), Waltz Caprice (Rubinstein).

9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News; Shipping Forecast.

9.20 p.m.—Mr. Vernon Bartlett: "The Way of the World."

9.35 p.m.—German National Programme. Querschnitt. A cross-section of an Empire. Devised by Lance Sieveking and Rolf Gardiner. Assisted by Haley Simpson conducting The Wireless Male Chorus and Jack Payne conducting his B.B.C. Dance Orchestra. Great Germans remembered this evening: Martin Luther, Frederick the Great of Prussia, Bach, Mozart, Goethe, Schiller, Schumann, Hugo Wolf, Bismarck, Wagner, Haydn, Beethoven, and many others.

10.50 p.m.—12 midnight.—Dance Music.

FRIDAY (20)

10.15 a.m.—The Daily Service.

10.30 a.m.—Time Signal (Greenwich), Weather Forecast.

10.45 a.m.—Recipes for Sauces and Stuffings for the Christmas Dinner.

11.0 a.m.—12 noon.—Gramophone Records.

12 noon.—A Sonata Recital. Amina Lucchesi (Violin). Margery Cunningham (Piano-forte).

12.30 p.m.—Organ Music. Played by Stanley Curtis, L.R.A.M.

1.0 p.m.—2.0 p.m.—Gramophone Records.

3.0 p.m.—A Ballad Concert. Constance Astington (Soprano). Percy Thompson (Bass-Baritone).

4.0 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

4.30 p.m.—Light Music. Moschetto and his Orchestra from The May Fair Hotel.

5.15 p.m.—The Children's Hour.

6.0 p.m.—Miss Kate R. Lovell: "Macaroni Dishes."

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Talk arranged under the auspices of the National Playing Fields Association.

6.45 p.m.—The Foundations of Music. Handel Suites. Played by James Ching (Piano-forte).

7.0 p.m.—Mr. Ernest Newman: The B.B.C. Music Critic.

7.15 p.m.—Musical Interlude.

7.25 p.m.—Talk.

7.45 p.m.—"The Prisoner of Zenda." Being the Story of Three Months in the Life of an English Gentleman. By Anthony Hope. Retold for Broadcasting by Holt Marvell. Produced by Peter Creswell.

9.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News; Shipping Forecast and Fat Stock Prices.

9.20 p.m.—Do You Like Possessions? A Discussion between Mr. Ray-

mond Mortimer and Mr. Francis Birrell.

9.35 p.m.—Symphony Concert. Tatiana Makushina (Soprano). The Wireless Symphony Orchestra. (Leader, S. Kneale Kelley). Conducted by Nicolai Malko. Suite, "Christmas Eve" (Rimsky-Korsakov). Tatiana Makushina with Orchestra: Parassia's Song, "The Fair of Sorochintsi" (Mussorgsky). Orchestra: "Symphony No. 9 (Miaskowski). Tatiana Makushina with Piano-forte: Song of Lubasha (The Tsar's bride), and Brighter sings the lark (Rimsky-Korsakov), Cradle Song and Gopak (Mussorgsky). Orchestra: Overture Fantasia, "Romeo and Juliet" (Tchaikovsky).

11.0 p.m.—Surprise Item.

11.15 p.m.—12 midnight.—Dance Music.

SATURDAY (21)

10.15 a.m.—The Daily Service.

10.30 a.m.—Time Signal (Greenwich) Weather Forecast.

10.45-11.0 a.m.—Mr. Arthur J. Bendy: "Odd Jobs about the House—III, Some Useful Recipes for the Home."

1.0-2.0 p.m.—Light Music. Moschetto and his Orchestra from The May Fair Hotel.

3.30 p.m.—A Brass Band Concert. The S.C.W.S. Prize Band, conducted by A. Copland. Frank Gordon (Bass-Baritone). Ella Gardner (Soprano).

4.45 p.m.—Orchestral Selection, conducted by Charles Williams.

5.15 p.m.—The Children's Hour.

6.0 p.m.—Musical Interlude.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin, Announcements and Sports Bulletin.

6.40 p.m.—Musical Interlude.

6.45 p.m.—The Foundations of Music. Handel Suites Played by James Ching (Piano-forte).

7.0 p.m.—Mr. Basil Maine: "Next Week's Broadcast Music."

7.15 p.m.—The Week's Work in the Garden by the Royal Horticultural Society.

7.30 p.m.—An Orchestral Concert. Mavis Bennett (Soprano). Reginald King and his Orchestra: Romance and Two Dances (German). Mavis Bennett: Group of Folk Songs: Scottish, Up in the morning early (arr. Mackenzie), French, Ni jamais, ni toujours (arr. A. L.), Swedish, Folk Visa (Merikanto), English, Gathering Daffodils (arr. Arthur Somervell). Orchestra: Prelude and Allegro (Pugnani, arr. Kreisler, arr. King), Carmina (Waltz) (Reginald King). Humoreske (Tchaikovsky). Mavis Bennett: The Nightingale, Song Without words (Saint-Saëns), Sweet Suffolk Violin (Elizabeth Poston), The Bird in the Wood (Taubert). Orchestra: Liebesleid (Love's Grief) (Kreisler), Pearl o' Mine (Fletcher), Liebesfreud (Love's Joy) (Kreisler).

8.10 p.m.—"The Student Prince," relayed from the Piccadilly Theatre. Book and Lyrics by Dorothy Donnelly. Music by Sigmund Romberg. Produced by Edward Scantlen.

9.5 p.m.—"The Second News." Weather Forecast, Second General News Bulletin; Local News; Shipping Forecast and Fat Stock Prices.

9.25 p.m.—Mr. Gerald Barry: "The Week in London."

9.40 p.m.—Vaudeville. Leonard Henry (Comedian). The Masks (Vocal Trio). Horace Kennedy (Comedian). Wish Wynne (In Character Studies). Jack Payne and his B.B.C. Dance Orchestra.

10.50 p.m.—"The Student Prince" (Continued).

11.15-12 midnight.—Dance Music.

(Continued from page 980.)

(Dvorák), Suite from "The Water Music" (Händel, arr. Hartly).

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15 p.m.—Sports Bulletin.

10.20-11.15 p.m.—A Ballad Concert. Percy Thompson (Baritone). Anna Filipova (Soprano). Sonia Moldavsky (Violin). Walter Glynn (Tenor).

EVERYTHING



ELECTRICAL

“The
Christmas
Spirit”



Treat
yourself
and
your
friends
to a
set of

**Osram
Valves**

MADE IN ENGLAND
Sold by all Wireless Dealers.

DAVENTRY (EXPERIMENTAL) PROGRAMME

(5GB)

(626 kc/s 479.2 metres)

(December 15-21)

SUNDAY (DEC. 15)

3.45-5.15 p.m.—Chamber Music. Yves Tinayre (Tenor). The Catterall String Quartet: Arthur Catterall (Violin), Lawrence Turner (Violin), Bernard Shore (Viola), Johann Hock (Violoncello). Quartet in B Flat (Op. 18, No. 6) (Beethoven). Yves Tinayre: Amarilla (Giulio Caccini), Nina (Pergolesi), Bist du hei mir (Bach), Feldeinsamkeit (Brahms). Quartet: Allegro, "Les Vendredis" ("Fridays") (Rimsky-Korsakov). Yves Tinayre: Recueillement (Debussy), La lune blanche luit dans les bois (Fauré), Panis Angelicus (César Franck), Symbole des Apôtres (Caplet). Quartet and Viola: Quintet in F (Op. 88) (Brahms).

8.0 p.m.—A Religious Service. Under the auspices of The Birmingham Royal Institution for the Blind. Conducted by the Rev. F. C. Spurr (of Hamstead Road Baptist Church).

8.45 p.m.—The Week's Good Cause.

8.50 p.m.—"The News." Weather Forecast, General News Bulletin.

9.0 p.m.—A Military Band Programme. The Birmingham Military Band, Conducted by W. A. Clarke. Overture, "The Flying Dutchman" (Wagner). Osmond Davis (Tenor): Stars all dotted over the Sky (Evelyn Sharpe), Bonnie George Campbell (Keel), Nocturne (Vincent Thomas), Sea Fever (Ireland). Band: Sursum Corda (Elgar), Ballet Music, "Robert the Devil" (Meyerbeer), Minnie Hamblett (Pianoforte): Bourrée and Gigue (Richard Jones—1680), Study (Chopin). Band: Suite, "At the King's Court" (Sousa). Osmond Davis: The English Rose (German), The Gentle Maiden (arr. Somervell), A Sea Burthen (Haigh). Band: Invitation to the Dance (Weber), Minnie Hamblett: Consolations (2 and 3) (Liszt), Dance of the Geisha ("Japan" Cycle) (Walter

Niemann). Band: Slav March (Tchaikovsky).
10.30 p.m.—Epilogue.

MONDAY (16)

3.0 p.m.—The Grange Super Cinema Orchestra.

4.0 p.m.—A Ballad Concert. William Frith (Baritone). Geoffrey Wamsley (Pianoforte). Winifred Moreland (Mezzo-Soprano).

4.50 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Light Music. The Birmingham Studio Orchestra. Conducted by Frank Cantell. Booth Unwin (Bass).

8.15 p.m.—"Königskinder" ("Royal Children").

9.15 p.m.—Interval.

9.25 p.m.—"Königskinder." Act II.

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15-11.10 p.m.—"Königskinder." Act III.

TUESDAY (17)

3.0 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

4.0 p.m.—From the Light Classics. The Birmingham Studio Augmented Orchestra. Conducted by Frank Cantell. Barrington Hooper (Tenor) and Orchestra. Beatrice Eveline (Violoncello).

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

7.0 p.m.—Light Music. Pattison's Salon Orchestra. Directed by Norris Stanley.

8.0 p.m.—A Pianoforte Recital by Emil Baum. Prelude, Op. 32, No. 5 (Rachmaninov), Capriccio, Op. 23 (Dohnanyi), Mazurka, Op. 30, No. 4 (Chopin), Two Studies, Op. 25 (Nos. 9 and 11) (Chopin).

8.20 p.m.—"The Prisoner of Zenda." Being the Story of Three Months in the Life of an English Gentleman. By Anthony Hope. Retold for Broadcasting by Holt Marvell.

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15-11.15 p.m.—Montague Phillips Programme. The Birmingham Studio Augmented Orchestra (Leader, Frank Cantell). Conducted by The Composer. Eric Brough (Pianoforte).

WEDNESDAY (18)

3.0 p.m.—A Military Band Programme. The City of Birmingham Police Band. Conducted by Richard Wassell. Herbert Simmonds (Baritone). Will Gardner will Entertain.

4.30 p.m.—Dance Music.

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Light Music. The Birmingham Studio Orchestra. Conducted by Frank Cantell. Eva Tollworthy (Contralto). Lucy Vincent (Oboe).

8.0 p.m.—Two Musical Sketches. "The Man, the Maid, and the Muddlehead." A Musical Cameo by Gordon McConnel. Followed by "Now and Then." A Musical Argument by Jean Harley and George Barker, with Phyllis Scott and George Barker (at the Pianos).

9.0 p.m.—A Military Band Concert. Sumner Austin (Baritone). The Wireless Military Band. Conducted by B. Walton O'Donnell.

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15-11.15 p.m.—Dance Music.

THURSDAY (19)

1.10-1.50 p.m.—Dinner Hour Service. Conducted by Canon Guy Rogers.

3.0 p.m.—Symphony Concert. The

Bournemouth Municipal Symphony Orchestra. Conductor, Sir Dan Godfrey. Overture, "The Corsair" (Berlioz). Symphony (No. 3), "Eroica" (Beethoven). Violoncello Concerto in A Minor (Saint-Saëns) (Soloist, Antoni Sala). Scherzo, "Les Lutins s'amuse" (The Imps' Frolic) (Emile Dens).

4.30 p.m.—Organ Music. Played by Reginald New.

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Organ Music. Played by Gilbert Mills.

7.0 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra.

8.0 p.m.—Chamber Music. John Armstrong (Tenor). Albert Sammons (Violin). Leslie Heward (Pianoforte). Albert Sammons and Leslie Heward:

9.30 p.m.—Students' Songs by The Birmingham Studio Chorus. Conducted by Joseph Lewis.

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15-11.15 p.m.—From the Musical Comedies. The Birmingham Studio Chorus and Orchestra. Conducted by Joseph Lewis. Patricia Rossborough in Synopacted Selections.

FRIDAY (20)

3.0 p.m.—Organ Music. Played by J. Albert Sowerbutts, F.R.C.O.

4.0 p.m.—A Ballad Concert. Alec Shanks (Baritone). Ernest Barr (Violin). Florence Parkes Darby (Soprano).

4.30 p.m.—Dance Music. Jack Payne and his B.B.C. Dance Orchestra. Beryl Orde (Impersonator).

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin.

6.30 p.m.—Light Music. The Birmingham Studio Orchestra. Con-

ducted by Joseph Lewis. Georg Dawkins (Baritone). Cora Aste (Pianoforte).

8.0 p.m.—British Composers. The Birmingham Studio Augmented Orchestra (Leader, Frank Cantell). Conducted by Joseph Lewis. Prelude, "The King's Threshold" (Dunhill). Walter Heard (Flute) and Orchestra. Concerto for Flute and Strings (Gordon Anderson). Orchestra: Winter ("The Seasons") (German), Waltz, "The Sleeping Beauty" (Cowen), Three Dances ("The Tempest") (Sullivan), Poem, "Carillon" (Elgar).

9.0 p.m.—Vaudeville. Alma and Mark Vane. Mabel Constandours. Frank Staff. Ann Bradley. Leslie Taylor and his Miami Band.

10.0 p.m.—"The Second News." Weather Forecast, Second General News Bulletin.

10.15-11.15 p.m.—Dance Music.

SATURDAY (21)

3.30 p.m.—Dance Music. Billy Francis and his Band.

4.30 p.m.—A Concert. Mary Crauford (Soprano). The Gershom Parkington Quintet.

5.30 p.m.—The Children's Hour.

6.15 p.m.—"The First News." Time Signal (Greenwich), Weather Forecast, First General News Bulletin; Announcements and Sports Bulletin.

6.40 p.m.—Sports Bulletin.

6.45 p.m.—Light Music.

8.0 p.m.—Reading.

8.30 p.m.—Symphony Concert. The Birmingham Studio Augmented Orchestra (Leader, Frank Cantell). Conducted by Joseph Lewis. Joyce Rollitt (Pianoforte). Orchestra: Overture, "In Autumn" (Grieg). Joyce Rollitt and Orchestra: Pianoforte Concerto in F Minor, Op. 2 (Aren). J. Y. silk

9.10 p.m.—Orchestra: Symphony No. 2 in D Minor, Op. 70

(Continued on page 987.)

PROGRAMMES FOR SUNDAY

(December 15)

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 GREENWICH MEAN TIME

COLOGNE (Germany)
Westdeutscher Rundfunk. 1.319 kc/s (227 m.); 2 kw.
See Langenberg Programme.

COPENHAGEN (Denmark)
1,067 kc/s (281 m.); 0.75 kw. Relayed by Kalundborg, 260 kc/s (1,153 m.).

9.0 a.m.—Divine Service from the Cathedral.

10.30 a.m.—Meteorological Report.

10.45 a.m.—News Bulletin.

11.0 a.m.—Chimes from the Town Hall.

11.2 a.m.—Concert by the Otto Fessel Instrumental Ensemble. Overture, "Alceste" (Gluck). Aquarelles, for Strings (Gade): (a) Elégie, (b) Scherzo, (c) Canonetta, (d) Humoresque, (e) Nolette. Waltz, Wienerblut (Joh. Strauss). Selection from "Fidelio" (Beethoven). In the Gardens of Murcia (Turina). Rigaudon from the Tordenskjold Suite (Halvorsen).

12 noon.—Language Instruction.

1.30 p.m.—Concert by the Radio Wind Instrument Ensemble, conducted by Johannes Andersen. Vocal Duets by Victor Wulff and Svend Cathala. Russian March (Semjonoff). Overture "Giroflé-Girofla" (Lecocq). Waltz, Roses of the South (Joh. Strauss). Selection from "Hexen" and "Svensk Tapto" (Enna). Selection from "Carmen" (Bizet). Fatinitza March (Suppé). Duets: (a) Knold og Tot, (b) Grafologi Vise (Jespersen), (c) Madens Pris, (d) Danmarks Statuens Afsløring. Kængemøde March (Jespersen). Entr'acte from "La Vie Parisienne" (Offenbach). Overture, "Il Seraglio" (Mozart). Waltz, Estudiantina (Waldteufel). Selection from "Les Cloches de Corneville" (Planquette). St. Hansome Idyll

from "Lysistrata" (Lincke). Florentine March (Lincke).

3.30 p.m.—Programme for Children by Knud Heglund (Reader) and Elli Jankovic (Xylophone), with Pianoforte accompaniment by Viktor Fischer. Humorous Reading: Selection from Vimmerhale's Oplevelser (Locher). Xylophone Selections: (a) Højt fra Traectes grønne Top (Horneman), (b) Foxtrot, Spilledaasen (Bax), (c) Champagne Gallop (Lumbye).

4.0 p.m.—Divine Service from the Frederiks Church. Preacher: Pastor Oyvind Jeppesen.

5.20 p.m.—Balalaika Orchestra Concert. Czardas (Monti). Waltz, Caprice (Dobrochotoff). Pollace brillante (Andreef). In the Church (Tchaikovsky). Romance (Glinka). Soldier's Song (Krasev). Russian Folk Melody "The Harvest Wind" (arr. for Balalaika by Boris Borisoff). Folk Dance (Krasev).

5.50 p.m.—Meteorological Report.

6.0 p.m.—News Bulletin.

6.15 p.m.—Time Signal.

6.16 p.m.—Sports Notices.

6.30 p.m.—Talk: The German Steel Trust, by Povl Drachmann.

7.0 p.m.—Town Hall Chimes.

7.2 p.m.—Concert from the works of Mascagni and Leoncavallo by the Radio Orchestra, conducted by Launy Gröndahl. Songs by Charly A. Pedersen. Part I. The Works of Mascagni. Prelude, "I Ranzau." Sicilienne, Intermezzo and Drinking Song from "Cavalleria Rusticana." Prelude to the Fourth Act of "William Rateliff." Part II. The Works of Leoncavallo. Canio's Aria and Intermezzo from "I Pagliacci." Romance, Mattinata. Selection from "La Bohème."

8.0 p.m.—Modern Dialogue—"The Hansen Family," a Humorous Episode (Jens Locher).

