

VINTAGE CRYSTAL SETS 1922~1927

Gordon Bussey



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A Wireless World Publication

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GORDON BUSNEY

Cover illustration shows a 1922
"GRAFTON" china figure slide coil
tuning crystal set and a 1922 H. D.
Butler and Co., crystal set with
double slide coil tuning.

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GORDON BUSSEY

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A Wireless World Publication

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Introduction and Acknowledgements

My aim has been not only to create a source of reference for the Vintage Wireless collector, but also to bring back many nostalgic memories of an era—long past.

The difficulty facing the collector of crystal sets today is the lack of knowledge available about the number of manufacturers and their models. Before the publication of this book,

information on crystal sets was found chiefly in the advertisements of the numerous wireless journals of the twenties and although copies of early journals are still available, they are usually found in bound form with the advertisements omitted. This lack of information has considerably added to my task of compiling under one heading details of nearly two hundred



crystal sets and their manufacturers, together with 450 vintage wireless trademarks applied for by a firm or individual and over 600 companies involved in the vintage wireless industry from 1922 - 1927. Forgive me, then, if I have omitted data on other companies, trade marks and manufacturers. My own concern in the subject began in the late sixties

and received impetus in 1972 with the B.B.C. fiftieth anniversary. This anniversary provoked widespread interest. From then onwards, collectors have scoured the country from John O'Groats to Lands End in the hunt for these, hitherto unappreciated early wireless receivers. I greatly appreciate the help and advice I have received from the following:-

W. K. E. GEDDES, A. G. LAMBLEY,
I. J. MILLNER, A. M. PEVERETT,
P. K. SKINNER, Mr. & Mrs. K. J.
CAMPBELL, Sir GEORGE POPE,
A. R. CUNNINGHAM

and in particular from MICHAEL
FIELD and GOODWIN A.G. IVE for
allowing me to photograph crystal
sets in their collections.

I must also acknowledge by indebtedness for the help and guidance I have received from S. G. BROWN COMMUNICATIONS LTD., E.M.I. LTD., KDKA. U.S.A., NATIONAL MARITIME MUSEUM, LONDON and the SCIENCE MUSEUM. I am particularly grateful to Mr & MRS GOODWIN IVE who from the start, have extended to me encouragement and hospitality, and advice which has proved so invaluable. Lastly thanks to Gordon Henderson of IPC Business Press Ltd. for producing this book.

PURLEY 1976

G.B.



How the family
used to
listen in

To the memory
of those days
spent at
"Fairview" in 1971

CHAPTER I

THE FIRST DAYS OF BROADCASTING

The first major experimental broadcasts of speech and music were made by the Marconi Company from its Chelmsford Station in February 1920. These broadcasts required the permission of the Post Office in whom was vested absolute authority over wireless transmission throughout the U.K.

Limited to two periods each week the broadcasts nevertheless gave the amateur an opportunity to play his

part in the development of a new technique, and wireless societies sprang up throughout the country.

The highlight of the early transmissions was a broadcast from Chelmsford by Dame Nellie Melba, a broadcast sponsored by the Daily Mail. For weeks afterwards congratulatory messages arrived from all over Europe proving the popularity of wireless as a medium of entertainment.

At the same time, unhampered by authority, entertainment broadcasting was growing rapidly in the U.S.A., as a result of which a prosperous manufacturing industry was developing and fast gaining experience which might well outstrip that of the British manufacturers. Suddenly, almost without notice, the Post Office withdrew Marconi's licence causing the closure of the Chelmsford transmitter. The Amateur Wireless Societies banded together, later they were to become the Radio Society of Great Britain, in protest against the Post Office decision, the latter hinting that a request from the amateurs to recommence transmissions might be considered favourably.

In February 1922 the Marconi Company was permitted to recommence entertainment broadcasts for approximately one half-hour (15 minutes actual transmission of music etc. with 2 minutes interval between selections) per week from its experimental station at Writtle. Under the guidance of Capt. P. P. Eckersley the station used the call sign 2-MT which became known affectionately as "Two-Emma-Tok".

Capt. Eckersley showed himself to be a genius in all aspects of broadcasting; his technical ability was already established, but in addition he handled with supreme skill the weekly broadcasts and his infectious humour over the air attracted many listeners to the programme.

In May 1922 the Marconi Company was granted a licence to operate, still on a limited scale, a second station and this was given the call sign 2LO, the sign which is associated with early broadcasting in this country. The success of these early transmissions encouraged 23 other companies to apply for broadcasting licences and fearing the situation might get out of hand the Post Office decided to vest all transmissions in one authority. It requested six prominent companies in the industry to form the British Broadcasting Co., the organisation being inaugurated in August 1922.