8.15 p.m.—Pianoforte Recital from the Works of Chopin, by Folmer Jensen. Scherzo in B Flat Minor. Étude. Nocturne in B Major. Ballade in G Minor.

8.35 p.m.—Reading (Knud Hjorté).

8.55 p.m.—Concert of Classical Opera Music.

Owing to the necessity of going to press several days earlier than usual, we regret that a number of the programmes which, in the ordinary way, we should have printed, have not been received.

10.0 p.m.—Dance Music from the Palace Hotel, conducted by Teddy Petersen.

11.0 p.m. (in the interval).—Town Hall Chimes.

11.30 p.m. (approx.).—Close Down.

CORK (Ireland)

(6CK). 1,337 kc/s (225 m.); 1 kw.

8.30 p.m.—Time Signal.

8.32 p.m.—Concert. The Station Orchestra. Eric Richmond and Lettice Newman (Entertainers). P. O'Laghaire (Traditional Violin). Frau T. Fleischmann (Pianist). P. O'Laghaire. Eric Richmond and Lettice Newman. The Station Orchestra.

11.0 p.m.—Time Signal, National Anthem, Weather Report and Close Down.

CRACOW (Poland)

Polskie Radio. 959 kc/s (313 m.); 0.5 kw.

9.15 a.m.—Programme from Posen.

10.58 a.m.—Chimes from the Church of Notre Dame, Time Signal and Weather Report.

11.10 a.m.—Programme from Warsaw.

1.0 p.m.—Agricultural Talk by Mr. St. Lachwa: The Importance of Manure in Agriculture.

1.20 p.m.—Programme from Warsaw.

1.30 p.m.—Talk by Mr. Kaczkovsky: Sheep-farming.

1.50 p.m.—Programme from Warsaw.

2.0 p.m.—Agricultural Talk by Mr Plosky.

2.20 p.m.—Programme from Warsaw.

3.0 p.m.—Concert from Katowice.

4.20 p.m.—Talk: Gambling. (734 kc/s; 408.7 m.).

4.40 p.m.—Programme from Warsaw.

6.0 p.m.—Miscellaneous Items, News and Announcements.

6.25 p.m.—Talk by Mr. M. Siedlecky: The Jubilee Celebrations of the Etienne Batory University at Wilno.

6.58 p.m.—Time Signal from Warsaw.

7.0 p.m.—Programme from Wilno.

7.79 kc/s; (385 m.).

7.30 p.m.—Concert of Light Music by Mr. Bobby Eisinger (Pianist) and Mr. Stanislas Golebivsky and Mlle. St. Zurawka (Vocalists).

8.10 p.m.—Programme from Warsaw.

8.25 p.m.—Concert (continued).

9.15 p.m.—Programme from Warsaw.

10.0 p.m.—Orchestra Concert relayed from the Pavillon Restaurant.

11.0 p.m.—Chimes from the Church of Notre Dame.

DUBLIN (Ireland)

(2RN). 725 kc/s (413 m.); 1 kw.

8.30-11.0 p.m.—See Cork.

11.0 p.m.—Weather Report, Time Signal, National Anthem and Close Down.

HAMBURG (Germany)

Norag (ha, in Morse). 806 kc/s (372 m.); 1.5 kw. Relayed by Bremen, 941 kc/s (319 m.); Flensburg, 1,373 kc/s (218 m.); Hanover, 536 kc/s (560 m.); and Kiel, 1,220 kc/s (246 m.).

6.0 a.m.—Programme from the Port of Hamburg. Chimes and Concert from the Liner Deutschland, of the Hamburg-America Line.

7.15 a.m.—Time Signal.

7.20 a.m.—Meteorological Report.

7.22 a.m.—(approx.).—News Bulletin and Programme Announcements.

7.40 a.m.—Talk on Topical Questions: Hamburg Cathedral.

8.0 a.m.—Talk by Curt Beckeberg:

Orchid Collecting in the Primal Bog-forests of the Columbian Coast.

8.20 a.m.—Morning Recital with Address by the Reverend Tügel.

9.55 a.m. (Kiel and Flensburg only).—Divine Service, relayed from the University Church.

10.0 a.m. (from Bremen).—Talk: Vocational Schools and Society.

10.30 a.m.—Orchestra Concert, relayed from the Café Wallhof.

11.15 a.m.—Programme of Orchestral Selections, Recitations by Willi Karstens and Address by C. H. Müller. Orchestral Selection: Movement from the Suite in B flat major (Bach). Recitations: (a) Höchstes Gebot (Friedrich Hebbel), (b) Mensch zu Mensch (Gerrit Engelke). Address. Recitation: "Das Reich der Schönheit (Heinrich Harl). Trost in der Natur (Leo Blech).

12 noon.—Advent Concert.

1.0 p.m. (from Bremen).—Programme of Fairy Tales by Johanna Siedler, told by Dr. Ernst Pündter. Music by August Klughardt. Choral and Soloist Selections.

1.45 p.m. (from Bremen).—Concert of Fairy Tale Music by the Norag Orchestra. Overture, Rubenzahl (Flotow). Waltz, A Thousand and One Nights (J. Strauss). Oriental Suite, Aladdin (Nielsen). Fairy Tale Suite, Arabian Nights (Bortkiewicz).

2.45 p.m. (from Kiel).—Reading by Dr. Adolf Jess from the Works of Klaus Groth. Selections from (a) Self-knowledge, (b) To my wife, (c) Düsterbrook. Soprano Solos by Emmy Grosskreuz.

3.15 p.m. (from Kiel).—Instrumental Concert with Soprano Solos from the Works of Gustav Jenner, a Schleswig-Holstein Composer (1865-1920). Selections from Manuscripts in the Schleswig-Holstein Collection in Neumünster. Four Songs for Soprano with Violin, Viola, Horn and Pianoforte Accompaniment: "Nachtwache." String Quartet in G minor.

4.0 p.m. (from Flensburg).—Cinar Singing Competition.

4.20 p.m. (from Hanover).—Concert of Viennese Waltzes. Die guten alten

Programmes for Sunday—(Cont.)

Zeiten (Josef Strauss). Idyllen (Joh. Strauss). Neu-Wien (Lanner). Marienwalzer (Jos. Bayer). Weaner Madln (Ziehrer). 5.0 p.m.—Afternoon Concert by the Scarpa Orchestra. 6.30 p.m.—Talk on Physical Culture: Massed Drill. 6.40 p.m.—Sports Notes. 6.55 p.m.—Meteorological Report. 7.0 p.m.—Sunday Concert of Light Orchestral Music. 9.30 p.m.—Talks, News Bulletin, Weather Report, Political and Miscellaneous Announcements, Sports Notes and Local News, and North Sea and Baltic Weather Report. 10.0 p.m.—Orchestral Dance Music.

HILVERSUM (Holland)

1,004 kc/s (298 m.). After 5.40 p.m., 280 kc/s (1,071 m.); 6.5 kw. 7.55 a.m.—8.25 a.m.—Programme of the Algemeene Vereeniging Radio Omroep (A.V.R.O.). 7.55 a.m.—Talk (to be announced). 8.40 a.m.—11.20 a.m.—Programme of the Workers' Radio Society (V.A.R.A.). 11.20 a.m.—4.40 p.m.—A.V.R.O. Programme. 11.20 a.m.—Time Signal. 11.40 a.m.—Talk (to be announced). 12.10 p.m.—Concert by the Radio Octet. Overture, "Titus" (Mozart) Miniature Suite (Rootham). Chant sans paroles (Tchaikovsky). Violin Solo: Meditation from "Thais" (Massenet). Two Spanish Dances (Moszkovsky). Waltz, Nordseebilder (Joh. Strauss). Selection from "Paganini" (Lehar). March, Met z'n achten (Schmidt). 1.40 p.m.—Talk (to be announced). 2.10 p.m.—Concert, relayed from the Concert Hall, Amsterdam. Conductor: Pierre Monteux. After the Concert, Gramophone Records and Sports News. 4.40—7.10 p.m.—Programme of the V.A.R.A. 7.10 p.m.—Talk on Bridge. 7.40 p.m.—Time Signal, Weather and News. 7.55 p.m.—Concert by the Wireless Orchestra. Overture, "William Tell" (Rossini). Dance of the Hours from "La Gioconda" (Ponchielli). Melody (Rubinstein). Waltz from "Eugene Onegin" (Tchaikovsky). Songs: (a) Chrysantheme (Charito), (b) Into the Garden we went (Tolstoi), (c) Gipsy Song. Selections by the Vladimir Pique Trio: (a) Minuet, and (b) Bolero (Pique), (c) Beautiful Eyes (Falbinoff), (d) Ukrainian Song. Selection from "La Traviata" (Verdi-Schreiner). Piano Duets: (a) Georgian Blues (Jean Wiener), (b) Miss Annabelle Lee (Sidney Claire), (c) That's you, Baby (Conrad), (d) Breakaway (Conrad). Donauweibchen (Joh. Strauss). Songs: (a) Man muss alles vom Leben nehmen (Davidoff), (b) Romance (Makaroff). Vladimir Pique Trio: (a) Russian Song, (b) Soldiers' Song. Selection from "The Countess Maritza" (Kalmán). Piano Duets: (a) I can't give you anything but love (McHugh), (b) Three Hungarian Dances—in G minor, F Major and A Major (Brahms). Parade in Marchenwald (Noack). March, Old Conrades (Teike).

10.40 p.m.—Gramophone Records. 11.40 p.m. (approx.)—Close Down. KALUNDBORG (Denmark) Kalundborg Radio. 260 kc/s (1,153 m.); 7.5 kw. Relayed by See Copenhagen Programme. KÖNIGSBERG (Germany) Ostmarken Rundfunk. 1,085 kc/s (276 m.); 2.5 kw. Relayed by Danzig, 662 kc/s (453 m.). 7.55 a.m.—Chimes relayed from Potsdam. 8.0 a.m.—Morning Service. Address by the Reverend Dittmar. Orchestral and Vocal Selections, including Two Advent Hymns. 9.56 a.m.—(Danzig only). Meteorological Report. 10.0 a.m.—Meteorological Report. 10.15 a.m.—East Prussian Manifestation of the Bavarian National Film Society on the occasion of the first Showing of East-Prussian Films in Munich. Address by Dr. Joh. Eckardt, Director of the Bavarian National Film Society and Speech by Dr. v. Siehr, the Oberpräsident of the Province of East Prussia. Recitations and Music. 11.15 a.m. (from Danzig). Orchestral Concert. 12.15 p.m.—(Danzig only). Gramophone Records. 1.0 p.m.—Talk for Chess Players by P. S. Leonhardt.

1.45 p.m.—Talk for Young People by Herr Grützmacher: With Canvas Boat and Tent from Kiel to Copenhagen. 2.15 p.m.—"The Blessed Virgin Mary's Dream"—Advent Play (Margarete Cordes), rendered by the East Prussian Society for Theatricals and Dancing. Stage Manager: Reinhard Leibrandt. 2.50 p.m.—Concert by the Wireless Orchestra, conducted by Leo Borchard. Prelude to "The Mastersingers" (Wagner). Selection from "La Bohème"—Opera (Puccini). Fantasia for Flute and Orchestra: Illusion (Fürstenauf). Soloist: Karl Dünkel. Overture, "Si j'étais roi" (Adam). Suite, Jeux d'enfants (Bizet). Waltz, Roses from the South (Strauss).

4.45 p.m.—(from Danzig). Talk by Police Commissioner Dobiat: Points of Interest in Criminal Jargon. 5.15 p.m.—Review of Books by Dr. Margarete Carow. 5.45 p.m.—(from Danzig). Orchestral Selections of Light and Dance Music. 6.30 p.m.—Talk by Dr. Fr. Corring: Memoirs and Matters of Moment. 7.0 p.m.—Sports Notes and Announcements. 7.15 p.m.—Popular Song Anecdotes—Programme of Orchestral and Soloist Selections with Introductory and Explanatory Words by Dr. M. Kunath. The Wireless Orchestra, conducted by Karl Hrubetz. 9.15 p.m.—Press Report. 9.25 p.m. (approx.)—Sports Notes. 9.30 p.m.—Dance Music relayed from Berlin (Witzleben). 11.0 p.m. (approx.)—Close Down.

LEIPZIG (Germany)

Mitteldeutscher Rundfunk. 1,157 kc/s (259 m.); 1.5 kw. Relayed by Dresden, 941 kc/s (319 m.). 7.0 a.m.—Talk by Dr. A. Arland on Agriculture: Sources of Disease in the Soil. 7.30 a.m.—Organ Recital by Alfred Hottinger, relayed from the Frauenkirche, Dresden. Prelude and Fugue in G Major (Bach). Choral Prelude: Vom Himmel hoch da komm ich her. Variations on Händel's "Tochter Zion, freue dich" (Hottinger). 8.0 a.m.—"A German Christmas Play" arranged with the use of Old Christmas Plays and Songs by Otto Falckenberg. Music by Bernard Stavenhagen. 10.0 a.m.—Talk by Dr. Gerhard Venzmer of Stuttgart: A Journey to the East. 10.30 a.m.—Band Concert by the Band of the Second Battalion of the Eleventh Saxon Infantry Regiment, followed by Meteorological Report and Time Signal. 12 noon.—Programme of Gramophone Record Music. 1.0 p.m.—Topical Talk by Asmus v. Weicher. 1.45 p.m.—Theatrical Review. 2.15 p.m.—Chamber Music Concert by the Genzel Quartet. String Quartet, Op. 42, No. 3 (von Herzogenberg). 2.45 p.m.—Reading of Christmas Selections from the Works of Reinhold Braun. 3.15 p.m.—Concert by Dr. Engelbrecht's Madrigal Choir, Erfurt. 4.0 p.m.—Concert of Operetta Music. Overture, "Donna Juanita" (Koppé). Ernst und Scherz (Szupák). Melodies from "Wo die Lerche singt" (Lehar). March of the Robbers from "Fürstentum Heidelberg" (Millocker). Overture, "The Ace of Hearts" (Künnecke). 5.30 p.m.—Talk by Paul Fiebig: The Dying Year in the Beliefs of the Nations. 6.0 p.m.—Talk: Franz Werfel's "Barbara". 6.30 p.m.—Mandoline Recital: San Giusto (Bietli). Ange eplere (Maciocchi). Tramonto (Sartori). Selections for Mandoline and Pianoforte: (a) Polonaise de Concerto (Marnicelli), (b) Capriccio (Arienzo). Alpenpoesie (Salvetti). La Revista (Sartori). Milena (Maciocchi). La Villanella (Sartori). 7.30 p.m.—"The Confession"—One Act Play after a Short Story by Balzac (Mack). 8.0 p.m.—Orchestral Concert of Waltzes. Invitation to the Dance (Weber). Shadow Dance from "Dinorah" (Meyerbeer). Tanz in der Dorfschenke (Liszt). Waltz from "Romeo and Juliet" (Gounod). Waltz from the Ballet "Sylvia" (Delibes). Parla Waltz

(Arditi). Waltz Scene from "Intermezzo" (R. Strauss). Gasteiner Walzer (Kern). Waltz, Tales from the Vienna Woods (Joh. Strauss). 9.15 p.m.—Time, News, Sports Notes and Dance Music relayed from Berlin (Witzleben). 11.30 p.m. (approx.)—Close Down.

LJUBLJANA (Yugoslavia)

Radio-Ljubljana. 530 kc/s (566 m.); 2.5 kw. 8.30 a.m.—Relay from a Church. 9.0 a.m.—Religious Address. 9.30 a.m.—Agricultural Talk. 10.0 a.m.—Concert by the Station Orchestra. 2.0 p.m.—Talk: The Glasbena Matica. Tournament. 3.30 p.m.—A Popular Play. 3.30 p.m.—Programme of Light Music. 3.30 p.m.—Humorous Reading. 4.0 p.m.—Concert of Light Music. 7.0 p.m.—Programme from Zagreb, 973 kc/s (308 m.). 9.0 p.m.—Time, News, and Dance Music Programme. 10.0 p.m.—To-morrow's Programme Announcements.

MILAN (Italy)

Ente Italiano Audizioni Radiofoniche. 599 kc/s (501 m.); 7 kw. 9.15 a.m.—Wireless Announcements and News. 9.30 a.m.—Reading from the Bible, by Padre V. Facchinetti. 9.45 a.m.—Programme of Sacred Music. 10.15—11.30 a.m.—No Transmission. 11.30 a.m.—Short Concert Programme. 1.0—3.0 p.m.—No Transmission. 3.0 p.m.—A Short Comedy. 3.30 p.m.—Pianoforte Recital by Pia Damerini. Fantasia in C Major (Schubert). 4.40 p.m.—Talk: The Prevention of Accidents. 4.50 p.m.—Sports Results. 5.0—7.0 p.m.—No Transmission. 7.0 p.m.—Government Announcements. 7.15 p.m.—News and Announcements and Cinematograph Review. 7.30 p.m.—Time Signal. 7.32 p.m.—"The King's Daughter"—Opera (Luadi), preceded by Short Introductory Talk by A. Colantuoni. In the First Interval: Talk on History by C. A. Blanche. In the Second Interval: Talk (subject to be announced). 10.30 p.m.—News Bulletin and Announcements. 10.40 p.m. (approx.)—Short Concert Programme. 11.0 p.m. (approx.)—Close Down.

MOTALA (Sweden)

223 kc/s (1,345 m.); 30 kw. See Stockholm Programme.

MÜNCHEN (Germany)

563 kc/s (533 m.); 1.5 kw. Relayed by Augsburg, 536 kc/s (560 m.); Kaiserlautern, 1,112 kc/s (270 m.); and Nürnberg, 1,256 kc/s (239 m.). 9.0 a.m.—Catholic Morning Service. 10.0 a.m.—Town Hall Chimes. 10.10 a.m.—Weather for Farmers. 10.30 a.m.—Third Advent Concert. 11.5 a.m.—Concert of Quartet Music. 12.30 p.m.—Talk: Railway Freight Charges. 1.0 p.m.—Talk on Chess. 1.30 p.m.—Gramophone Records of Sacred Music. 2.30 p.m.—Programme for Women. 2.45 p.m.—Talk: Wilhelm Grimm. 3.15 p.m.—(from Nürnberg)—Orchestral Concert. Overture, "Mignon" (Thomas). Waltz, Tales from the Vienna Woods (Joh. Strauss). Song, Liebesfeier (Weingartner). Selection from "La Traviata" (Verdi-Schreiner). In a Persian Market (Ketybey). 4.50 p.m.—Reading: "Twenty-four Hours in the Life of a Woman"—Short Story (Stefan Zweig). 5.40 p.m.—Trio Concert. Overture, "Lodoiska" (Cherubini). Selection from "The Cid" (Massenet). Cello Solo: Barcarolle from "Glasbläser und Dogarressa" (Reuss). Hochzeitsständchen (Schlagmann). Violin Solo: Prelude (Zimbalist). Waltz, Morgenblätter (J. Strauss). Radetzky March (J. Strauss). 6.35 p.m.—Weather and Sports Notes. 6.40 p.m.—Talk: Flights by Day and Night with the American Aerial Post. 7.5 p.m.—"Die Försterchrisl"—Operetta in Three Acts (Jarno). 9.20 p.m.—News Bulletin. 9.45 p.m.—Concert relayed from the Café Luitpold.

PARIS (France)

Ecole Supérieure (RPTT). 671 kc/s (447 m.); 0.8 kw. 8.0 a.m.—News Bulletin and Time Signal. 9.25 a.m.—International Time Signal and Weather Report.

12.0 noon.—Economic Report of the "Radio Journal de France." 12.30 p.m.—Symphony Concert. 1.30 p.m.—Concert from the Works of Lalo, arranged by the Association Générale des Auditeurs de T.S.F. Romance from the Concerto in F. Arlequin. Norwegian Rhapsody. Selection from "Le Roi d'Ys." 2.30 p.m.—Symphony Concert. 4.30 p.m.—Pasdeloup Symphony Concert. 6.30 p.m.—Radio-Journal de France. 8.0 p.m.—Sports Results. 8.15 p.m.—Talk by M. Salomon. 8.30 p.m.—Talk arranged by the Union des Grandes Associations. 8.45 p.m.—Concert arranged by the Association Générale des Auditeurs de T.S.F., under the direction of Mario Cazes. After the Concert: Late News Bulletin, Time Signal and Weather Report, followed by Dance Music from the Coliseum de Paris. 12 midnight (approx.)—Close Down.

PARIS (France)

Petit Parisien. 914 kc/s (329 m.); 0.5 kw. 11.0 a.m.—"The Radio Mirror"—Transmission of Pictures. 8.45 p.m.—Gramophone Records, Talk and News Bulletin. 9.0 p.m.—Concert by Artistes of the Opéra and Opéra-comique. Overture, "Le Corsaire" (Berlioz). Nocturne from the First Suite (Massenet). International Suite (Tchaikovsky). Suite from "Etienne Marcel" (Saint-Saëns) Mazurka, Op. 50 (Chopin-Glazounoff). Menuet gothique (Boëllmann). Finale from the Norwegian Rhapsody (Lalo). 10.30 p.m.—Transmission of Pictures of Topical Interest. 11.0 p.m. (approx.)—Close Down.

PARIS (France)

Radio-Paris. (CFR). 174 kc/s (1,725 m.); 12 kw. 8.0 a.m.—News Bulletin and Press Review. 8.30 a.m.—Lesson in Physical Culture by Dr. Diffre. 12.0 noon.—Religious Address by the Reverend Father Padé of the Order of the Preaching Friars, followed by Concert of Sacred Music arranged by the "Vie Catholique" with the collaboration of the César Franck Society. 12.45 p.m.—News Bulletin and Press Review. 1.0 p.m.—Concert of Gramophone Records. In the interval, Bilboquet as a Chestnut-Seller. 2.0 p.m.—Concert of Decca Gramophone Records. 3.0 p.m.—Concert from the Salle Gaveau, arranged by the Association des Concerts Lamoureux, and given by the Association des Auditeurs de la Radiodiffusion française. 5.0 p.m.—The Five o'clock Odeon, arranged by the "Industrie Musicale." In the interval, News Bulletin and Press Review. 6.0 p.m.—Agricultural Report and Racing Results. 6.30 p.m.—Concert of Gramophone Records. 7.0 p.m.—Economic Report and News Bulletin. 7.15 p.m.—Gramophone Selections. 7.30 p.m.—Radio-Paris—Guignol. "Les couverts volés" (Valentin), rendered by Bilboquet, Brinche-taye, Hélène Carl and Zecca. In the interval, "Les Jacasseries de Polichinelle." 8.0 p.m.—Radio-Paris Café Concert, arranged by Noveltext with the collaboration of Mlle. Cora Madou and the Composer, Vincent Scotto. The Orchestra under the direction of M. Maurice André. 8.30 p.m.—Sports Review. 9.15 p.m.—Press Review and Longines Time Signal. 10.0 p.m.—Concert by the Revelation Jazz Orchestra.

POSEN (Poland)

896 kc/s (335 m.); 1.2 kw. 9.15—10.45 a.m.—Divine Service from Posen Cathedral. Sermon by the Reverend Kovalsky. The Choir under the direction of the Reverend Gieburowsky. 11.0 a.m.—Time Signal, followed by Chimes from the Town Hall. 11.5 a.m.—Agricultural Talks. 11.45 a.m.—Talk for the Housewife. 12.10—4.0 p.m.—No Transmission. 4.0 p.m.—Gramophone Concert. 4.45 p.m.—Programme for Children by Mr. Sigismond Noskovsky. 5.15 p.m.—Report of the Catholic Association of Polish Youth. 5.30 p.m.—Miscellaneous Items and News Bulletin. 5.50 p.m.—Song Recital by Bogna Miška (Soprano) and Casimir Czechotovsky (Baritone). Baritone Solos: Russian Songs (Mous-

sorsky, Rimsky-Korsakoff, and Rachmaninoff). Soprano Solos: Polish and Italian Songs. 6.40 p.m.—Humorous Talk by Mr. B. Busiakiewicz. 7.0 p.m.—Programme to be announced, relayed from Wilno, 779 kc/s; (385 m.). 7.30 p.m.—Concert by Professor Zdzislaw Jahnke (Violin) and Professor Sigismond Lisicki (Piano). Sonata for Violin and Piano (Schumann). Concerto for Violin (Dvorák). Selections for Piano. In the interval, Literary Programme relayed from Warsaw. After the Programme, Theatre Notes and Programme Announcements. 9.0 p.m.—Time Signal and Sports Notes. 9.30 p.m.—Transmission of Pictures. 10.0 p.m.—Dance Music Programme relayed from the Carlton Restaurant. 11.0 p.m. (approx.)—Close Down.

PRAGUE (Czechoslovakia)

Stranice. 617 kc/s (487 m.); 5 kw. 7.40 a.m.—Talk on Chess. 8.0 a.m.—Programme from the Cathedral, Kosice, 1,022 kc/s; (293 m.). 9.0 a.m.—Agricultural Talk by Karlo Ruuskanen, of the Finnish Legation: Agriculture in Finland at the Present Time. 9.30 a.m.—Talk by Mr. Klínderg: The Progress of the Idea of International Co-operation in Agriculture. 10.0 a.m.—Concert from Belgrade, 699 kc/s; (429 m.). Pathetic Overture (Kristic). Tartar Suite (Adamic). Balkanophonia (Stolzer). The Twilight (Hristic). Arioso (Hristic). Children's Corneo (Hristic). Balkan Suite (Baranovic). 12 (noon).—Gramophone Records. 12.30 p.m.—Talk: The Importance of Healthy Dwellings. 12.40 p.m.—Talk by Dr. Mader: The Rationalisation of Industry and the Interests of the Worker. 3.0 p.m.—Military Band Concert from Brno, 878 kc/s; (342 m.). 4.30 p.m.—Talk: The International Protection of the Worker. 5.0 p.m.—German Transmission—News and Choral Concert. 5.40 p.m.—Sports Notes. 6.0 p.m.—Military Band Concert. 6.45 p.m.—Talk: The Building Industry in Prague. 7.0 p.m.—Orchestral Concert. The Pathetic Symphony in B Minor and Overture—Leonora No. 3 (Beethoven). Selection (Tchaikovsky). 8.0 p.m.—Recital of Popular Songs. 8.30 p.m.—Violin Recital. 9.0 p.m.—Time, News and Sports Notes. 9.15 p.m.—Popular Concert from the Café Lloyd. 9.55 p.m.—News, Theatre Review and Programme Announcements. 10.0 p.m.—Time Signal.

ROME (Italy)

Ente Italiano Audizioni Radiofoniche (IRO). 680 kc/s (441 m.); 2.4 kw. 9.0 a.m.—Concert of Vocal and Instrumental Sacred Music. 9.45 a.m.—12 noon.—No Transmission. 12 noon.—Quintet Concert Relay or in the Studio. 1.0—7.20 p.m.—No Transmission. 7.20 p.m.—News; Announcements and Sports Results. 7.30 p.m.—Press Review. 8.0 p.m.—Time Signal. 8.2 p.m.—Programme from the Works of Mascagni. First Part: "Silvano"—Drama of the Sea, with Music, by the Station Orchestra, and Chorus, and Soloists. In the interval between the First and Second Acts: Maritime Notes by G. Milanesi. Second Part: Fashion Review, by Madama Pompadour. Part 3. The Second Act from the Lyric Comedy—"Le Maschere," by the Station Orchestra and Chorus, and Soloists. News Bulletin and Press Review after the Programme.

TOULOUSE (France)

Radiophonie du Midi. 788 kc/s (381 m.); 8 kw. 1.0 p.m.—Concert arranged by the Dax Radio-Club. First Part. Secular Music. Tamo (Siléus). Quand l'amour meurt (Millodie). Les fleurs que nous aimons (Graen). Vous êtes si jolie (Guedan). Second Part. Sacred Music. La Vierge à la crèche (Lemaire). Te deum (Bruckner). Tu rex (Bruckner). Agnus Dei (Bizet). 1.30 p.m.—Market Prices. 1.40 p.m. (approx.)—Meteorological Report. 1.45 p.m. (approx.)—News Bulletin. 1.50 p.m. (approx.)—Report of the Radio-Agricole Française.

Programmes for Sunday—(Cont.)

2.0 p.m.—Religious Address by the Reverend Pastor Lengereau.
 2.30 (approx.)—6.0 p.m.—No Transmission.
 6.0 p.m.—Dance Music Programme. The Song I love (Brown). Conte d'Alsace (David). Doux secret (Latorre). One-step, Sedibal (Brunest).
 6.15 p.m.—Fifteen Minutes' Talk on French History.
 6.30 p.m.—Dance Music Programme (continued). Foxtrot, I can't (Hog). Futuristic Rhythm (Hog). Waltz, Coquette (Berlin). Raising the Roof (Hug).
 6.45 p.m.—Exchange Quotations.
 6.52 p.m. (approx.)—Racing Results.
 7.0 p.m.—Cello Recital. The Bec (Schubert). Plaisir d'amour (Marti). Abendlied (Schumann). Romance sans paroles (Fauré).
 7.15 p.m.—News Bulletin.
 7.30 p.m.—Dance Music Programme. Avalon Town (Clarke). Selection (Brown). I want to be happy (Youmans). Tango, Blue Skies (Hermann). Foxtrot, Louise (Shiting). Lower come back to me (Romberg). No one else but you (Redmann). Florestilla (Mario Cases).
 8.0 p.m.—Exchange Quotations.
 8.15 p.m.—Chansonette. Recital. L'aimer c'est une folie (Peyronnin). Prends garde, Lisette, (de Buxeuil). Notre Midi (Tarelli). Moonlight of Nice (Gillet). Je n'ai plus de maman (Gillet). Résignation (Negro). La Terrera (Melis). Volvera (Padilla).
 8.45 p.m. (approx.)—Orchestral Selections of Symphony Music. Prelude (Rachmaninoff). Minuet, Le coucou (René). Feuilles d'automne (René). Légende d'après les Elphes (René).
 9.0 p.m.—Concert arranged by L'Association des Commerçants Radio-électriciens du Midi. Deauville (Charbin). Selection (Meister). Chansonette (Piermé). Sonata for Viola da Gamba (Händel). Symphony in C major (Schubert). Impressions d'Italie (Charpentier): (a) Sérénade, (b) A la fontaine, (c) A mule, (d) Sur les cimes, (e) Napoli. Petite Suite (Debussy): (a) En bateau, (b) Cortège, (c) Minuet, (d) Ballet.
 10.15 p.m.—North African News.
 10.30 p.m. (approx.)—Close Down.

TURIN (Italy)

Ente Italiano Audizioni Radiofoniche (ITO). 1,030 kc/s (291 m); 7 kw.
 8.45 a.m.—English Language Lesson. by Professor Bianchetti.
 9.15 a.m.—Wireless Announcements.
 9.30 a.m.—Reading from the Bible, by Don Giocondo Fino.
 9.45 a.m.—Programme of Sacred Music.
 10.15—11.30 a.m.—No Transmission.
 11.30 a.m.—1.0 p.m.—Concert.
 1.0—2.30 p.m.—No Transmission.
 2.30 p.m.—A Light Variety Entertainment.
 3.0 p.m.—A Short Comedy.
 3.30 p.m.—Quintet Concert of Light and Dance Music. Overture. "The Black Domino" (Auber). Dama incipriata (Angiolini). Selection from "The Rose of Stamboul" (Fall). Foxtrot, Warum? (Werner). Tango, Serenata nostalgica (Giachino). Waltz, Muchachas hermosas (Malvezzi). Foxtrot, Pall Mall (Schinelli). One Step, Oibò (Mignone). Slow Foxtrot, Fragola (Mascheroni). Tango, Dimmi perché (Anselmo). Valzer dei fiori (Heutschel). Foxtrot, Savannah (Sullig). L'Andalusiana (Carosio).
 5.0 p.m.—Government Report.
 5.10—6.10 p.m.—No Transmission.
 6.10 p.m.—Sports Notices.
 6.15 p.m.—Dinner Concert. Marcia solenne (Boschi). Spanish Serenade, Seguidilla (Frontini). Valse du soir (Manoni). Bozzetto campestre (Rinaldi). Fantasia, La camera oscura (Billi). Air de ballet (Pomè). Serenata catalana (Peterka). One Step, Zikipaki, zikipà (Mascheroni).
 7.0 p.m.—Agricultural Review.
 7.15 p.m.—Wireless Announcements and News.
 7.30 p.m.—Time Signal.
 7.32 p.m.—Relay of an Opera from Milan, followed by Short Concert. In the interval at 10.30 p.m.—News and Announcements.
 11.0 p.m. (approx.)—Close Down.

VIENNA (Austria)

Radio-Wien. 581 kc/s (516.3 m.); 15 kw. Relayed by Graz, 851 kc/s (352.5 m.); Innsbruck, 1,058 kc/s (283.5 m.); Klagenfurt, 662 kc/s

(453.2 m.); and Linz, 1,220 kc/s (245.9 m.).
 9.30 a.m.—Concert of Sacred Songs for A-cappella-Choir, conducted by Professor Andreas Weissenböck. Psalm for Six-Voice Choir (J. P. Sweelinck, 1562-1621). Motet for Eight-Voice Choir: Komm, Jesu, komm (Bach). Four Selections from "Six Sacred Songs" (Hugo Wolf): (a) Einklang, (b) Letzte Bitte, (c) Ergebung, (d) Erhebung.
 10.10 a.m.—Concert by the Vienna Symphony Orchestra, conducted by Professor Martin Spörr. Symphonic Poem, Die Moldau (Smetana). Pianoforte Solo by Lola Rubinstein: Concerto for Pianoforte in E Flat Major (F. Liszt). Orchestral Songs, rendered by Josephine Stransky: (a) Unvergesslicher Abend (M. W. Ast), (b) Venetian Cradle Song (Marx), (c) Heimkehr vom Felde (Blech). Symphonic Poem, A Summer Night (Brunetti-Pisano). Symphony No. 1 in C Major, Op. 21 (Beethoven).
 2.0 p.m.—Transmission of Pictures.
 2.30 p.m.—Concert by the Wilhelm Wacek Orchestra. Overture, "The Model" (Franz v. Suppé). Wedding Procession to the Minster, from "Lohengrin" (Wagner). Selection for String Instruments and Harp: Märchen (Kozák). Waltz, Sommernacht (Max Keldorfer). Selection from "Tiefend" (d'Albert). Danse diabolique (Hellmesberger). Selections from "Endlich allein" (Lehár). Waltz, Hofballtänze (Johann Straus). Potpourri, from Heidelberg to Barcelona (Borchert). March, Dückelmann (Wilhelm Wacek). In the interval: Song Recital by Stella Eisner, accompanied at the Pianoforte by Rudolf Wallner: (a) Was ist an einem Kuss gelegen from "Der lustige Krieg" (J. Strauss); (b) Yum-Yum's Song from "The Mikado" (Sullivan); (c) Selection from "The Count of Luxembourg" (Lehár); (d) An Old Song (Fritz Kreisler).
 4.30 p.m.—Bruno Ertler Programme. recited by Emerich Reimers. Introductory Talk by Erwin H. Rainalter.
 5.10 p.m.—Travel Talk by Professor Julius Tomaseh: The Psychology of Old America.
 5.50 p.m.—Pianoforte and Vocal

Recital of Chamber Music. Severin Turell (Pianist). Anny Wimmerberger (Vocalist). Pianoforte Solos: (a) Two Preludes (Rachmaninoff), (b) Feu d'artifice (Debussy), (c) Rigoletto-Paraphrase (Liszt-Verdi), (d) Russian Dance (Isserliss). Vocal Selections: (a) Three Short Songs (a) Wherefore? (b) Lullaby, (Tchaikovsky); (c) Hopak (Moussorgsky). String Quartet in C Minor (Viktor Hruby), by the Gottesmann Quartet.
 7.5 p.m.—Time Signal.
 7.6 p.m. (approx.)—Sports Notes and Announcements.
 7.10 a.m.—"A Waltz Dream"—Operetta in Three Acts (Oscar Straus). Phototelegraphy Transmission after the Programme.

WARSAW (Poland)

Polskie Radio 212 kc/s (1,411 m.); 8 kw.
 9.15 a.m.—Programme relayed from the Cathedral, Posen.
 10.58 a.m.—Time Signal, Chimes from the Church of Notre Dame at Cracow, Meteorological Report.
 11.10 a.m.—Symphony Concert organised by the Warsaw Section of the Society for Education and Culture, relayed from the Warsaw Philharmonic Hall. Programme by the Orchestra, conducted by Cas. Wilkonirski, Mme. W. Werminka (Vocalist) and T. Michalowiec (Cello). Slavonic Music. Overture, "The Bartered Bride" (Smetana). Concerto for Cello, with Orchestral Accompaniment (Dvorak). Songs. The Orchestra: (a) Esquisses maritimes (Joteyko). (b) Symphonic Poem, Baba Jaga (Liadoff), (c) Spanish Caprice (Rimsky-Korsakoff).
 1.0 p.m.—The Meeting of the Agricultural Circle.
 1.20 p.m.—Musical Interlude.
 1.30 p.m.—Agricultural Talk: The Cultivation of Sandy Soil.
 1.50 p.m.—Musical Interlude.
 2.0 p.m.—Conclusion of the Meeting of the Agricultural Circle.
 3.0 p.m.—Talk (subject to be announced).
 3.20 p.m.—Gramophone Record Music.
 3.40 p.m.—Talk for Esperanto Enthusiasts.
 3.55 p.m.—Programme of Gramophone Record Music.