The British Broadcasting Company

The six founder members of the B.B.C. were Marconi's Wireless Telegraph Co., the Western Electric Co., the Metropolitan Vickers Co., the British Thompson-Houston Co., Radio Communication Co. and the

General Electric Co. The capital of the Company was £100,000 in £1 shares and any bona fide manufacturer could become a member by purchasing at least one share and depositing £50. All wireless receivers and principal accessories, for instance, valves and headphones, were to be approved by the Post Office, unapproved equipment was not permitted to be sold and in the beginning foreign made receivers and accessories were prohibited from the home market but it seems to have been flooded from 1923 with German and French headphones.

Approved equipment carried a circular stamp inscribed "BBC Type Approved by Postmaster General". The first set to receive type approval being the Marconi Crystal Junior.

The B.B.C. took over the Marconi 2LO station and within days new stations throughout the country began transmissions.

A receiving licence of 10 shillings—which incidentally remained at this figure for approximately the next 20 years—was instituted and by March 1923, 80,000 licences were issued. In addition, it was estimated that 200,000 unlicensed home constructed receivers were in use.

During these years the crystal set reached its peak of popularity due principally to its simplicity and low cost. The lack of wavelength selectivity was unimportant because insufficient stations were operating to cause interference. It was said that the Post Office encouraged crystal reception and the new medium quickly caught the public's imagination, encouraged by the manufacturers' awareness of the demand in the U.S.A. for receiving sets. In 1922 600,000 sets were in use in the U.S.A. and a

boom could be expected in the home market if low priced receivers were made available.

Thus broadcasting became established, but few realised the extent to which the industry would grow or foresaw the great technical developments that would take place over relatively few years. But the same can be said of the gramophone and television, the latter being the subject of experiments in the early 1920's.

In June 1926 the B.B.C. conducted an experiment with the 2LO station and another on a wavelength differing by approximately 100 metres. The results were interesting, but they pointed to the beginning of the end for the crystal set.

Almost throughout London the two stations could be separated by a valve set, but over a wide area crystal set listeners heard the two stations simultaneously.

The entertainment value of wireless transmissions, using suitable receivers, thus became established, but in December 1926 the B.B.C.'s licence expired. Prior to this date a Committee had been set up by the Government to consider the future of broadcasting. December 31st 1926 saw the end of the B.B.C., its place being taken by the British Broadcasting Corporation with John Reith, later Lord Reith, as its first Director General.

The original Company had completed an excellent job at little direct profit to itself, but an industry had been established and listeners now numbered over 2,000,000.

Early Manufacturing

Those companies entering the new boom trade in 1922-3 had diverse interests. All the major valve-makers were included in the 'big six'. Electrical manufacturers and dealers of all sizes treated the new trade as their own by right, but motor cycle and rubber companies were the most common entrants from among other interested manufacturers, and these turned spare factory-space to the production of sets and kits; for example, A. J. Stevens (1924), B.S.A. (1925), Midgeley Car Lighting (1926), etc. Most of these companies were unable to do original work on radio and only a very few of the smaller specialist companies, such as C. F. Elwell, Burndept Limited and S. G. Brown Limited, undertook their own research. The others were content to build sets from valve-makers' circuits or to assemble kits.

Although valve sets were produced at least from July 1922, the market was predominantly for crystal sets and kits. These were often sold retail by unrelated shops such as chemists and confectioners, with the kits, aimed at the home-constructor market, as for example, Metropolitan-Vickers' 'Radiobrix'.

In 1925 this market was catered for by 18 periodicals devoted to wireless. The reasons for the comparatively small sale of valve sets were several. There was the expense involved, a Marconi 2 valve set sold in 1922 for £20 which by today's standards is more than the cost of a colour television set and a Marconi 5 valve set sold in 1923 for £83.7.6. There was also the general adequacy of crystal reception in towns until

the B.B.C. changed its wave-lengths in 1927; there was also the complexity of valve sets including the need for batteries which militated against their more widespread use. Nevertheless, a great number of businesses were concerned with the construction of complete valve sets.

Technical Progress

Government surplus radio stock was the basis of much early equipment and Leslie McMichael Limited was advertising ex-Government broadcast sets in the "*Wireless World*" December 1922. Within a year, however, the eye appeal of sets became more important, reaching examples such as a Louis XIV cabinet model in 1925, and cabinet-making firms began to proliferate. There were also numerous technical advances. The introduction of the neutrodyne and super-heterodyne circuits increased effective gain and selectivity made necessary by the increase in the number of transmitting stations.

In 1923 Rogers, Foster and Howell produced the first sets with reaction that conformed to the Postmaster General's regulations: McMichael in 1924 claimed the first completely self-contained set and Climax Patents showed "the original mono-valve folding-frame portable set". E. K. Cole produced the first battery eliminator in 1925; push-button tuning was introduced in 1926 by Felcourt Products and Gambrell exhibited one of the first sets to use alternating mains current supply. A. H. Midgeley produced a freak amplifying circuit without valves in the same year.

Financial Difficulties

In the approaching summer months of 1923 the wireless trade suffered its first slump. Lack of capital, over production, and the uncertainty in the minds of the public about the future of broadcasting meant that many small businesses were badly affected; these were the principal reasons given at bankruptcies and liquidations. These difficulties were not limited to the small or shady businesses; for instance, C. F. Elwell's, founded by the modifier of the Poulsen arc, had to be liquidated in August, although production continued. Once the seasonal nature of the trade has been established there were fewer summer casualties but difficulties were regularly existing—Elwell's were again in the hands of the receiver in 1927. Only the largest electrical firms, such as General Electric Co. and British Thompson-Houston Co. could afford to disregard the cyclic variations of trade sales. The Marconiphone Company, although itself a rationalization of Marconi companies in the broadcasting field and of the Sterling Telephone Company for selling purposes, had to request a reduction of capital in 1927 and claimed not to have made a profit since its registration. Even the expansive and successful Burndept Company found financial support hard to come by and fell into the hands of one of its chief suppliers, Messrs. Johnson and Phillips.

The "Polar" business of Radio Communication Co. also fell to its suppliers, Wingrove and Rogers. The valvemakers seem to have been most secure as they had the home-constructor market to cater for, in addition to the manufacturers.

Philips of Eindhoven secured a stake in the British market for valves, and for Dutch-built sets, after the removal of the restrictions on importing. They were aided in these ventures by their strong patent position and their arrangement with Mul-lard's.

The six companies who undertook broadcasting in these years were never allowed to institute a monopoly in the making of receiving sets by their agreement with the Post Office. The patent royalties—unless they were avoided—did however give a monopoly position at first to the Marconi Company and then to the patent "pool" in this respect. All manufacturers were officially obliged to buy a share in the capital of the B.B.C. in order to use the official stamping, but published debts of companies liquidated show that this was not given priority treatment in payment. The B.B.C. was often the company which called for compulsory winding-up.

There was a considerable turnover of companies in the trade and the small businesses which had entered the trade in 1922 had by 1927 either become established, gone bankrupt or withdrawn even from accessory-making. Many new companies were floated which replaced them and by 1927 the trade had still not settled into a few hands; the day of the little business was not over.

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OCTOBER 10, 1923 THE WIRELESS WORLD AND RADIO REVIEW

ix

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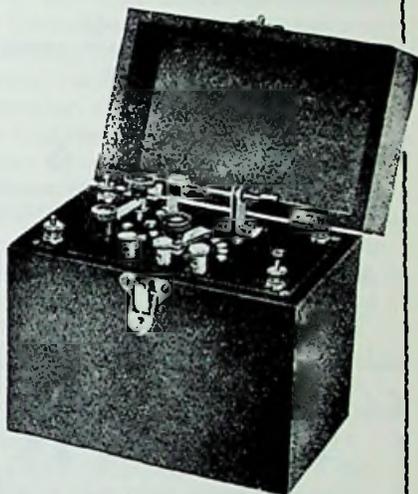
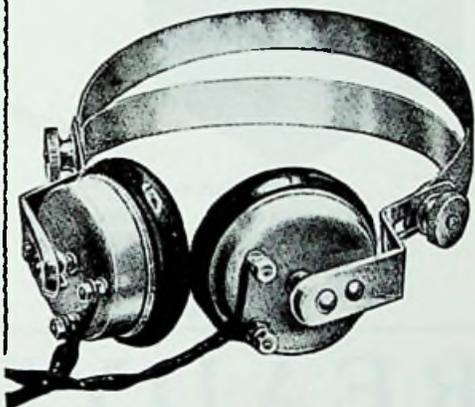
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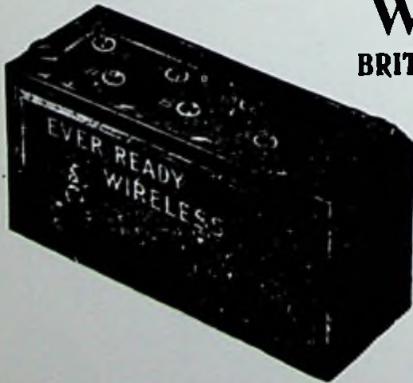
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CHAPTER 2