4.15 p.m.—"Fourteen Years Ago"—a Story told by Professor H. Moscicki.
 4.40 p.m.—Concert by the State Police Band, conducted by Al. Sielski. Overture, "Iphigenia in Aulis" (Gluck). Fantasia on Themes from "Samson and Delilah" (Saint-Saëns). Ballet Music from "The Prophet" (Meyerbeer). Fantasia on Themes from "Hrabina" (Moniuszko). Mazurka from the Opera "The Haunted Castle" (Moniuszko). The Entry of the Guests, from "Tannhäuser" (Wagner).
 6.0 p.m.—Variety Items by Mr. L. Walter.
 6.25 p.m.—Talk by Mr. Zamoyski: Spain, the Land of Mantillas and Sherry.
 6.40 p.m.—Programme Announcements for Monday, Late Press Review.
 6.58 p.m.—Time Signal.
 7.0 p.m.—Programme relayed from Wilno. 770 kc/s (385 m).
 7.30 p.m.—Popular Concert by the Orchestra, conducted by M. J. Oziminski. Soloists: Ir. Bojanowska (Soprano), Professor J. Dworakowski (Violinist), and Professor L. Urstein (Pianist). Overture, "Ruslan and Ludmilla" (Glinka). Waltz from the Serenade for Strings and Orchestra (Tchaikovsky). Soprano Solos: (a) Aria from the First Act of "Iolanthe" (Tchaikovsky), (b) Aria from "Il piccolo Marat" (Mascagni). Scènes de Ballet (Beriot). Soprano Solos: (a) Le Rossignol (Borg); (b) Sous la fenêtre (Rachmaninoff), (c) Prelude (Bojanowski), (d) Popular Melody (Kamienki). Barcarolle for Violin (Delibes). Träumerei (Schumann). Rococo (Schütt). Mazurka from the Ballet "Noce à Ojów" (Kurpisinski).
 8.10 p.m.—Literary Programme: Legends of Darkest Egypt (Boleslas Prus).
 8.25 p.m.—Concert (continued).
 9.0 p.m.—Talk on Hollywood by Mr. R. Ordynski.
 9.15 p.m.—General News Bulletin.
 9.20 p.m. (approx.)—Meteorological Report.
 9.25 p.m.—Police Announcements.
 9.30 p.m.—Sports Review.
 9.35 p.m.—Press Notes and Announcements.
 10.0 p.m.—Dance Music Programme relayed from the Oaza.
 11.0 p.m. (approx.)—Close Down.

Now you can run your portable off the Electric light!

A.C. or D.C. Mains.

Fits inside ANY Portable

Write to-day for particulars of this new model, also for our FREE Art Booklet "Radio from the Mains" which contains full details of all Regentone products—Mains Receivers, Mains Units, Trickle Chargers, and Mains Components—and includes particulars of our Hire Purchase Terms.

Treat yourself or your best friend to a really useful Xmas Present this year—a Regentone Mains Unit or Trickle Charger.

REGENTONE
 DEPENDABLE MAINS UNITS, AC and DC
 A.C. MAINS RECEIVERS and MAINS COMPONENTS

for Radio from the Mains

A.C. MODEL £4 : 5 : 0
D.C. MODEL £2 : 15 : 0

REGENT RADIO SUPPLY CO. 21, Bartlett's Bldgs, Holborn Circus, London, E.C.4. Telephone CENTRAL 9661

Programmes for Monday—(Cont.)

0 p.m.—Agricultural Report and Racing Results.
 6.30 p.m.—New York Exchange Quotations.
 6.35 p.m.—Concert of Gramophone Records.
 7.30 p.m.—Elementary Book-keeping Lesson.
 7.45 p.m.—Commercial Prices, Economic and Social Notes, News Bulletin and Amusement Guide.
 8.0 p.m.—Concert. "Beyond Human Might"—Drama in Four Acts (Bjornsterne Bjornson), rendered by M. Lugne Poe and his Company. Song Selections. Selections of Chamber Music by the Kretzy Quartet. In the intervals, at 8.30 p.m.—Closing Prices of the American Markets and Sports Results, and at 9.15 p.m.—Press Review, News Bulletin and Longines Time Signal.

POSEN (Poland)

896 kc/s (335 m.); 1.2 kw. Transmits at intervals from 12 noon.
 4.10 p.m.—Lesson in Chess Playing, by Mr. Jean Machalski.
 4.30 p.m.—Posen Regional Programme
 4.45 p.m.—Afternoon Concert. Maria Dabrowska (Soprano), Professor Joseph Pawlak (Organist), Jadwiga Komorowska (Accompanist). First Part: Organ Recital: (a) Concerto for Organ (Handel), (b) Vision (Rheinberger), (c) Chorale (Glaus), (d) Sonata No. 1 (Guilmant). Second Part: Song Recital. Romance (Dvorak). Je t'attends (Chaminade). Two Selections (Skrzydlewsky): (a) Beloved, (b) I love you. Three Selections: (Nievadomsky): (a) The Sun, (b) The Bells, (c) Veni Creator.
 5.45 p.m.—Miscellaneous Items.
 6.0 p.m. (approx.)—General News.
 6.5 p.m.—Humorous Talk by Mr. Busiakiewicz.
 6.30 p.m.—Talk by Mr. Bresinsky on Wireless Technique.
 6.50 p.m.—Talk by Mr. Stanislas Wasylevsky: A Brief Return to the Past.
 7.5 p.m.—Humorous Talk.
 7.30 p.m.—Evening Concert, relayed from Warsaw. Henri Marteau (Violinist). During the intervals: Theatre Notes and Programme Announcements for the following Day.

9.0 p.m.—Time Signal.
 9.2 p.m.—News Bulletin.
 9.10 p.m. (approx.)—Sports Notes.
 9.15 p.m.—Wireless Photography.
 9.45 p.m.—Dancing Lesson by Mlle. Vala Jennings.
 10.10 p.m. (approx.)—Close Down.

PRAGUE (Czechoslovakia)

Strasnice. 617 kc/s (487 m.); 5 kw. Transmits at intervals from 10.15 a.m.
 3.30 p.m.—Programme from Bratislava.
 4.25 p.m.—German Transmission: News Bulletin and Talk by Dr. Gutwinsky; Praded and Snezka, two of the highest Mountains of Moravia and Bohemia.
 5.0 p.m.—Technical Wireless Talk.
 5.10 p.m.—Talk for Working Women.
 5.20 p.m.—English Language Lesson, relayed from Brno, 878 kc/s; (342 m).
 6.0 p.m.—Time Signal.
 6.2 p.m.—News, Press Review.
 6.5 p.m.—Programme from Bratislava.
 7.0 p.m.—Cabaret Programme from Brno, 878 kc/s; (342 m).
 8.30 p.m.—Piano Recital by Professor E. Kalix. Moonlight (Novak). Mazurka in A minor (Chopin). Waltz in G flat major (Chopin). Fantasia (Chopin-Liszt). Furiant (Smetana).
 9.0 p.m.—Time Signal.
 9.1 p.m.—Sports Notes and News Bulletin.
 9.15 p.m.—Programme of Gramophone Record Music.
 9.55 p.m.—News Bulletin, Theatre Review and Sports Announcements.
 9.50 p.m.—Time Signal.

SCHENECTADY (U.S.A.)

General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kw. Relayed at intervals by W2XAF on 15,340 kc/s (31.48 m.) and W2XAD on 15,340 kc/s (19.56 m). Transmits at intervals from 11.45 a.m.
 10.30 p.m.—News Items, Produce Market Report, Farm Forum and Exchange Quotations.
 5.59 p.m.—Time Signal.
 11.0 p.m.—Dinner Music relayed from the Hotel van Curler, Schenectady, N.Y.
 12.15 a.m.—Weather Forecast.

12.24 a.m. (Tuesday).—Talk on Eye Health.
 12.20 a.m.—Time Signal.
 12.30 a.m.—Visits with Poets of Farm and Home.
 12.45 a.m.—Steeffel Brothers' Programme.
 1.0 a.m.—Voice of Firestone, relayed from New York.
 1.30 a.m.—The A. and P. Gipsies, relayed from New York.
 2.30 a.m.—The General Motors Family Party, relayed from New York.
 3.30 a.m.—Weather Forecast.
 3.32 a.m.—The Salon Singers, relayed from New York.
 4.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiojant (SASA). 689 kc/s (436 m.); 1.5 kw. Relayed by Boden, 250 kc/s (1,200 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 223 kc/s (1,345 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m). Transmits at intervals from 6.15 a.m.
 5.30 p.m.—Cabaret Music.
 6.10 p.m.—Programme for Women.
 6.30 p.m.—Talk in English.
 7.0 p.m.—Talk: Foreign Politics.
 7.20 p.m.—String Orchestra Concert from Göteborg.
 8.15 p.m.—News and Weather.
 8.40 p.m.—Talk: Auction Bridge.
 9.10 p.m.—Light Music Concert.
 10.0 p.m. (approx.)—Close Down.

TOULOUSE (France)

Radiophonie du Midi. 788 kc/s (381 m.); 8 kw.
 1.0 p.m.—Orchestral Concert of Viennese Music. Emperor Waltz, (Strauss). Die Schwalbe (Strauss). Frühlingstimmen (Strauss). Sérénade d'amour (Waldau). Petite grand'mère (Waldau). Mélisandre (Ener). Swiss Chimes (Picomagili).
 1.30 p.m.—Market Prices.
 1.35 p.m. (approx.)—Weather Report.
 1.37 p.m. (approx.)—News Bulletin.
 1.45 to 6.0 p.m.—No Transmission.
 6.0 p.m.—Concert of Dance Music. Fox-trot, Feeling no pain (Lewistone). Fox-trot, A shady tree (Donaldson). La cigueta de Florida (Canaro). When the morning glories (Fischer).
 6.15 p.m.—Fifteen Minutes Talk on French History.

6.30 p.m.—Dance Music Programme (continued). Tango (Canaro). There'll be some change (Over-Street). Tango, Marcha atras (Delfino). My Syncopated Melody Man (Cox).
 6.45 p.m.—Exchange Quotations.
 6.52 p.m. (approx.)—Racing Results.
 7.0 p.m.—Concert of Vocal Tangos. Escuche (Reina). Cancionero (Aguilar). Selection (Puiteno). Razon (Bianco).
 7.15 p.m.—News Bulletin.
 7.30 p.m.—Dance Music Programme. My New York (Berlin). Tango, Haragan (Delfino). Foxtrot, Blue Baby (Klages). Foxtrot, He's a lazy man (de Sylva). Waltz, Amor que muere (Filiberto). Charleston, Alleluia (Youmans). Tango, Pim, pam, pum (Delfino). Foxtrot, The Whisper Song (Friend).
 8.0 p.m.—Exchange Quotations.
 8.15 p.m.—Orchestral Concert of Symphony Music. Selection from "L'apprenti sorcier" (Dukas). Marche héroïque (Saint-Saëns). Hunting in the Black Forest (Wolter). In a Clockmaker's Shop (Orth). Invitation to the Waltz (Weber). Das Kamin (Strauss). Tales from the Vienna Woods (Strauss). Serenade (Moszkovsky).
 9.0 p.m.—Concert arranged by the Galeries Barbès.
 9.0 p.m.—Concert by the Company Midi-Artistes.
 9.45 p.m.—Recital of Songs. Lydia (Faure). Sonne les matines (Alexandre). L'amour de moi (Tiersso). Tristesse (Tiersso). Whitsun Cantata (Bach). Nocturne (Franck).
 10.15 p.m.—North African News.
 10.30 p.m. (approx.)—Close Down.

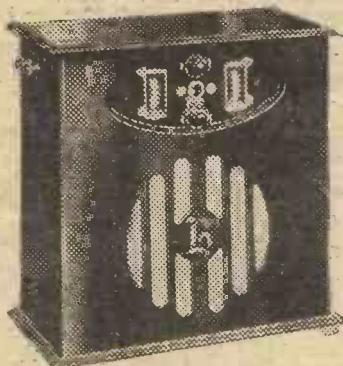
7.0 p.m.—Programme Announcements for Tuesday; News Bulletin and Press Review.
 7.15 p.m.—Musical Bulletin.
 7.30 p.m.—Recital by Henri Marteau, with the collaboration of the Orchestra conducted by J. Oziminski, and Prof. Urstein (Pianist). Overture, "Coriolanus" (Beethoven). Concerto in B Major (Mozart): (a) Allegro, (b) Adagio, (c) Rondo. Rondo brilliant Op. 70 (Schubert). From the Cycle—"Twenty-Four Caprices" (Marteau): (a) Cake Walk, (b) Valse fantasque, (c) Toccata américaine, (d) The Tempest. Fantasia on Themes from "Carmen" (Bizet-Sarasate). During the interval: Theatre Review.
 9.0 p.m.—Talk: My Incorrigibles, by Mme. W. Grabsinska.
 9.15 p.m.—News Bulletin.
 9.20 p.m.—Meteorological Report.
 9.25 p.m.—Police Announcements.
 9.30 p.m.—Sports Results.
 9.35 p.m.—Press Review and Announcements.
 10.0 p.m.—Dance Music Programme relayed from the Oaza.
 11.0 p.m. (approx.)—Close Down.

ZÜRICH (Switzerland)
 Radiostation Zürich. 653 kc/s (459 m.); 0.63 kw.
 3.0 p.m.—Concert from the Carlton Elite Hotel.
 4.15 p.m.—Gramophone Concert of Old Dance Music and Folk Songs.
 4.45 p.m.—Meteorological Report.
 4.55 p.m.—"From Valencia to Sorny Boy"—Talk on the Psychology of the Modern Dance Song with Gramophone Illustrations.
 6.0 p.m.—Talk by R. H. Döring: Goethe and German Youth.
 6.30 p.m.—Time Signal and Meteorological Report.
 6.33 p.m.—Talk by Dr. Max Gurny: Contracts between Employer and Employee.
 7.0 p.m. till Close Down.—Evening Programme arranged by Messrs. Philips' Lamps.
 7.0 p.m.—Symphony Concert, a Pianoforte Solos and Orchestral Works by Beethoven.
 8.0 p.m. (approx.)—Soprano, Tenor and Bass Solos, and Orchestral Selections from "Undine" and "Der Waffenschmied" (Lortzing).
 9.0 p.m.—Weather Report. News Bulletin and Close Down.

WARSAW (Poland)
 Polskie Radio. 212 kc/s (1,411 m.); 8 kw.
 Transmits at intervals from 10.58 a.m.
 3.45 p.m.—Programme of Gramophone Record Music.
 4.15 p.m.—French Language Lesson, by Mr. L. Roquigny.
 4.45 p.m.—Concert of Light Music.
 5.45 p.m.—Miscellaneous Items.
 6.10 p.m.—Answers to Agricultural Correspondents, by Mr. Tarkowski.
 6.25 p.m.—Programme of Gramophone Record Music.
 6.58 p.m.—Time Signal.



Give Radio this Christmas



Brown Receiver
 (complete with Loud Speaker)
 PRICES from
 £9 7 6 to £20 10 0
 (Also in kit-form at slightly lower prices).

Write for FREE Folders to—
 S. G. BROWN, Ltd. (Dept. M.M.),
 Western Ave., N. Acton, London, W.3.

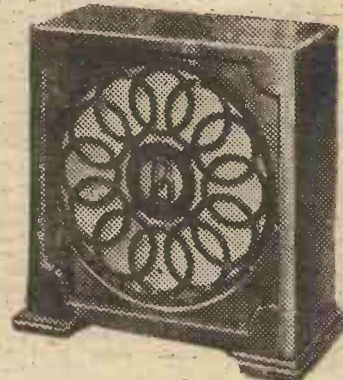
THERE is nothing in Radio that can so eloquently express your Yuletide thoughts as a BROWN Receiver, or a BROWN Duplex Loud Speaker.

Even though you pay considerably more for a Set you can get no better value than the BROWN Receiver. It represents the very best in Radio performance.

If you would give a loud speaker, there is none which can better express your greetings than the new BROWN Duplex Loud Speaker. Its realistic reproduction is unequalled among Loud Speakers.

GIVE

Brown



Brown Duplex Loud Speaker
 Made in three sizes.

V10 - price £5 10 0
 V12 - price £7 10 0
 V15 - price £12 10 0

Programmes for Tuesday—(Cont.)

6.0 p.m.—Agricultural Report and Racing Results.
 6.30 p.m.—New York Exchange Quotations.
 6.35 p.m.—Concert of Gramophone Records.
 7.5 p.m.—Literary Review by M. André Billy: Vers l'autre flamme (Panait Istrati).
 7.20 p.m.—Gramophone Records.
 7.30 p.m.—Elementary English Language Lesson.
 7.45 p.m.—Commercial Prices, Economic and Social Notes, News Bulletin and Amusement Guide.
 8.0 p.m.—Programme arranged by Radio Selection. "Don Quixote"—Opera (Massenet) with the collaboration of Mlle. Dumant and MM. Tubiana and D'Arjac from the Opéra-Comique. The Choir and Orchestra under the direction of M. H. Défosse. In the intervals, at 8.30 p.m.—Closing Prices of the American Markets, Sports Notes, News Bulletin, and at 9.15 p.m.—Press Review and News Bulletin, followed by Longines Time Signal.

POSEN (Poland)

896 kc/s (335 m.); 1.2 kw. Relay on 9,428 kc/s (31.8 m.) from 6.50—9.30 p.m. and 9.45—10.15 p.m. Transmits at intervals from 12 noon.
 4.25 p.m.—Intermediate French Lesson by Mr. Omer Neveux.
 4.45 p.m.—Programme relayed from Warsaw.
 5.45 p.m.—Miscellaneous Items.
 5.55 p.m. (approx.)—General News Bulletin.
 6.5 p.m.—Musical Selections.
 6.30 p.m.—Talk by Professor Vladimir Dvorzacek: Polish Schools Abroad.
 6.50 p.m.—Relay from the Posen Opera House. In the intervals Amusement Guide and Programme Announcements for the following Day.
 9.30 p.m.—Time Signal.
 9.32 p.m.—News Bulletin.
 9.40 p.m. (approx.)—Sports Notes.
 9.45 p.m.—Transmission of Pictures.
 10.15 p.m.—Dance Music Programme relayed from the Café Esplanade.
 11.0 p.m. (approx.)—Close Down.

PRAGUE (Czechoslovakia)

Strasnice. 617 kc/s (487 m.) 5 kw.

Transmits at intervals from 10.15 a.m.
 3.30 p.m.—Orchestral Concert. Overture, "Le roi l'a dit" (Delibes). Adagio and Oriental Serenade (Moor). Ballet Music from "Namouna" (Lalo). Melody (Kubelik). Gavotte in D Major (Popper). Polka and Furiant from "Schwanda the Piper" (Weinberger).
 4.25 p.m.—German Transmission—News Bulletin and Talk.
 5.0 p.m.—Agricultural Report.
 5.10 p.m.—Talk for Workers by Dr. Scholz: Socialist Literature.
 5.20 p.m.—French lesson from Brno 878 kc/s (342 m.)
 6.0 p.m.—Concert by the Pupils of the Klariv Institute for the Blind. Prologue. Overture, "Werther" (Massenet). Selection from "Die Puppenfee" (Bayer). Two Selections (Foerster). Souvenir for Violin and Pianoforte (Drdla). From the Cycle of Songs and Marches (Kricka). Villanella (dell'Acqua). The Native Land, and Songs (Jindrich). March (Pehlik).
 6.45 p.m.—Talk by J. Mühlmann on Winter Sports.
 7.0 p.m.—Concert. Overture, "Jean de Paris" (Boieldieu). Intermezzo from "Tiefeland" (d'Albert). Air from "Margita" (Provaznik). Aria from "Manon" (Massenet). Selection from "L'Africaine" (Meyerbeer). Aria from "Lucia di Lammermoor" (Donizetti). Aria from "La Sonnambula" (Bellini). March (Barvinsky).
 8.0 p.m.—Violin Recital by Professor Schweyda. La Folia (Corelli-Kreisler). Elegy (Mraczek) Zapateado (Sarasate). Two Hungarian Dances (Brahms).
 8.30 p.m.—Pianoforte Recital by E. Schulhoff. Suite for Pianoforte (Haba). Suite for Pianoforte (Poulenc): (a) Presto, (b) Andante, (c) Vivo.
 9.0 p.m.—Time Signal.
 9.2 p.m.—News Bulletin and Sports Notes.
 9.15 p.m.—Dance Music relayed from the Auto Club.
 9.55 p.m.—News; Theatre Review; Programme Announcements.
 10.0 p.m.—Time Signal.

SCHENECTADY (U.S.A.)

General Electric Company (WGY) 790 kc/s (379.5 m.); 50 kw. Relayed at intervals by W2XAF on 9,524 kc/s (31.48 m.). Transmits at intervals from 11.45 a.m.
 10.0 p.m.—Dancing Melodies, relayed from New York.
 10.30 p.m.—News Items. Produce Market Report, Farm Forum and Stock Reports.
 10.59 p.m.—Time Signal.
 11.0 p.m.—Dinner Music relayed from the Hotel Ten Eyck, Albany, N.Y.
 11.55 p.m.—Banking Talk by the National Commercial Bank and Trust Company, relayed from Albany, N.Y.
 12 midnight.—Weather Forecast, followed by General Electric Orchestra Concert.
 12.29 a.m. (Wednesday).—Time Signal.
 12.30 a.m.—Soconyland Sketch, relayed from New York. 1.0 a.m.—Weather Forecast.
 1.2 a.m.—General Electric Concert Orchestra.
 1.30 a.m.—4.30 a.m.—New York Relay.
 1.30 a.m.—Prophylactic Programme
 2.0 a.m.—Everready Hour.
 3.0 a.m.—Clicquot Club Eskimos.
 3.30 a.m.—Radio Keith Orpheu n Hour.
 4.30 a.m.—Organ Recital from the Warner Brothers Theatre, Albany, N.Y.
 5.0 a.m. (approx.)—Close Down.

STOCKHOLM (Sweden)

Radiotjänst (SASA). 689 kc/s (436 m.); 1.5 kw. Relayed by Boden, 250 kc/s (1,200 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 223 kc/s (1,345 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.15 a.m.
 6.10 p.m.—Agricultural Talk.
 6.30 p.m.—Talk: Heliotherapy.
 7.0 p.m.—Orchestral Concert.
 8.15 p.m.—News and Weather.
 8.40 p.m.—Modern German Music.
 10.0 p.m. (approx.)—Close Down.

TOULOUSE (France)

Radiophonie du Midi. 788 kc/s (381 m.); 8 kw.
 1.0 p.m.—Chansonette Recital. La ronde du garde champêtre (Bernio).

Dites-moi, Doumergue (Yvain) Les papillons de nuit (Gabaroché). Une simple poupée (Alet). The environs of Paris (Scotto). Under the lighted lanterns (Zimmermann). Venez avec moi (Lombardo). Un soir à Singapore (Sylviana).
 1.30 p.m.—Market Prices.
 1.40 p.m. (approx.)—Meteorological Report.
 1.42 p.m. (approx.)—News Bulletin.
 1.45 to 6.0 p.m.—No Transmission.
 6.0 p.m.—Concert of Columbia Gramophone Records. Selection from "The Vagabond King" (Friml). Ioldina (Friml). Hymn to the Sun from "Coq d'Or" (Rimsky-Korsakoff). Slavonic Dance (Dvorák). Tarantelle (Grovelez). Lamento (Grovelez). Souvenirs (Nicholls).
 6.30 p.m.—Dance Music Selections. Charmaine (Rapee). Annie's Blues (Huri). Selection (Padilla) Rêve d'amour—Parody (Taylor).
 6.45 p.m.—Exchange Quotations.
 6.52 p.m. (approx.)—Racing Results.
 7.0 p.m.—Programme of Recitations. Memoires (Ricou). L'alliance (Bataille). Le vase brisé (Sully Prud'homme). Les Elphes (Lecomte de Lisle).
 7.15 p.m.—News Bulletin.
 7.30 p.m.—Dance Music Programme. Humpty - dumpty (Lewistone). Baltimore (High). Selection (Irtarte). Fox-trot, Barbara (Silar). Tango, Renacimiento (Bachicha). Fox-trot, Thinking of you (Kalmar). Seria seriola (Canaro). Fox-trot, Up in the Clouds (Kalmar).
 8.0 p.m.—Exchange Quotations.
 8.15 p.m.—Orchestral Concert of Operatic Music. Three Selections from "Parsifal" (Wagner): (a) Transformation Music, (b) Prelude, (c) Good Friday Spell. The Entry of the Gods into Valhalla from "The Rhine Gold" (Wagner). Anacréon (Cherubini).
 9.0 p.m.—Concert of Operatic Music, arranged by Philips' Radio. Spring Night Song from "Die Walküre" (Wagner). Elizabeth's Greeting from "Tannhäuser" (Wagner). Four Selections from "The Twilight of the Gods" (Wagner). Four Selections from "Prince Igor" (Borodine). The Legend of the Sage Bush and Boniface's Aria from "Le Jongleur de Notre Dame" (Massenet). Two Selections from "La Favorita" (Donizetti). Two Selections from "La dame blanche" (Boieldieu). March of the First Regiment of Grenadier Guards.
 10.15 p.m.—North African News.
 10.30 p.m. (approx.)—Close Down.

WARSAW (Poland)

Polskie Radio, 212 kc/s (1,411 m.); 8 kw. Transmits at intervals from 10.58 a.m.
 4.15 p.m.—Literary Talk: Among the Books, by Mr. F. Burdecki.
 4.45 p.m.—Popular Concert by the Orchestra, conducted by J. Oziminski. Soloists: Mme. Al. Rudnicka (Vocalist) and Professor L. Urstein (Pianist). The Orchestra: (a) Caneyale, (b) In song, (c) Vite nel bosco (Montenaro). Songs with Pianoforte accompaniment: (a) Laurette's Aria from "Gianni Schicchi," (b) Mimi's Aria from "La Bohème" (Puccini). Selection from "Carmen" (Bizet). Songs: (a) Ninna nanna (Brogli), (b) Ouvrez tes yeux bleus (Massenet), (c) Serenade (Gounod). The Orchestra: (a) Prelude and March from "Déjanire" (Saint-Saëns), (b) Mazurka, No. 2 (Godard), (c) March from "The Queen of Sheba" (Gounod).
 5.45 p.m.—Miscellaneous Items to be announced.
 6.10 p.m.—Agricultural Exchange Rates.
 6.50 p.m.—Relay of an Opera from Posen. During the interval: Weather Report, Sports Results, Police Announcements, Late News Bulletin and Press Review.

ZURICH (Switzerland)

Radiostation Zürich. 653 kc/s (459 m.); 0.63 kw. Transmits at intervals from 10.0 a.m.
 4.15 p.m.—Concert of Gramophone Records.
 4.45 p.m.—Meteorological Report.
 6.30 p.m.—Time Signal and Meteorological Forecast.
 6.33 p.m.—Talk by Herr P. Silberer: Industrial Psychology—The Chief and his Fellow Workers.
 7.0 p.m.—Variety Programme of Students' Songs, Whistling, Xylophone and Pianoforte Solos and Orchestral Music.
 9.0 p.m.—Weather Report, News Bulletin and Close Down.



They all place Polar behind their panels

When it is a question of efficiency and economy there is no condenser more worthy of being placed behind your panel than the Polar No. 3.

It is highly efficient on normal and ultra short-wave reception. It is low in price and it economises on space because its overall size is only 3½ in. wide when fully open and 2¼ in. deep behind panel. One hole fixing.

Constructed entirely of chemically cleaned hard brass. Perfect electrical contact at all points. Smooth yet precise action. Robustly built throughout.

Note: Knob-dial, or dial as illustrated which matches that used on Polar "Ideal," 1/- extra:

YOU WILL BE PLEASED WITH POLAR BEHIND YOUR PANEL

WINGROVE & ROGERS, Ltd., 188-9, Strand, London, W.C.2
 Polar Works: Mill Lane, Old Swan, Liverpool.

Get a copy of the Polar Catalogue.

Polar No. 3

Programmes for Wednesday—(Cont.)

6.0 p.m.—Agricultural Report and Racing Results.
 6.30 p.m.—New York Exchange Quotations.
 6.35 p.m.—Concert of Gramophone Records.
 7.5 p.m.—Talk arranged by the "Revue des Deux Mondes."
 7.20 p.m.—Gramophone Selections.
 7.30 p.m.—Elementary German Language Lesson by M. Denis.
 7.45 p.m.—Commercial Prices, Economic and Social Notes, News Bulletin and Amusement Guide.
 8.0 p.m.—Programme arranged by "Radio Magazine." "Werther"—Opera (Massenet) with the collaboration of Mlles. Terka-Lyon and Andrée Vavon and M. Michelotti from the Opéra-Comique, and M. Couzinou from the Opéra. In the intervals, at 8.30 p.m.—Closing Prices of the American Markets and Sports Review, and at 9.15 p.m.—Press Review, News Bulletin and Longines Time Signal.
POSEN (Poland)
 896 kc/s (335 m.); 1.2 kw. Transmits at intervals from 12 noon.
 3.55 p.m.—Talk in French.
 4.15 p.m.—Programme for Children by Uncle Czesio.
 4.45 p.m.—Surprise Programme.
 5.45 p.m.—Miscellaneous Items.
 5.55 p.m. (approx.)—General News Bulletin.
 6.5 p.m.—Humorous Talk by Mr. Busiakiewicz.
 6.25 p.m.—Programme of Recitations by Professor Oscar Zawrocki.
 6.45 p.m.—Weekly Report by the Editor (Z. Kosidovsky) of the Paper, "Tydzien Radjowy."
 7.5 p.m.—Talk by Mr. Werner: The Cinematograph.
 7.30 p.m.—Concert arranged by Messrs. F. Lisiecki. The Band of the 57th Regiment, conducted by Mr. Jaroslaw Vorel. Irena Felicka (Soprano). Kajetan Kopczynski (Baritone). Jadwiga Komorowska (Accompanist). Band Selections: (a) March, Electra (Leopold). (b) Pearls of the Danube (Vollstädt). Baritone Solos: Songs of Danielevsky and Studzinsky. Soprano Solos: Songs by Bialkiewiczovna, Zavadzki and Zarzycki. Band Music: Selections from "The Bartered Bride" (Smetana). Baritone Solos: Songs by Nievadomsky and Kurpinsky. Band Music:

Waltz, The Mountain Dwellers (Ziehrer). Soprano Solos: Three Songs by Lehar. Band Music: March (Knoch). In the intervals: Theatre Notes, and Programme Announcements for the following day.
 9.0 p.m.—Time Signal.
 9.2 p.m.—News Bulletin.
 9.10 p.m.—Sports Notes.
 9.15 p.m.—Wireless Photography.
 9.45 p.m.—Dance Music Programme, relayed from the Carlton Restaurant.
 11.0 p.m. (approx.)—Close Down.
PRAGUE (Czechoslovakia)
 Strasnice. 617 kc/s (487 m.); 5 kw. Transmits at intervals from 10.15 a.m.
 3.30 p.m.—Programme for Children. A Puppet Show and a Christmas Play.
 4.25 p.m.—German Transmission: News Bulletin and Talk for Workers.
 5.0 p.m.—Agricultural Report.
 5.10 p.m.—Talk for Workers: Travels through Germany.
 6.0 p.m.—Time Signal.
 6.2 p.m.—News Bulletin.
 6.5 p.m.—Popular Concert of Band Music.
 7.0 p.m.—German National Evening relayed from Berlin (Witzleben), 716 kc/s; (418 m.)
 9.0 p.m.—Time Signal.
 9.2 p.m.—News Bulletin and Sports Notes.
 9.15 p.m.—Press Review, Theatre Notes and Programme Announcements.
SCHENECTADY (U.S.A.)
 General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kw. Relay at intervals by W2XAD on 15,340 kc/s (19.56 m.).
 11.0 p.m.—Dinner Music from the Hotel de Witt Clinton Albany N. Y.
 11.59 p.m.—Talk on Health.
 11.59 p.m.—Weather Forecast.
 12 midnight.—Jeddo Highland Coal Programme, relayed from New York.
 12.30 a.m. (Thursday).—Time Signal.
 12.32 a.m.—Rudolph Jewelry Stores Programme.
 1.30—3.30 a.m.—New York Relay.
 3.30 a.m.—General Electric Programme.
 4.0 a.m.—Weather Forecast.
 4.5 a.m.—Dance Music Programme

relayed from the Hotel Ten Eyck, Albany, N. Y.
 5.0 a.m. (approx.)—Close Down.
STOCKHOLM (Sweden)
 Radiotjänst (SASA). 689 kc/s (436 m.); 1.5 kw. Relay by Boden, 250 kc/s (1,200 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 223 kc/s (1,345 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.).
 Transmits at intervals from 6.15 a.m.
 6.15 p.m.—Talk: The Care of the Sick.
 6.45 p.m.—Military Band Concert.
 7.45 p.m.—Talk: Current Events.
 8.15 p.m.—News and Weather.
 8.40 p.m.—Scenes from Goethe's "Faust."
 9.30 p.m.—Dance Music.
 10.30 p.m. (approx.)—Close Down.
TOULOUSE (France)
 Radiophonie du Midi. 788 kc/s (381 m.); 8 kw.
 1.0 p.m.—Concert arranged by the Tarn-et-Garonne Radio-Club. We two (Hermann). Violin Tzigane (Mario Cazes). Aime-moi (Mario Cazes). Si vous saviez ce que je sais (Borel-Clerc). Tu m'avais dit: "Je t'aime" (Raiter). Una tarde (Feratzano). Patadura (Soutello). A quel muchacho (Grandis).
 1.30 p.m.—Market Prices Report.
 1.35 p.m. (approx.)—Meteorological Report.
 1.37 p.m. (approx.)—News Bulletin.
 1.45—6.0 p.m.—No Transmission.
 6.0 p.m.—Dance Music Programme. Selection (Brunest). Tango, Mandarin (Canaro-Ricardi). Foxtrot, For You (Brunest). Tango, Se va la lancha (Donato).
 6.15 p.m.—Fifteen Minutes' Talk on French History.
 6.30 p.m.—Dance Music Programme. Foxtrot, La-bas (Gouin). Era de lay (Carmona). Tu m'avais dit: "Je t'aime" (Raiter). Parody on "Carmen" (Cole).
 6.45 p.m.—Exchange Quotations.
 6.53 p.m. (approx.)—Racing Results.
 7.0 p.m.—Accordion Recital. Reine de musette (Vacher). Les triolets (Vacher). Cagliarda (Schmit). Toccata (Boellmann).
 7.15 p.m.—News Bulletin.
 7.30 p.m.—Concert of Dance Music. Foxtrot, My heart stood still (Rodgers). Since my best gal turned me down (Quicksell). Tango, L'âme de ma guitare