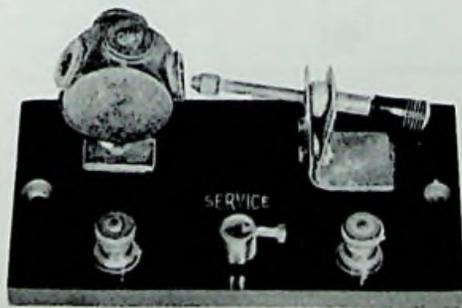
THE CRYSTAL SET

Crystal user

The popularity of the crystal set was due to its low cost and the simplicity with which it could be operated by old and young alike. In most cases the valve set presented many fears to the uninitiated members of the household, with the result that many of the day-time transmissions were not listened to, though the desire to do so may have been great. With the crystal receiver, the position was somewhat different. Even children felt confident in tuning, and further, tuning with success to the local stations or 5XX as local conditions demanded. It was not unusual for the crystal users' listening hours to be spent exclusively in the enjoyment of a station's programmes. It is true that the same enjoyment could be given by a valve set, but the question of oscillations in large towns was a serious one. The crystal user could claim the advantage that his less sensitive receiver was beyond the range of resulting interference.

Both valve and crystal user would have admitted that the question of cost was easily in favour of the crystal set. After the initial cost was considered, the maintenance expenses were virtually non-existent; with the valve set however, charging the accumulator, replacing valves and h.t. batteries were all too frequent causes for expenditure. In many cases there was no means available for charging the accumulators—as gas lighting was still widespread, so they were taken to the local bicycle or electrical shop.

With the simplicity of the crystal receiver, came the advantage of reliability. Whereas the valve set accumulator would run down just



Rotating crystal detector

when a user particularly wanted to hear a certain programme, the crystal set would never fail to do what was required of it. With the introduction of the semi-permanent and automatic crystal detectors the set's tuning adjustment could also be fixed for the best results. In this way, all that was necessary to hear the local or other desired and possible station, was to place the telephones on the head-less work than winding a gramophone in the early twenties.

Crystal Circuits

The crystal set consisted of no more than a tuned circuit and crystal detector. Fig. 1 shows the slide coil circuit, where the tuning consisted of a slider, making contact with the coil face, a widely used circuit by many manufacturers in 1922, but very inefficient due to the so called "dead end" effect. This means that part of the coil is not being used for reception, with the result that energy is

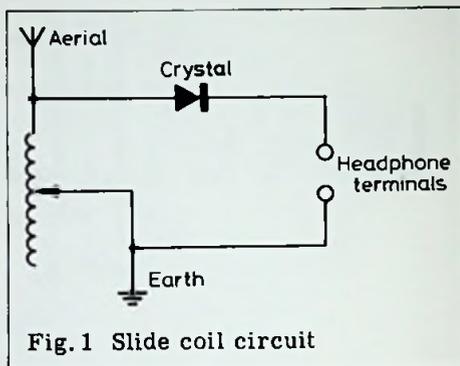


Fig. 1 Slide coil circuit

being wasted at that "dead end". Fig. 2 shows the radial tapped inductance crystal receiver circuit. The coil consisted of 100 turns of 24 gauge insulated copper wire generally wound on a cardboard tube 3" in diameter and 5" long, and, from different points of the coil, tapings were taken to the two sets of radial studs. Between one stud and the next in the S1 radial set of studs one turn was connected, whilst between each pair in the S2 radial set of studs ten turns were connected. Connection to the different parts of the coil were made

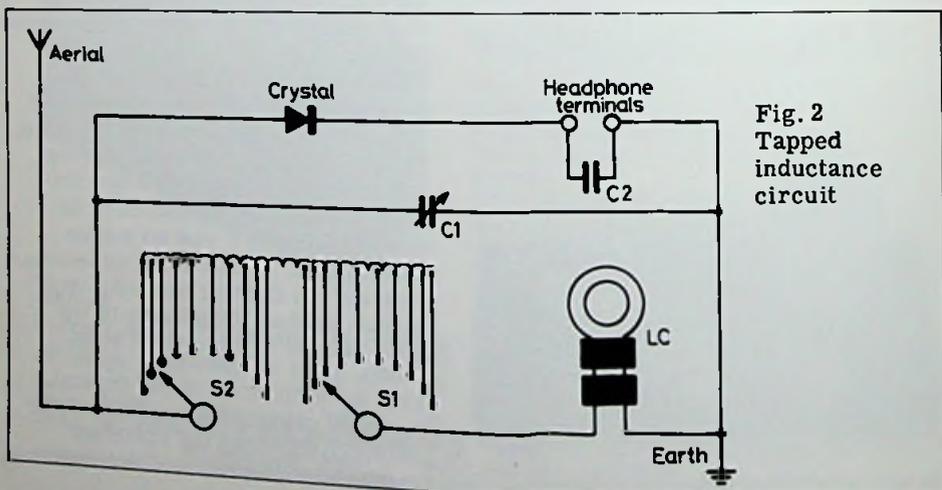


Fig. 2 Tapped inductance circuit

by the rotating arms S1, S2. The loading coil LC was used when receiving long wave and was a plug-in type No. 150 or 200. The loading coil was sometimes short circuited, by the means of a switch, when receiving the ordinary broadcast band. Condenser C2. $0.002\mu\text{F}$. across the headphones, was a by-pass for any high frequency pulsations of current.