(Bianco). Foxtrot, Sorry. Tango, Adoration (Bianco). Mobile Blues (Short). Tango, A contramano (Trissuire). I wish I could (Piron).
 8.0 p.m.—Exchange Quotations.
 8.15 p.m.—Concert. Roses of the South (Strauss). Morgenblätter (Strauss). Kiss Waltz (Strauss). Carolina Moon (Burek). Sweetheart (Lombardo). Love Dream of Lula (White). Hawaiian Sweetheart (Costello). Lorraine (Sombrun). Souvenir de Rouen. Sentimental (Arioto). Selection (Bukieri).
 9.0 p.m.—Concert arranged by the Galeries Barbès. Orchestral Selections of Symphony Music. Symphony in C Major (Schubert). Selection from "Messidor" (Bruneau). Marche joyeuse (Chabrier). Bourrée fantasque (Chabrier). Sicilian Vespers (Verdi). Spanish Caprice (Rimsky-Korsakoff). The Flight of the Bumble-bee (Rimsky-Korsakoff). Sphärenklänge (Strauss). Chinese Serenade (Wiede). Japanese Lanterns. The Fair at Sorochinsk (Moussorgsky). Petite musicienne.
 10.15 p.m.—North African News.
 10.30 p.m. (approx.)—Close Down.
WARSAW (Poland)
 Polskie Radio. 212 kc/s (1,411 m.); 8 kw.
 Transmits at intervals from 10.58 a.m.
 4.45 p.m.—Orchestral Concert. Conductor: Mr. J. Oziminski. Oriental Fantasia, Tosca (Gomez). Two Selections (Billi): (a) Intermezzo, Arabian Nights, (b) Fantasia, Tripoli. Two Waltzes (Zanella). Musical Scenes (Cantarini): (a) C'era una volta, (b) Ai tombi di Madame Pompadour, (c) Ceres, (d) Il carillon della nonna, (e) Waltz, Nei giardini di una picola fata. Andalusian Serenade (Culotta). Rapsodia romanesca (Carbella). Mia rondinella (Cartosio).
 5.45 p.m.—Miscellaneous Items.
 6.10 p.m.—Answers to Correspondents on Agricultural Questions by Mr. Tarkovsky.
 6.25 p.m.—Concert of Gramophone Music.
 6.40 p.m.—Wireless Notes by Dr. Stepovsky.
 6.58 p.m.—Time Signal.
 7.0 p.m.—Talk by Mr. Makarczyk: Old Jerusalem and Modern Tel-Aviv.
 7.15 p.m.—Concert of German Music,

with Introductory Talk. Instrumental Quintet, Mme. R. Benzeff and Professor L. Urstein (Pianists), Mme. J. Gluzinska-Makuszynska (Soprano). Quintet in E Flat Major for Pianoforte, Op. 44 (Schumann). (a) Allegro brillante (b) In modo d'una marcia, (c) Scherzo, (d) Allegro ma non troppo, by Mr. E. Uminskaja-Jaworska (First Violin); Mr. Kurzatkowski (Second Violin); Mr. T. Jaworski (Viola); Mr. C. Blaschke ("Cellist"); and Mme. Benzeff (Pianist). Soprano Solos (Johannes Brahms): (a) Im Frieden, (b) Koketterie, (c) Einsamkeit. Pianoforte Solos by Mme. Benzeff (Johannes Brahms): (a) Intermezzo in E Flat Minor, (b) Ballad in C Minor, (c) Waltz, (d) Rhapsody in E Flat Major, Op. 119. Two Soprano Solos (Richard Strauss). Soprano Solo: Wiegelnied (Reger).
 9.10 p.m.—News Bulletin.
 9.15 p.m. (approx.)—Meteorological Report.
 9.20 p.m. (approx.)—Police and Sports Notes.
 9.25 p.m.—Press Review.
 10.0 p.m.—Dance Music, relayed from the Hotel Bristol.
 11.0 p.m. (approx.)—Close Down.
ZÜRICH (Switzerland)
 Radiostation Zürich. 653 kc/s (459 m.); 0.63 kw.
 Transmits at intervals from 10.0 a.m.
 3.0 p.m.—Orchestral Concert from the Carlton Elite Hotel.
 4.15 p.m.—Programme for Children.
 4.45 p.m.—Meteorological Report and Market Prices Report given by the Swiss Peasants' Association.
 4.55 p.m.—Programme arranged by the Swiss Authors' Society: Readings (a) "Der Brand des Hannibal"—Short Story (Albin Zollinger), (b) Poems, and (c) "Die Entlassung"—Short Story. Gramophone Records to follow.
 6.0 p.m.—Talk by Dr. Messeke, arranged by the Central Institute of Hygiene: The Regulation of Temperature and the Avoidance of Chills and Pyrexia.
 6.30 p.m.—Time Signal and Meteorological Report.
 6.33 p.m.—Talk by Dr. Ernst Aeppli: The World as conceived by the Romantics.
 7.0 p.m.—Programme from Stuttgart, 833 kc/s (360 m.). German Evening by the V.I.R.

Motorists! 33 $\frac{1}{3}$ % instead of 10%

Are you a careful driver? You are! Then do you receive 33 $\frac{1}{3}$ %. 'No Claims' bonus from us or only 10% from another company?

We allow 33 $\frac{1}{3}$ % bonus reduction to new proposers who have been insured with any office for the previous twelve months without making a claim. Post the coupon now!

This offer is made to motorists by the

NATIONAL EMPLOYERS' MUTUAL GENERAL INSURANCE ASSOCIATION LTD.

an organisation now consisting of over 40,000 members with assets exceeding £500,000, established in 1914 for the purpose of providing its own members with insurance protection at actual net cost. There being no shareholders, every Policy-holder is part owner.

Post this Coupon NOW!

To NATIONAL EMPLOYERS' MUTUAL GENERAL INSURANCE ASSOCIATION LIMITED.

Head Office: 10, St. Mary Axe, London, E.C.3.

Please send me, without any obligation on my part, particulars of the "Careful Drivers" Motor Policy.

NAME.....

ADDRESS.....

State H.P..... Value..... Policy Expiry Date..... 1929

Programmes for Thursday—(Cont.)

PARIS (France)

Radio-Paris. (CFR). 174 kc/s (1,725 m.); 12 kw. 6.45 a.m.—Lesson in Physical Culture by Dr. Diffre. 7.30 a.m.—Physical Culture Lesson (continued). 8.0 a.m.—News Bulletin and Press Review. 10.45 a.m.—Exchange Quotations and News Bulletin. 12 noon.—Protestant Address by the Reverend Freddy Durrlemann : How to read the Gospels. 12.30 p.m.—Symphony Concert of Gramophone Records. Second Movement from the Ninth Symphony (Beethoven). Selections from "Faust" (Gounod): (a) The Golden Calf, (b) Mephistopheles' Serenade. Overture, "The Mastersingers" (Richard Wagner). Spring Song (Mendelssohn). Selection from "Samson and Delilah" (Saint-Saëns). Une évangile (E. Coppé). Les Sapiens (Pierre Dupont). La Toussaint (Lacôme). Selection from "Die Fledermaus" (Johann Strauss). Russian Barcarolle from "The Bat" (Vaslanioff). In the interval at 1.0 p.m.—Exchange Quotations and News Bulletin. 2.0 p.m.—Exchange Quotations and Market Prices. 3.30 p.m.—Exchange Quotations. 3.45 p.m.—Programme of Dance Music. 4.15 p.m.—Programme for Children, organised and presented by Mme. Suzanne de Sainte-Croix with the assistance of Mme. Madeleine Morland: The History of Dolls. 4.55 p.m.—News, Market Prices and Exchange Quotations. 6.0 p.m.—Agricultural Report and Racing Results. 6.30 p.m.—New York Exchange Quotations. 6.35 p.m.—Concert of Gramophone Records. 7.5 p.m.—Talk arranged by the "Revue des Deux Mondes." 7.20 p.m.—Gramophone Selections. 7.30 p.m.—Elementary Book-keeping Lesson. 7.45 p.m.—Commercial Prices, Economic and Social Notes, News Bulletin and Press Review, followed by Amusement Guide.

8.0 p.m.—Concert. Historical Documents: "The Provisory Government of 1848"—after Documents collected by M. René Arnaud, interpreted by M. Roger Monteaux of the Comédie Française and his Company. Song Selections. Selections of Chamber Music. In the intervals, at 8.30 p.m.—Closing Prices of the American Markets and Sports Results, and at 9.15 p.m.—Press Review and News Bulletin, followed by Longines Time Signal.

POSEN (Poland)

806 kc/s (375 m.); 1.2 kw. Transmits at intervals from 11.0 a.m. 4.15 p.m.—Programme for Soldiers, by Captain Gustave Baumfeld. 4.30 p.m.—Talk by Mr. R. Fengler: Economic Life. 4.45 p.m.—Programme from Warsaw. 5.45 p.m.—Miscellaneous Items. 5.55 p.m. (approx.)—General News Bulletin. 6.5 p.m.—Review of Books, by Mr J. E. Skivsky. 6.20 p.m.—Agricultural Talk. 6.40 p.m.—Answers to Agricultural Correspondents. Talk by Mr. Joseph Rzakovsky. 7.0 p.m.—Elementary French Lesson by Mr. Omer Neveux. 7.30 p.m.—Concert of German Music. Nadjieja Padlewska (Pianist). Felicia Kryszewiczowa (Soprano). Professor François Lukasiewicz (Accompanist). Programme: Pianoforte Solo: Chaconne in D minor (Bach-Busoni). Soprano Solos: (a) Aria from "The Marriage of Figaro," (Mozart). (b) Aria from "Fidelio" (Beethoven). Pianoforte Solos: (a) Theme and Variations in F minor (Haydn), (b) Rondo in G major, Op. 129 (Beethoven). Soprano Solos: Songs by Hugo Wolff, Brahms and Richard Strauss. 8.30 p.m.—Posen Programme, relayed by all the other Polish Stations. In the intervals Amusement Guide and Programme Announcements for the following day. 9.15 p.m.—Time Signal. 9.16 p.m.—News Bulletin. 9.25 p.m. (approx.)—Sports Notes. 9.30 p.m.—Wireless Photography. 10.0 p.m. (approx.)—Close Down.

PRAGUE (Czechoslovakia)

Strasnice. 617 kc/s (487 m.); 5 kw. Transmits at intervals from 10.15 a.m. 3.30 p.m.—Orchestral Concert of Chamber Music. Quartet in A Major (Borodine). Quartet in G Major (Haydn). 4.25 p.m.—German Transmission. News Bulletin and Reading from the Works of Günther. 5.0 p.m.—Talk for Women: Christmas Presents. 5.10 p.m.—Talk for Workers by Dr. Dejnek: The Czech Sugar Industry. 5.20 p.m.—English Lesson from Brno, 878 kc/s (342 m.) 6.0 p.m.—Time Signal. 6.2 p.m.—News Bulletin. 6.5 p.m.—Military Band Concert. 7.0 p.m.—"My Home"—Play (Milos Kares). 9.0 p.m.—Time Signal. 9.2 p.m.—News Bulletin and Sports Notes. 9.15 p.m.—Concert Programme (Items to be announced). 9.55 p.m.—News Bulletin; Theatre Review and Programme Announcements. 10.0 p.m.—Time Signal.

STOCKHOLM (Sweden)

Radiotjänst (SASA). 689 kc/s (436 m.); 1.5 kw. Relayed by Boden, 250 kc/s (1,200 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 223 kc/s (1,345 m.); Östersund, 380 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.15 a.m. 6.10 p.m.—Agricultural Talk. 6.30 p.m.—Talk in German. 6.50 p.m.—Programme of Readings. 7.20 p.m.—Instrumental and Vocal Concert. 8.15 p.m.—News and Weather. 8.40 p.m.—Talk: In the Wilds of South America. 9.10 p.m.—Operatic Gramophone Records. 10.0 p.m. (approx.)—Close Down.

TOULOUSE (France)

Radiophonie du Midi. 788 kc/s (381 m.); 8 kw. 1.0 p.m.—Orchestral Concert of Symphony Music. Suite, Mother Goose (Ravel). (a) Petit Poucet, (b) Laideronnette, (c) Le Jardin féerique. Fireworks—Tone Picture (Stravinsky). Sarabande (Férand). Air de Ballet (Rameau).

Selection from "The Crown Diamonds" (Barbieri). Amaya (Guridi).

1.30 p.m.—Market Prices. 1.35 p.m. (approx.)—Meteorological Report. 1.37 p.m. (approx.)—News Bulletin. 1.45—6.0 p.m.—No Transmission. For no reason (Trumbauer). 6.0 p.m.—Dance Music Selections. Trumbology (Trumbauer). Tango, Mariposa de cabaret (Scattoso). Away down south in Heaven (Warren). 6.15 p.m.—Fifteen Minutes' Talk on French History. 6.30 p.m.—Dance Music Programme. Tango, Berretin (Laurens). Foxtrot, Among my souvenirs (Leslie). Tango, Barrio viejo (Barbieri). There must be somebody else (Gottler). 6.45 p.m.—Exchange Quotations. 6.50 p.m. (approx.)—News Bulletin. 7.0 p.m.—Programme of Recitations. "The Cat, the Weasel, and the little Rabbit." Printemps nouveau (Victor Hugo). Retour (Grammoujin). Chance (Géraldi). L'ours (Ed. Rostand). 7.15 p.m.—News Bulletin. 7.30 p.m.—Dance Music Programme. Waltz, The Song is ended (Berlin). What can a poor fellow do (Meyers). Pasodoble (Padilla). Tango, Cala...cala... (Solér). Foxtrot, Black and Tan (Miley). He viston tus ojos (Canaro). Foxtrot Who knows (Dixon). 8.0 p.m.—Exchange Quotations 8.15 p.m.—Orchestral Concert of Opera-comique Selections. Prologue, "I Pagliacci" (Leoncavallo). Mimi's Song of Farewell from "La Bohème" (Puccini). Three Selections from "Thais" (Massenet). Selection from "La Basoche" (Messager). Selection from "Madame Butterfly" (Puccini). 8.45 p.m.—Concert arranged by the Radio-Technique Company. Ballet Suite from "Coppélia" (Delibes). (a) Introduction and Waltz, (b) Mazurka, (c) Violin Solo: Ballad, (d) Scene and Waltz, La Poupeé. Slavonic Theme with Variations. Hungarian Dance. Six Selections from "Lakmé" (Delibes). (a) Prière et chœur d'entrée, (b) Pourquoi dans les grands bois, (c) C'est le Dieu de la jeunesse, (d) C'est l'amour endormi, (e) Dans la forêt près de nous, (f) Tu

m'as donné le plus doux rêve. 9.45 p.m.—Five Selections from "Werther" (Massenet): (a) J'aurai sur ma poitrine, (b) Lorsque l'enfant revient, (c) Je ne sais si je veille, (d) Air des larmes, (e) Prière. Six Selections from "Mignon" (Thomas): (a) Connais-tu le pays, (b) Elle est aimée (c) Duo des hirondelles, (d) As-tu souffert, astu pleuré... (e) Berceuse, (f) Adieu, Mignon, courage. Rosina's Aria from "The Barber of Seville" (Rossini). 10.15 p.m.—North African News. 10.30 p.m. (approx.)—Close Down.

WARSAW (Poland)

Polskie Radio. 212 kc/s (1,411 m.); 8 kw. Transmits at intervals from 10.58 a.m. 4.15 p.m.—Review of Books—A Criticism of the latest publications by Professor H. Moscicki. 4.45 p.m.—Instrumental Concert of Chamber Music. Mme. J. Wysocka (Pianist). T. Goclovsky ("Cellist"). T. Ochlewsky, S. Tawroszewicz, and X. Zygodlo (Violinists). Second Suite in G Minor for Three Violins, 'Cello and Pianoforte (Telemann). Concerto in F Major for Two Violins and Pianoforte (Vivaldi). V'la ce que c'est que d'aller au bois—16th Concerto comique for Three Violins, 'Cello and Pianoforte: (a) Allegro 5.45 p.m.—Miscellaneous Items—Variety Programme by Mr. Kzewinski. 6.10 p.m.—Market Price Quotations. 6.25 p.m.—Concert of Gramophone Music. 6.58 p.m.—Time Signal. 7.0 p.m.—Programme Announcements for the following day. 7.5 p.m. (approx.)—Late News Bulletin. 7.15 p.m.—Talk by Mr. St. Mar: Rare Jewels which still exist. 7.30 p.m.—Concert of Light Music, Theatre Notes in the interval. 8.30 p.m.—Programme relayed from Posen. 9.15 p.m.—News Bulletin. 9.20 p.m. (approx.)—Meteorological Report. 9.25 p.m. (approx.)—Police and Sports Notes. 9.35 p.m.—News Bulletin. 10.0 p.m.—Dance Music, relayed from the Oaza Restaurant. 11.0 p.m. (approx.)—Close Down.

CHRISTMAS CANDLES

"All ye who Christians be, Oh, light my tiny candle here for me, It has gone out, I am not very old, And as I travelled in the cold A bitter wind with all his might Blew, and put out my little light.

"All ye who Christians be, Will ye not list to me, Who have so often prayed I might not be afraid? I am a little frightened—can't you see? Oh, light my little candle here for me." EDNA NORMAN (By permission).

THE BITTER WINDS OF ADVERSITY HAVE LEFT MANY LITTLE ONES IN DARKNESS. DURING THE YEAR 762 SUCH CHILDREN HAVE BEEN RECEIVED INTO THE CHILDREN'S HOME AND THERE IS STILL A

WAITING LIST OF 120 MORE

FOR WHOM WE MEAN TO FIND A HOME BEFORE CHRISTMAS

WILL YOU LIGHT A CANDLE

By sending Five Guineas to secure Immediate Admission for "One of These Little Ones"?



To the Rev. W. HODSON SMITH, Principal NATIONAL CHILDREN'S HOME AND ORPHANAGE (Founded by Dr. Stephenson) 30 BRANCHES 4000 CHILDREN Chief Offices: HIGBURY PARK, LONDON, N.5. Please LIGHT A CANDLE for me by taking a child into the Home from the

Waiting List. I enclose Five Guineas, and should be glad to have some particulars of the child received.

Name

Address

General Treasurers: Sir Charles C. Wakefield, Bart., C.B.E.; Sir Thomas Barlow, Bart., M.D., F.R.S.

WHAT IS IT?

that TURNS HUGE LOSSES INTO GAINS. that INCREASES OVERALL AMPLIFICATION. that PUTS IN TRUE BASS WITHOUT BOOM. that CAUSES AN APPRECIABLE STRENGTHENING OF THE HIGHER NOTES. that IMPROVES REPRODUCTION BEYOND BELIEF OVER THE WHOLE MUSICAL SCALE. that RESULTS IN A BRILLIANCE OF REPRODUCTION NEVER BEFORE OBTAINED.

THE NOVOTONE COMPENSATOR

This marvellous invention of Dr. N. McLachlan makes good electrically (without the use of extra valves or other apparatus) all the huge losses which are inherent in records, pick-ups and amplifiers, and thereby makes possible for the first time realistic reproduction of records.

EVERY USER OF AN ELECTRICAL PICK-UP SHOULD ASK HIS DEALER TO DEMONSTRATE THE NOVOTONE

NOVOTONE COMPENSATOR BOOKLET "W.R" FREE ON REQUEST

GAMBRELL RADIO LTD.,

6, BUCKINGHAM STREET, STRAND, LONDON, W.C.2.

Programmes for Friday—(Cont.)

(Mendelssohn). Orchestral Selection: Suite carnavalesque (Thomé-Domergue). 4.55 p.m.—News Bulletin, Market Prices and Exchange Quotations. 6.0 p.m.—Agricultural Report and Racing Results. 6.30 p.m.—New York Exchange Quotations. 6.35 p.m.—Gramophone Concert. 7.5 p.m.—Talk arranged by the "Revue des Deux Mondes." 7.20 p.m.—Gramophone Concert (continued). 7.30 p.m.—Advanced English Language Lesson. 7.45 p.m.—Commercial Prices, Economic and Social Notes, News Bulletin and Amusement Guide. 8.0 p.m.—Music Talk by M. Samazeuilh, Composer and Musical Critic: Paul Dukas; with Gramophone Illustrations. 8.30 p.m.—Commercial Prices, Economic and Social Notes, and Sports Review. 8.45 p.m.—Programme arranged by Philips Radio. "Le Roi d'Ys"—Opera (Lalo), with the collaboration of Mmes. Lucy Perelli and Vera Peeters from the Opéra-comique. The Orchestra under the direction of M. H. Défosse. In the interval at 9.15 p.m.—Press Review and News Bulletin, followed by Longines Times Signal.

POSEN (Poland) 896 kc/s (335 m.); 1.2 kw. Transmits at intervals from 12 noon. 4.5 p.m.—Missionary Talk by Madame Dobrzycka: Siberia. 4.25 p.m.—Elementary English Lesson. by Dr. Arend, Lecturer at Posen University. 4.45 p.m.—Gramophone Concert. 5.45 p.m.—Miscellaneous Notes. 5.55 p.m. (approx.)—General News Bulletin. 6.5 p.m.—Talk by Dr. M. Jedlicki of Cracow University: Contemporary France. 6.30 p.m.—Humorous Talk by Mr. B. Busiakiewicz. 6.50 p.m.—Talk by Professor Hany: Czech Poetry. Recitations by Mademoiselle Kleskovna. 7.15 p.m.—Programme from Warsaw.

In the intervals: Amusement Guide and Programme Announcements for the following day. 9.0 p.m.—Time Signal. 9.2 p.m.—News Bulletin. 9.10 p.m. (approx.)—Sports Notes. 9.15 p.m.—Picture Transmission. 9.45 p.m.—Dancing Lesson by Mademoiselle Vala Jennings. 10.10 p.m.—Dance Music Programme, relayed from the Café Esplanade. 11.0 p.m. (approx.)—Close Down.

PRAGUE (Czechoslovakia) Strasnice. 617 kc/s (487 m.); 5 kw. Transmits at intervals from 10.15 a.m. 3.30 p.m.—Concert. Slavonic Rhapsody in A Flat Major, Op. 45 (Dvorak). Ballads, Op. 7, Nos. 1 and 3 (Fibich). Lyric Suite (Brahms). Four Songs from the Cycle—"Frauenliebe und leben" (Schumann). Italian Serenade (Hugo Wolf). 4.25 p.m.—German Transmission: News Bulletin and Talk by Dr. Fielder. 5.0 p.m.—Agricultural Report. 5.10 p.m.—Talk for Workers by Dr. Dejmek: The Czech Sugar Industry. 5.20 p.m.—French Lesson relayed from Brno. 878 kc/s; (342 m). 6.0 p.m.—Time Signal. 6.1 p.m.—News Bulletin. 6.5 p.m.—Gramophone Record Music. 6.45 p.m.—Talk by E. Stan Vraz on Travelling. 7.0 p.m.—Concert of Popular Orchestral Music. 8.0 p.m.—Song Recital by Pixova Dimitriescu. 8.40 p.m.—Violin Recital by Kitty Cervenkova. Three Compositions for Violin and Pianoforte (Jirak): (a) Preamble, (b) Siciliano, (c) Burlesca. Negro Spirituals. 9.0 p.m.—Time Signal. 9.2 p.m.—Sports Notes and News Bulletin. 9.15 p.m.—Press Review, Theatre Notices and Programme Announcements for Saturday. 9.20 p.m.—Introductory Talk to the following Transmission.

9.30 p.m.—Concert of Contemporary Music. Trio for Wind Instruments (Melklich). Quintet (Hindemith). Quintet for Wind Instruments and Pianoforte (Poulenc).

SCHENECTADY (U.S.A.) General Electric Company (WGY). 790 kc/s (379.5 m.); 50 kw. Relay at intervals by W2XAD on 15,340 kc/s (19.56 m.). Transmits at intervals from 11.45 a.m. 12.15 a.m. (Saturday).—Weather Forecast. 12.16 a.m.—Ollie Yettru (Pianist). 12.27 a.m.—Footnotes, by T. Arthur Cohen. 12.29 a.m.—Time Signal. 12.30 p.m.—The Arpeako Minstrels, from Rochester, N.Y. 1.0 a.m.—The General Electric Concert Orchestra. 2.0 a.m.—Ghost Stories, by the W.G.Y. Players. 2.30 a.m.—The Schradertown Band, from New York. 3.0 a.m.—The Planters' Programme, from New York. 3.30 a.m.—Weather Forecast. 3.32 a.m.—Did you know? 4.0—5.0 a.m.—Musical Programme from New York.

STOCKHOLM (Sweden) Radiotjänst (SASA). 689 kc/s (436 m.); 1.5 kw. Relay by Boden, 250 kc/s (1,200 m.); Göteborg, 932 kc/s (322 m.); Hörby, 1,166 kc/s (257 m.); Motala, 223 kc/s (1,345 m.); Östersund, 389 kc/s (770 m.); Sundsvall, 554 kc/s (542 m.). Transmits at intervals from 6.15 a.m. 5.45 p.m.—Cabaret Programme. 6.30 p.m.—Talk: The Teutons. 7.0 p.m.—Orchestral and Vocal Concert. 8.15 p.m.—News and Weather. 8.40 p.m.—French Lesson relayed from Malmö, 1,301 kc/s (231 m.). 9.10 p.m.—Chamber Music. 9.35 p.m. (approx.)—Close Down.

TOULOUSE (France) Radiophonie du Midi. 788 kc/s (381 m.); 8 kw. 1.0 p.m.—Concert arranged by the Agen Radio-Club. Mattinata (Leoncavallo). French Serenade, Mon

gentil Pierrot. Ariettes oubliées (Debussy). Mandolines (Debussy). Les roses d'Ispahan (Faure). L'Invitation au voyage (Duparc). Selection (Grandis). Arrepentida (Ferrazzano). 1.30 p.m.—Market Prices. 1.35 p.m. (approx.)—Meteorological Report. 1.37 p.m. (approx.)—News Bulletin. 1.45 to 6.0 p.m.—No Transmission. 6.0 p.m.—Dance Music Selections. Dreamy Amazon (Ribera). Fox-trot, You should (Milton). Tango, Señor comisario (Canaro). Fox-trot (Oliver). 6.15 p.m.—Fifteen Minutes Talk on French History. 6.30 p.m.—Dance Music Programme (continued). Tango, Papirosa (Roma). Yalé Blues (Ellis). Tango (Scatasso). Fox-trot, Annalita (Katcher). 6.45 p.m.—Exchange Quotations. 6.50 p.m. (approx.)—Racing Results. 7.0 p.m.—Concert of Russian Songs. Prince Oleg (Patchensko). Asboulia. Czbek. Chrysanthemums. 7.15 p.m.—News Bulletin. 7.30 p.m.—Concert of Dance Music. The beautiful, white chrysanthemum (Rozel). Tango (Scatasso). There's a rickety-rackety shack (Tork). Waltz, Marionette (Taylor). Tango, Volvera (Padilla). Fox-trot, My Gal Sal (Busser). One-Step, Original Dixieland. 8.0 p.m.—Exchange Quotations. 8.15 p.m.—Concert. Compadron. (Selection (Paparero). Insomnie (Trelles). Selection (Ruker). Ay, Ay, Ay (Freire). Chansonette Recital: Le champion des rieurs (Collet). La rigolomanie (Picolini). C'était une fille (Gabaroché). Prenez garde à la peinture (Rodert). Tout autour. Oui, papa (Clerc). Sally (Kerclé). 9.0 p.m.—Orchestral Concert. March, Dia de Fiesta (Leduc). Old Song Graziella (Mazellier). Norwegian Rhapsody (Lalo). Träumerei (Schumann). Selection from "Sigurd" (Reyer). Sacred Dance (Kunc). Waltz, (Ziehrer) Patrouille enfantine (Gillet). Selection from "Die Walküre" (Wagner). Fox-trot intermezzo, Jeux de dolo (Fétras). In the interval: Jazz Music. Good News (Silva). Angel Eyes (Lewis). When I'm in your

arms (Davis). The Beggar. 10.15 p.m.—North African News. 10.30 p.m. (approx.)—Close Down, WARSAW (Poland) Polskie Radio. 212 kc/s (1,411 m.); 8 kw. Transmits at intervals from 10.58 a.m. 4.45 p.m.—Concert by a Mandoline Orchestra, conducted by Mr. A. Szczegloff. 5.45 p.m.—Miscellaneous Items. 6.10 p.m.—Market Price Quotations. 6.25 p.m.—Concert of Gramophone Music. 6.58 p.m.—Time Signal. 7.0 p.m.—Programme Announcements for the following day. 7.5 p.m.—Talk on Music by Mr. Charles Stromenger. 7.15 p.m.—Orchestral Concert by the Warsaw Philharmonic Society, conducted by Mr. A. Dolzycki. Mme. Familier-Hopner at the Pianoforte. Symphony in G Minor (J. Haydn). Symphonic Suite (Domjanowski). Symphonic Poem: Stanislas and Anna Osowiec (Karłowicz). Concerto in G Major for Pianoforte (Beethoven). In the interval: Theatre Notes. After the Programme, Late News Bulletin, Meteorological Report, Police Report, Sports Notes, and Relay of Foreign Stations.

ZÜRICH (Switzerland) Radiostation Zürich. 653 kc/s (459 m.); 0.63 kw. Transmits at intervals from 10.0 a.m. 3.0 p.m.—Orchestral Concert from the Carlton Elite Hotel. 4.15 p.m.—Gramophone Dance Music. 4.45 p.m.—Meteorological Report and Prices of the Zürich Weekly Market. 6.30 p.m.—Time Signal and Meteorological Report. 6.33 p.m.—Talk by Dr. H. Hintermann: The Luxury of Narcotics among Uncivilised Peoples. 7.0 p.m.—Chamber Music Concert. 7.20 p.m. (approx.)—Recital of Songs and Instrumental Music by Robert Schumann. 8.15 p.m. (approx.)—Concert of Variety Music by the Station Orchestra. 9.0 p.m.—Weather Report, News Bulletin and Close Down.

THE FIRST SPECIAL HOSPITAL IN LONDON FOR CANCER. No Letters. No Payments. Fully equipped and specially staffed for the better treatment and research into the causes of cancer. A certain number of beds are provided for advanced cases, who are kept comfortable and free from pain. An Urgent Appeal is made for £150,000 For Building Extensions, the first part of which will be Wards for the "Middle-income" Patients who can contribute towards their costs. AND ALSO FOR RADIUM. THE CANCER HOSPITAL (FREE) Fulham Road, London. Bankers: Coutts & Co., 440, Strand, W.C. J. Courtney Buchanan, Sec.

TWO VOLTS 5/6 UNIVERSAL Universal .1 amp 5/6 Resistor .1 amp 5/6 Super H.F. .15 amp 5/6 Super-Power .3 amp 7/6 Hyper-Power .3 amp 9/6 Pentodion .3 amp 18/6 FOUR VOLTS 7/6 SUPER-POWER Universal Resistor .075 amp 5/6 Super H.F. .075 amp 5/6 Hyper-Power .1 amp 5/6 Pentodion .15 amp 18/6 DARIO VALVES WRITE FOR FREE DARIO FOLDER from your dealer or direct IMPEX ELECTRICAL, LTD., Dept. E., 538, High Road, Leytonstone, London, E.11. Best Way to All Stations The New 1930 Dario Valves will improve any Radio Set! New internal construction! New Filaments! Longer Life! New Prices! DARIO VALVES ARE AN IDEAL CHRISTMAS GIFT FOR THE RADIO ENTHUSIAST.

There's
no
doubt!



—now you CAN receive
your favourite
foreign programmes

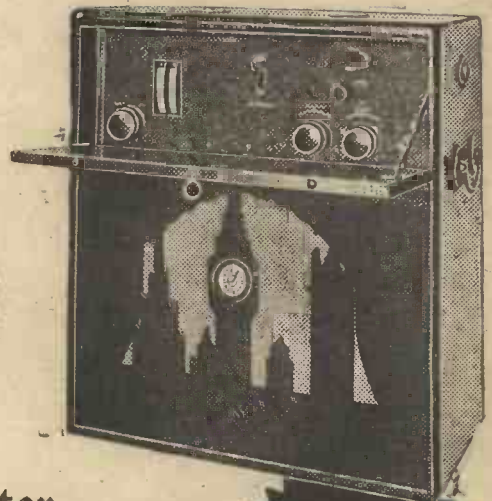
DUBILIER ALL ELECTRIC RADIO

The Dubilier All Electric Receiver enables listeners to receive their favourite foreign programmes without the slightest trouble. Tuning's easy and there's no bother with batteries or accumulators—it works entirely from the electric mains on an outdoor or indoor aerial. As to its performance—well, it has only to be heard to be acknowledged the best.

Price, A.C. and D.C. models,

£25

PRICE
£25
A.C. and D.C.
Models



PRICE
29
GNS.

The Westminster Screen-Grid Portable RADIO GRAMOPHONE

Battery operated

Two entertainers in one self-contained cabinet—a Radio Receiver of extraordinarily wide range combined with a gramophone and loud-speaker. It's remarkable for the wonderful clarity of its reproduction and its full-toned volume. The latter is ample for any home and can be regulated to individual needs.

29
Price GNS.

AERIAL TROUBLES ENDED



No more worry with storm-wrecked aerials if you use a Ducon. It saves special wiring—simply plug it into any electric lamp or wall socket to get perfect results. And it's absolutely safe. Price 5/-

If you have a battery-operated set, fit a Dubilier H.T. Battery 66 volts **7/9**

Ask your dealer for a copy of the booklet—"A Bit about a Battery."
Other voltages available.

DUBILIER

CONDENSER CO. (1925) LTD.

DUCON WORKS, VICTORIA ROAD,
NORTH ACTON, LONDON, W.3.

If you have any difficulty in obtaining Dubilier Products from your dealer, write to us giving his name and address.



The
FERRANTI
A.C. MAINS RECEIVER

Winter Warmth & Music

The Ferranti A.C. Mains Receiver Model 31 is really handsome in the sense that "handsome is as handsome does." Its beautiful cabinet work gives added grace to any scheme of furnishing, and its performance is very nearly true to life.

In combination with the Ferranti Moving Coil Speaker you are assured of such deep satisfaction from the programme of your choice that you are doubly glad of the exceptionally easy manipulation.

NOTE: The Electric Fire illustrated above is the Ferranti Model III. If you are interested in the luxurious comfort afforded by radiant heat, write for the book of the Ferranti Fire.

FERRANTI LTD.

HOLLINWOOD

LANCASHIRE

There is no need for a second thought about anything but the pleasure of listening. Simply plug in to the electric mains. No batteries to run down or require constant attention. Available for Alternating Current only, voltages 200 to 250; 50 cycles or over.

Price, including Valves:—

In Oak Cabinet	£25
In Mahogany Cabinet	£26
In Walnut Cabinet	£26

Royalty £1 extra.

With Indicating Floats

P.G.F.5
20 a.h. 2 v. 11/9
(as illustrated)

P.G.F.7
30 a.h. 2 v. 13/9

P.G.F.9
40 a.h. 2 v. 15/9



Non-Indicating

P.G.5
20 a.h. 2 v. 9/-

P.G.7
30 a.h. 2 v. 11/-

P.G.9
40 a.h. 2 v. 13/-

P.G.11
50 a.h. 2 v. 15/-

How much current have I left ?

You've asked yourself this question for the last time, having once put the Peto and Radford P.G.F. into service.

Let us explain. The P.G.F. Accumulator has three little floats which rise to the surface at recharging and fall in turn as discharge proceeds.

Thus you are able to tell at a glance just how much current you have left.

No guessing—no worry.

As simple as telling the time

Eleven and ninepence for a 20 amp. hour accumulator guaranteed for six months of perfect service—that is the Peto and Radford P.G.F.5.

Now consider these features. The capacity—20 amp. hours—is the real, valve-working capacity. The plates are sturdy with interlocking grids to hold the paste. Terminals have acid-proof glands and cannot be reversed. Plates are held in place by glass key-ways. Vent is large, splash-proof and spray-tight, and screws in. The lid is made of crack-proof Dagenite and is hermetically sealed to the box. There's no better value than this.

Send a postcard for a Catalogue to:—

Peto & Radford,
93, Great Portland Street,
London, W.1.

(Telephone: Langham 1473.)

Glasgow Depot:
45, Clyde Place.

P. AND R.
PETO & RADFORD

London Sales and Repair Depot:
107a, Pimlico Road, S.W.1.

ACCUMULATORS

The beginning and the end in

POWER.

W.R. 1

This announcement is issued by
THE NATIONAL ACCUMULATOR CO., LTD.

For your lady friend!



"COZYTOWZ" ELECTRIC FOOTWARMER—FOR WARMTH AND COMFORT IN THE CAR

THE "COZYTOWZ" fills a long-felt want to the motorist. The chills so long associated with winter motoring—especially amongst lady motorists—need now be a thing of the past.

The Electric Foot Warmer is supplied with a length of flexible conducting cord which connects to the car accumulator, and the current consumption from 12 volt accumulator is about that of a headlamp bulb.

The "COZYTOWZ" (Regd.) is safe, gives a genial heat, and can be switched "on" and "off" like other electrical appliances on the car.

PRICE 20/-

State make of car when ordering.

From all first-class Garages and Motor Accessory Dealers—Refuse substitutes. If any difficulty write direct. Pamphlet with full particulars on request.

There is no risk or danger of fire in using the Electric Footwarmer.



View of "COZYTOWZ" Foot Warmer without Muff

IMPORTANT

The "COZYTOWZ" FOOT MUFF adds great comfort to the user, as the feet are slipped into the Muff on top of the Footwarmer, and as the Muff retains the heat after the Foot Muff is once thoroughly heated, which usually takes about 15 minutes.

FM/10 PRICE 10/6 each.

Ward & Goldstone
PENDLETON MANCHESTER

STOCKS HELD AT
LONDON DEPOT: 5 & 6, Eden Street, Hampstead Road, N.W.1.
LEEDS DEPOT: Upton's Yard, 49a, Briggate.
GLASGOW DEPOT: Baltic Chambers, 50, Wellington Street.