When tuning, S 2 was placed on the first stud and S1 slowly moved over the ten studs. S2 was placed on the next stud and S1 was again moved slowly over the ten studs, if no signals were heard the first time. The whole process was repeated until signals of good strength were heard and then finer tuning was obtained by the variable condenser C1. $0.005\mu\text{F}$. This type of circuit was used by Sterling Telephone and Electric Co. Ltd. in their "Sterling No. 1" and by a variety of other manufacturers.

The loose coupled circuit shown in Fig. 3 was also used in some early receivers. This circuit consisted of a fixed untuned coil in the aerial circuit, loose coupled to a tuned coil in the crystal circuit. Coils L1 and L2 were mounted in a twin-coil holder, L1 was fixed and L2 movable, its distance from L1 could be varied. Tuning was done by varying the distance between L1 and L2 and then adjusting C 1. $0.005\mu\text{F}$. C2 across the headphone terminals was the usual fixed condenser of about $0.002\mu\text{F}$.

The most popular form of crystal tuning shown in Fig. 4 was the variometer. A variometer (variable inductance) consisted of two coils joined in series, and one coil was capable of rotating within the other. As the two coils were rotated with a current flowing through them, their magnetic fields either assisted or

resisted each other. This variable magnetic field was in effect a variable inductance of the coils.

Crystal Detectors

A crystal detector consisted of a crystal — mineral ore for the pur-

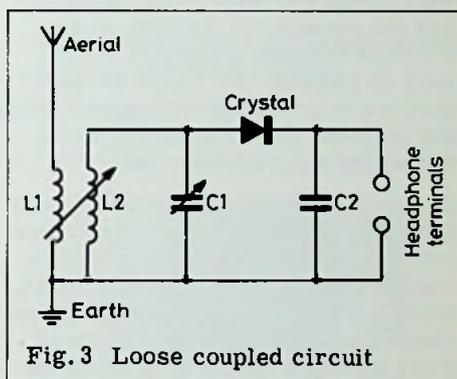


Fig. 3 Loose coupled circuit

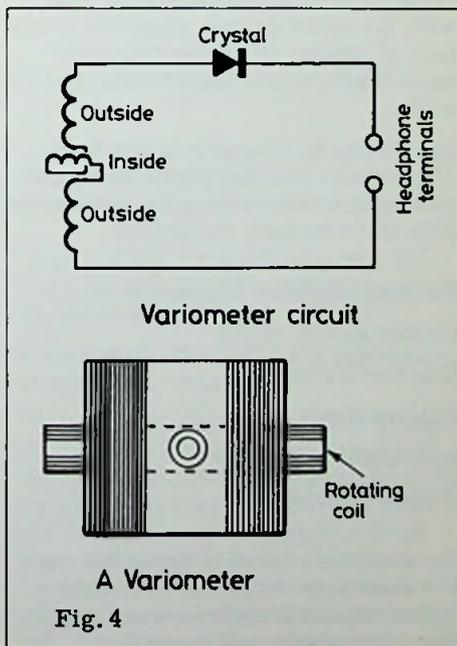


Fig. 4

pose of detecting, or rectifying wireless signals — and a wire contact, known as a "cat's whisker". The "cat's whisker" was sometimes omitted and replaced with another crystal in contact. The twin crystal combination — known as the "Perikon" — was extremely stable, provided the crystal holder was of a good design. The main defect of the wire contact whisker was instability, and the crystal set listener of the twenties frequently found it necessary to readjust the "cat's whisker" because it would lose its contact at the slightest provocation e.g. when somebody entered the room.

Different crystals required different forms of whisker contact. Tellurium crystal for instance, worked best in conjunction with a gold wire contact, while carborundum required a heavy contact, usually made by a piece of steel spring, with fairly heavy pressure. A very common ore of lead with the name galena, required a contact of copper or brass, although sometimes silver gave better results.