IDEAL GIFTS



No. 97 b.
Price 15/-



No. 101.
Price 39/6

Presents make the heart grow fonder! This year make your friend a Christmas present of a Squire Cradle and Cone. Those with keen musical ears say that they enjoy a constant delight in listening to a Squire Speaker coupled to a good receiver.

If your friend has a Speaker Unit, then our 97b Model shown above is suitable (it is universal in that it will take any Unit). If, on the other hand, you want to make a real present-de-luxe, you can give one of our double "101" Speakers—the finest speaker of the day. In either case, you will be affording your friend such reproduction as he would only be able to obtain elsewhere for a very much greater expenditure.

FREDK. SQUIRE, LTD.

10, Leswin Place, Stoke Newington, N.16.

P. & T.

Gift it with "Ekco!"

The very latest Christmas Gifts and the most acceptable—an "EKCO-LECTRIC" Radio Receiver or an "EKCO" Power Supply Unit—at a range of prices to suit everyone!

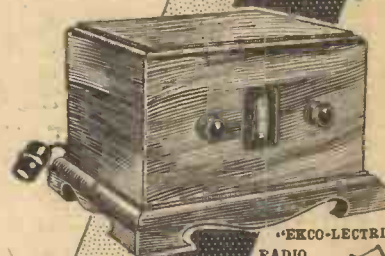
"EKCO-LECTRIC" Radio Receivers work direct from the mains—without batteries—without accumulators—without mess!

"EKCO" All-Power Units electrify battery-fed sets, whilst "EKCO" H.T. or L.T. Units eliminate H.T. or L.T. batteries respectively.

"EKCO" products are British Made by the pioneers and specialists of All-Electric Radio for D.C. as well as A.C. Mains and can be obtained on Easy Payments.



"EKCO-LECTRIC" RADIO RECEIVER Model S.G.P.3, A.C. or D.C. £21.



"EKCO-LECTRIC" RADIO RECEIVER Model P.2 Det. and Pentode, Complete with Valves and Royalties, A.C. or D.C. £12 17 6.



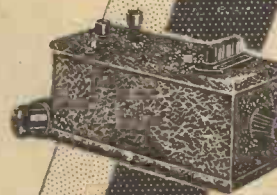
H.T. UNIT A.C. Model 2A.10 £3 10 0.



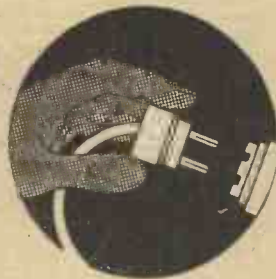
ALL-POWER UNIT A.C. Model C2.A. £10 17 6.



H.T. UNIT A.C. Model 3F.20 £3 19 6.



H.T. UNIT D.C. Model 1V.20. £2 10 0.



"Plug-in That's all!"

EKCO

"EKCO-LECTRIC" RADIO RECEIVER

Model S.G.P.3. Screen Grid, Det. and Pentode. Complete with Valves and Royalties. A.C. or D.C. £21.

"EKCO" H.T. UNIT A.C. Model 2A.10

For 1-3 Valve Sets, up to 10 m/a consumption. Tappings of 60 and 120 volts. Complete £3 10 0.

"EKCO" H.T. UNIT A.C. Model 3F.20.

For 1-5 Valve Sets, up to 20 m/a consumption. Tappings for S.G. Valve and at 60 and 120/150 volts. Complete £3 19 6.

Ask your dealer or write for Free Booklet on "All-Electric" Radio.

"EKCO-LECTRIC" RADIO RECEIVER

Model P.2 Det. and Pentode. Complete with Valves and Royalties. A.C. or D.C. £12 17 6.

ALL-POWER UNIT A.C. Model C2.A.

H.T. Tappings for S.G. Valve and at 60 and 120/150 volts. L.T. 2-6 volts. G.B. up to 12 volts. Complete £10 17 6.

"EKCO" H.T. UNIT D.C. Model 1V.20

For 1-5 Valve Sets, up to 20 m/a consumption. Tapping for S.G. Valve and at 0-120 and 120/150 volts. Complete £2 10 0.

AN "EKCO" POWER SUPPLY UNIT was voted FIRST by PUBLIC in "Wireless World" National Ballot.

E. K. COLE, LTD., DEPT. W.R., "EKCO" WORKS, LEIGH-ON-SEA.

"EKCO-LECTRIC" RADIO RECEIVERS AND POWER SUPPLY UNITS.

PORTABLE SPOTLIGHTS
EVER READY
 BRITAIN'S BEST BATTERIES

**A Model for every
 Member of the Family**

Searchlights and
 Spotlights.



Nickel Plated.
 No. 2203, 12/6.
 No. 2003, 10/6.

**BULLSI
 LANTERN,**
 Nickel
 Plated.
 No. 1820, 12/6.



**HAND
 LAMP,**
 Oak case.
 No. 1860, 10/6.



**CYCLE
 LAMP**
 Long Life
 model.
 No. 2036, 3/3.

ACCUMULATORS
 for Wireless, Car,
 etc. Celluloid and
 Ebonite Cells.



THE CELL
 for your
 Bell, 2/-.
 THE FLAG
 DRY CELL



**SPOTLIGHT
 POCKET
 LAMP,**
 Leather covered
 & Nickel Plated.
 No. 2,000, 3/6.



The
 "Smallest
 pocket lamp
 in the world."
 No. 1679, 2/-.
 The "Foun-
 tain Pen Lamp,"
 for vest pocket.
 No. 1915, 2/6.



**THE H.T.
 BATTERY**
 for your Port-
 able Wireless
 Set. 63 volts,
 8/6. 108 volts,
 15/-.

**GRID BIAS
 BATTERIES,**
 G.B.4. 9 volts,
 2/-.

**REFILL BAT-
 TERIES for**
 Flashlamps.
 3 cell (1689), 9d.

Obtainable Everywhere. Write for illustrated list to the manufacturers:

The EVER READY CO. (G.B.), LTD., Hercules Place, London, N.7.

THE NEW CELESTION LOUDSPEAKER

Z.20.

Holds undisputed
rank as the finest of
all Loudspeakers

"Finest loudspeaker I have heard ... sets entirely new standard ... worth every penny it costs."
"Help Yourself" Annual.

"Nearest approach to the ideal that I have yet heard."
"Sphere."

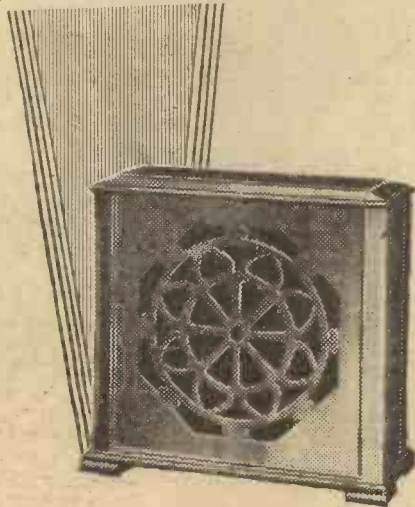
"Most critical musician could not find fault ..."
"Evening Chronicle."

"Sets a standard. Amazingly true reproduction. Low frequencies as well as high."
"Daily Mirror."

"Renowned for brilliancy and quality ... speech and music particularly good ... a handsome instrument."
PERCY HARRIS in "Wireless Constructor."

Designed specifically to give the finest possible results with any set from a Two-Valver to a Power Amplifier. Crowned with the Celestion hallmark — a beautifully designed and hand-polished cabinet.

In Oak £7 : 15 : 0,
Mahogany £8 : 5 : 0,
Walnut (to order) £9 : 0 : 0.
Other Celestion models from
£3 : 15 : 0



WRITE FOR AN ABSORBING FREE BOOK ON "SOUND RE-CREATION"

CELESTION

The Very Soul of Music

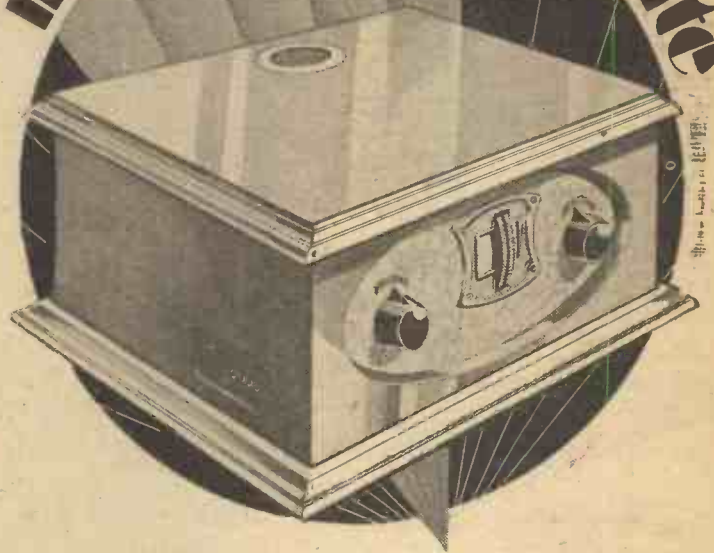
London Showrooms :
106, Victoria Street, S.W.1.

Write to: Celestion Ltd.,
Dept. F. Kingston-on-Thames.

FOREMOST NAME IN SOUND REPRODUCTION

148.

Modern as the minute



£21

LOTUS ALL ELECTRIC RECEIVER

The LOTUS All-Electric 3-valve Receiver for A.C. Mains is simple and improved radio. Once installed, it needs no further adjustment. No technical knowledge is needed to operate the set; no batteries are necessary—simply connect with any light socket. British and Continental stations come in at full loudspeaker strength.

Hear this handsome and acceptable instrument today at any wireless dealer's or Selfridge's, London. Complete with Valves and Royalties paid. Cash price £21, or £1 : 19 : 9 down and eleven similar monthly payments.

The full range of LOTUS Sets is available now on Hire Purchase Terms. An initial deposit secures any Set for you.

Where electric current is not available use the LOTUS 3-valve S.G.P. Battery model at £13 : 15 : 0. Kit parts for home construction of this Set can be had at £7 : 12 : 6.

Send to-day for the LOTUS Catalogue.

GARNETT, WHITELEY & Co., Ltd.
Dept. W.R.4, Lotus Works, Mill Lane, Liverpool.

Give Your Short-wave Pals a Treat this Xmas!



12/6

A PAIR
AND WELL WORTH IT!

120, 2,000 and
4,000 ohms.

All DX workers have a pair of Ericsson Super Sensitive on the bench for their wonderful response to all tonal frequencies. Many experts use them to test quality. Astonishing sensitivity to weakest signals. Crystal users find them a wonderful aid on Brookmans Park reception.

At all good Dealers or direct:

ERICSSON TELEPHONES, Ltd., 67/73, Kingsway, London, W.C.2.

Ericsson
SUPER
SENSITIVE
TELEPHONES

CONVERT YOUR
BATTERY
OPERATED
SET TO AN
ALL-MAINS
UNIT.
NO H.T.
BATTERY
NO L.T.
ACCUMULATOR.



"GOLTONE" ALL-MAINS UNIT

TO OPERATE FROM YOUR ELECTRIC LIGHT SUPPLY (A.C. only).

Enables your Radio Receiver to be converted to an "ALL-MAINS" set, thus saving the inconvenience and expense of Accumulator Charging and H.T. Battery Renewals.

ADDS VOLUME, SELECTIVITY & RANGE

Suitable for Mullard, Cossor and Screened Grid
Valve Circuits

Plug-in,
that's all.

Price £6 : 6 : 0

From all First Class Radio Dealers.

Large illustrated
Radio Catalogue
FREE
on request.

Refuse Substitutes.

Full particulars on request.

LONDON DEPOT
5 & 6, Eden Street,
Hampstead Road,
N.W.1.

Ward & Goldstone
PENDLETON MANCHESTER

LEEDS DEPOT:
Upton's Yard,
49a, Briggate.

FOR HEAVY WORK!



At Christmas time your wireless set is kept working for many hours on end.

Everybody's enjoyment depends upon the quality of reception maintained.

And the purity of reception depends largely upon the low tension supply, which is forced to carry a much heavier load.

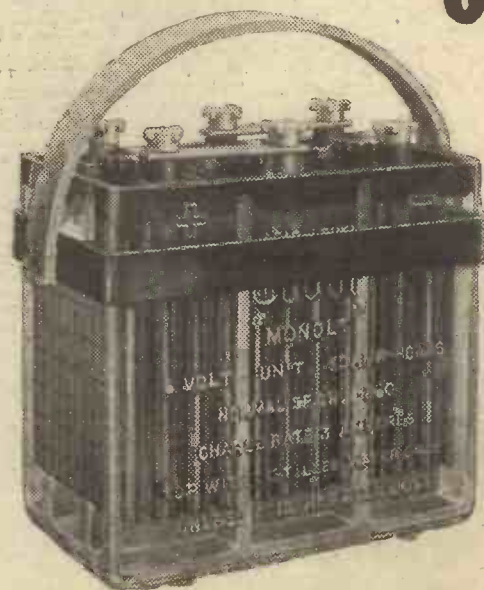
Buy a Tudor Monolt battery and however heavy the current consumption of your set, you can be sure of uninterrupted reception combined with purity of tone and powerful volume.

Here are a few attractive Tudor features:

Mono-bloc clear glass container. Charge Indicators. Wood separators. Positive plates, very substantial, which means longer life! Large spray-proof ebonite vents and a detachable carrier, making a bulky wooden crate unnecessary.

These are the reasons why the *Tudor Monolt Battery* is so frequently specified by the technical press.

ESTABLISHED IN PUBLIC SERVICE



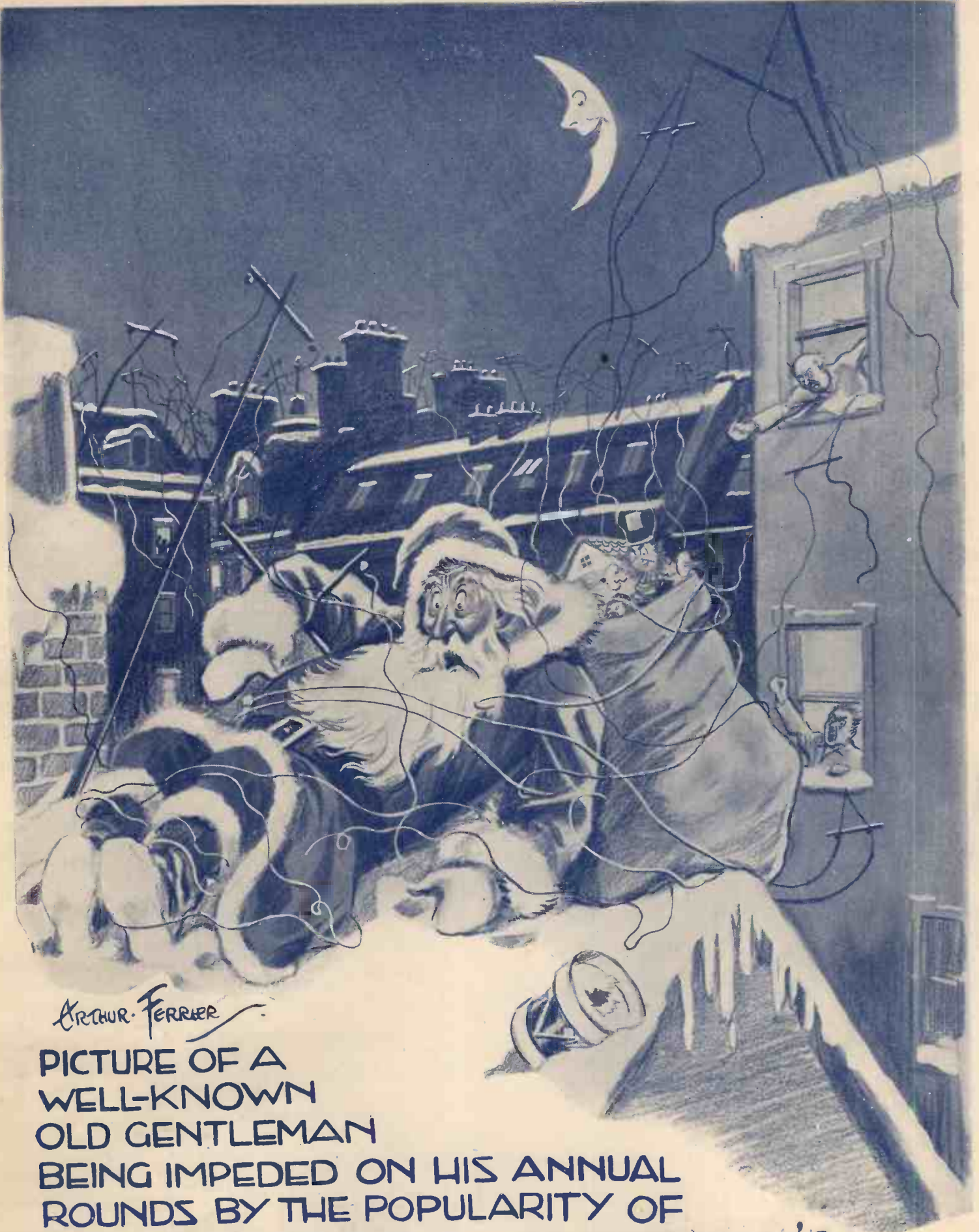
Tudor Monolt Unit
6v. 34 a.h.

40/-

Complete with Carrier.

Tudor
ACCUMULATOR

COUPON
Please send me full particulars of Tudor
Wireless Batteries.
Name.....
Address.....
Tudor Accumulator Co., Ltd., 9, Norfolk St., Strand, W.C.2.



ARTHUR FERRER

PICTURE OF A
WELL-KNOWN
OLD GENTLEMAN
BEING IMPEDED ON HIS ANNUAL
ROUNDS BY THE POPULARITY OF

SUPERIAL-ELECTRON'S SUPER AERIAL

Proprietors: The New London Electron Works, Ltd., 1, East Ham, London.

Lifelike as your own piano-

Your ears cheat your eyes so vivid is the reproduction of a Mullard Speaker. As you listen enthralled to the serene melody of a Chopin nocturne, the artist seems to take shape before your eyes, his hands moving dreamily over the keyboard of your own piano.

An exaggeration you say? . . . but you will alter your opinion when you hear a Mullard Speaker. Its perfect tonal reproduction and wonderful interpretation of touch and technique will convince you as it has already convinced a thousand other sceptics. You will agree that Mullard Speakers make radio ring true!

The Mullard 'H' Type Speaker - Price £6 : 6 : 0

The Mullard 'C' Type Speaker - Price £2 : 10 : 0

Mullard **MASTER · RADIO**