Mr. Philip R. Coursey, in his book, "Telephony without wires" gave the following combinations as most suitable for wireless reception:-

Perikon—Zincite—Chalcopyrite

Carborundum—Steel

Zincite—Tellurium

Silicon—Steel

Molybdenite—Copper

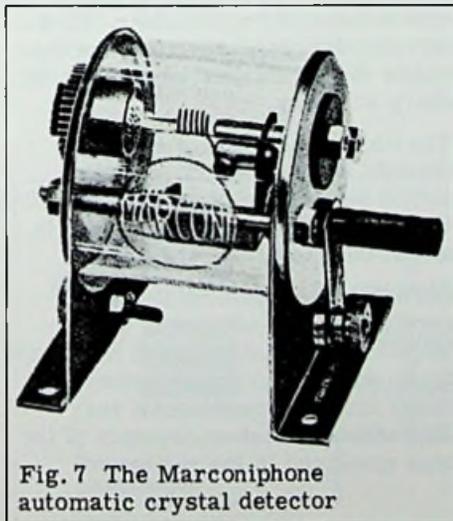
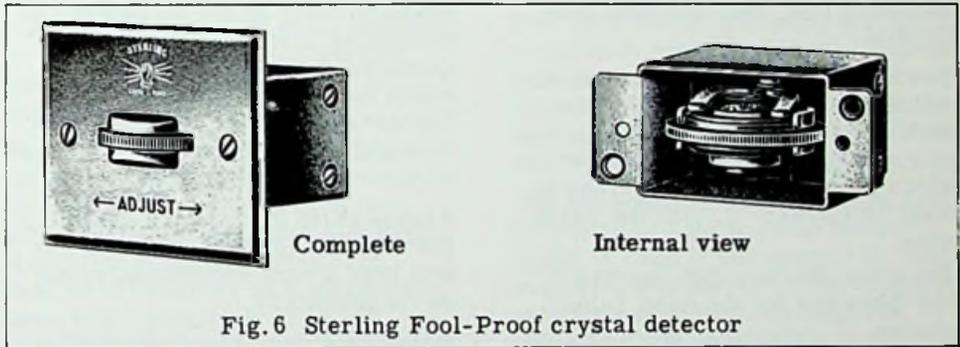
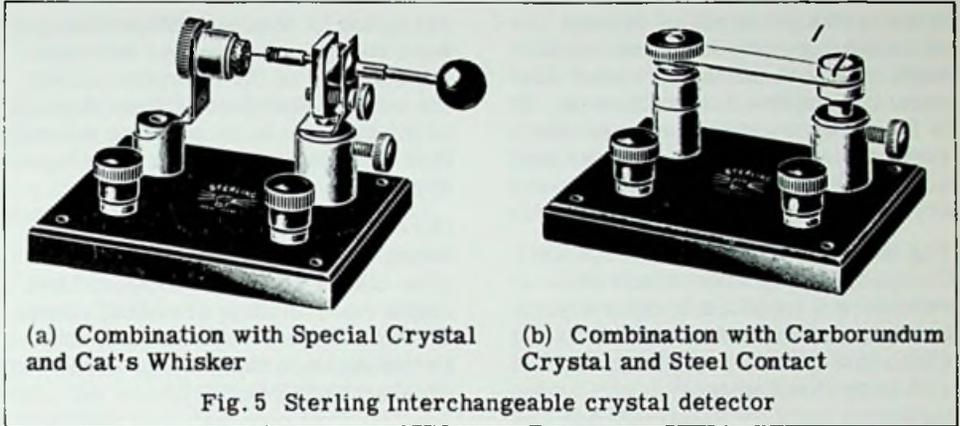
Galena—Graphite

He also stated that of these the carborundum—steel, perikon—zincite—tellurium combinations were usually the most stable, and least liable to

disturbance by either vibrations or atmospheric.

The Sterling interchangeable crystal detector, was fitted with interchangeable detecting combinations Fig. 5: (a) a special sensitive crystal in a cup, together with a fitting having a silver wire "cat's whisker"; (b) a specially mounted carborundum crystal together with the necessary steel contact. All metal parts were dull nickel-plated and of a very high-grade finish. The Sterling fool-proof crystal detector Fig. 6 was easily adjusted by revolving the ebonite milled wheel projecting above the mounting plate. As the wheel was turned, the crystal revolved, allowing a flat spiral "cat's whisker" of silver wire to wander over the surface of the crystal with sufficient tension for effective rectification. Many sensitive points were obtained in a fraction of the time taken with ordinary detectors. This type had also the further advantage of being entirely enclosed, thus protecting the crystal and point from dust and retarding the process of oxidation.

One of the most interesting crystal detectors of the twenties, was the Marconiphone automatic crystal detector (Fig. 7.) The crystal and "cat's whisker" were enclosed in a glass tube. The operation of a single handle turned the crystal round slightly and then brought the point of the "cat's whisker" gently against the crystal. The "cat's whisker", by means of this external adjustment would be brought to bear on many different parts of the crystal.



Crystal Instructions

This section consists of a reprint from an original Marconiphone crystal set booklet:-

Instructions for using the Marconiphone Baby Crystal.

"It is natural to suppose that when you buy a Wireless Receiver, be it the most expensive multivalve or the smallest crystal set, you will wish to get the best results possible from your instrument, and to do this the first consideration in every case will be the aerial. More especially will this be so when your instrument

is a crystal receiver, as where a valve set may give satisfactory results on a poor aerial, a crystal set cannot be expected to do likewise. It is therefore necessary to erect the very best aerial that your house and surroundings will permit of, if your crystal set is to have a fair chance.

For this purpose the Marconiphone Company supply with each of their receivers a copy of a booklet entitled "Concerning Aerials," in which this question has been dealt with very thoroughly.

Now a few words as to connecting up and using your Marconiphone Baby Crystal.

You will find that there are four terminals mounted at one side of the deck in two pairs. In the case of one pair, one terminal is marked "A", which is for the Aerial wire, and the other is marked "E," for the Earth wire.

The other pair are both marked "T", and these are for the Head Telephones.

When you have connected up these terminals as above, adjust the rod on which the cat's whisker is fixed so that the end of the whisker rests lightly, but at the same time surely, on the surface of the crystal.

Between the two pairs of terminals you will find a small switch having two studs marked 1 and 2 respectively. If your aerial is a long one—say between 80 and 100 feet—this switch should be placed at position 1. For shorter aerials of about 50 feet it will be found necessary to place it at position 2.

Now advance the pointer (which is operated by means of the protruding ebonite lever) slowly from position 1 towards position 10 until the clearest

reception is obtained. When this has been done, to still further increase the strength of the reception, adjust the cat-whisker on to different parts of the crystal, as by so doing you will find the most sensitive spot on the crystal.

Once this spot has been found, the tuning lever should be readjusted, after which the receiver should not require any further attention, unless it receives a severe jolt (i.e.: sufficient to alter the position of the cat-whisker on the crystal.)

Care should be taken when adjusting the catwhisker on the surface of the crystal, as pressure may result in damaging the delicate copper of which the whisker is made. The lightest possible contact consistent with stability is the ideal to be aimed at.

Always avoid touching the surface of the crystal with your hands, as this will have a very detrimental effect on its sensitivity.

It may be found after some months of use that the strength of reception may have weakened very slightly. This fact may be rectified by cutting the end of the catwhisker with a pair of sharp scissors.

The whisker should not be cut straight across, but the scissors should be inclined at an angle of about 45 degrees, so that a sharp point is left at the end of the whisker.

During a heavy thunderstorm the receiver should always be disconnected from the Aerial and Earth, and these should be joined together, as heavy atmospherics have a very detrimental effect on crystals of the type employed in the receiver."

Crystal Amplifier

The purpose of the Brown Microphone Amplifier was to increase the very feeble signals generated by a crystal set to a volume that would be sufficient to operate a loud speaker.

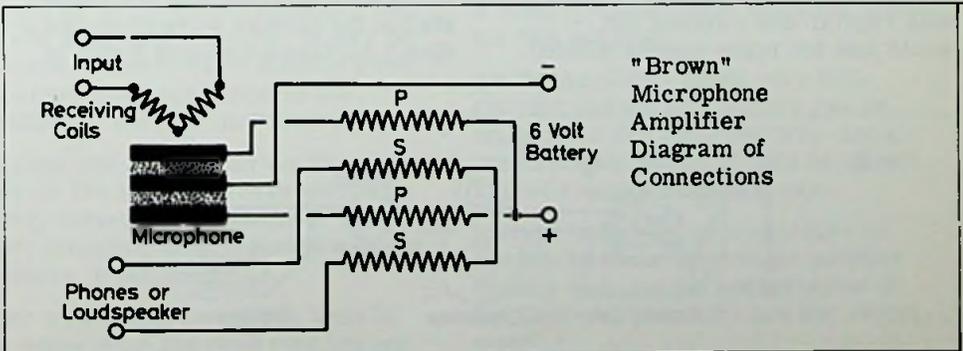
This was done by means of a sensitive Microphone Amplifier built on exactly the same principles as the tuned reed mechanism which made the Brown A-type headphones famous all over the world. The Microphone Amplifier was designed by S.G. Brown in 1921 and was an improvement on his telephone relay invented in 1910. It provided considerable amplification without the use of thermionic valves.

Crystal set users situated within a ten mile radius of the main broadcasting stations should have been able to use a Microphone Amplifier. Reception from the high-power station of Daventry 5XX would have been much greater — up to 100 miles. Owing to the fact that crystal sets varied considerably in efficiency and that moderately loud signals were required before the amplifier would function, some form of simple test

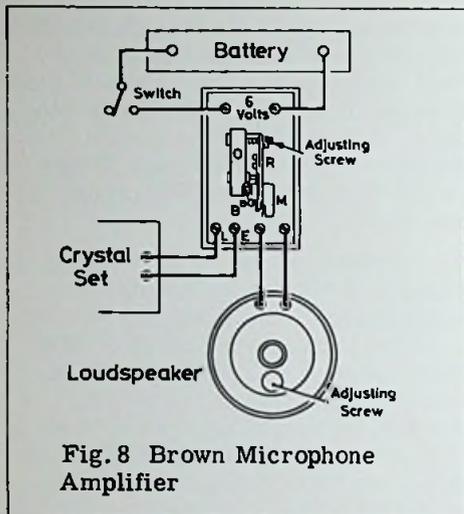
was desirable. If the signals could still be heard with the headphones held twelve inches from the ear, then the crystal set was sufficiently sensitive to operate a Microphone Amplifier on a loud speaker of between 1500 ohms and 4000 ohms resistance.

The crystal set was first carefully tuned to the broadcasting station using headphones. When the loudest possible signals were obtained, the headphones were removed from the output connections of the crystal set, and the amplifier input terminals connected in their place. The reception would have been increased enough for a loud speaker to be heard comfortably over the whole of a room. A final adjustment for volume would be effected by means of the adjuster.

The Microphone Amplifier (Fig. 8) consisted of a differential microphone M, reed R, and magnet O. The magnet O was moved by the adjusting screw so as to have its magnetic poles as close as possible to the reed R without actually touching. B was a stop screw which was set to prevent the reed from sticking against the magnet poles. The closer the magnet



"Brown"
Microphone
Amplifier
Diagram of
Connections



poles could be worked to the reed without actually touching, the greater the magnification obtained from the instrument.

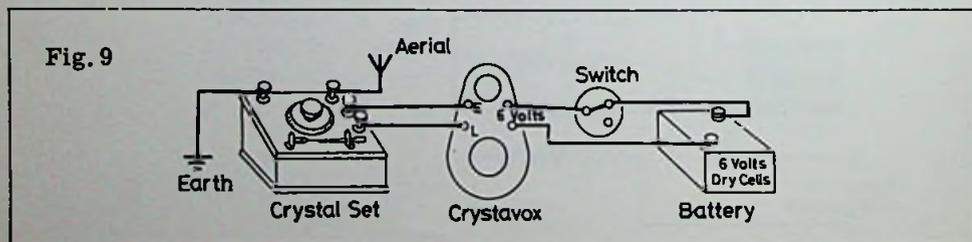
The Microphone Amplifier was a simple instrument to use, and little mechanical or electrical knowledge was required. Apart from adjustments made individually which, once set, never required alteration, there was nothing which required attention and nothing to wear out. Because the amplifier required an infinitesimal amount of electrical current on which to operate, the dry battery — even with regular and constant use — would last for many months without

renewal. It required no expensive accumulator.

In 1923 S. G. Brown Ltd. produced the Crystal Amplifier which was a two stage version of the Microphone Amplifier — in a narrow mahogany case, with lid. Very few of the Crystal Amplifiers were produced and are now extremely rare.

The Crystavox was introduced by S. G. Brown Ltd. in 1924 and consisted of a microphone amplifier built into the base of a loud speaker. When connected to a simple crystal set, broadcast programmes were reproduced at a level adequate for a small room.

It was a very simple matter to connect up the Crystavox for use as all the terminals were marked. (Fig. 9) Those indicated by the figures L and E on the left of the base were connected to the headphone terminals of the crystal set. The terminals on the opposite side of the Crystavox marked 6 volts were connected to the battery. As the current consumption was approximately 30 milliamps, the battery would have lasted a considerable time. The connections of the Crystavox to the crystal set, made by the terminals L and E, may have required to be changed over before the best results were finally obtained. When working from a broadcasting station the carrier wave produced a direct current which was liable to



interfere with the adjustment; this was usually restored by turning the Magnetic Adjuster on top of the cover and when moved this adjuster would cause the reed to click on and off the magnet in the amplifier. If results were still poor, the reed could be adjusted by removing the cover and turning the adjusting screw marked S (Fig. 10.) On no account was the small screw N to be moved, for it was so adjusted as not to touch the reed during normal working. Its purpose was to prevent the reed, in the event of its collapsing from sticking against the magnet.

Both before and after making any adjustments to the amplifier, it was essential to make sure that the reed in the loud speaker was properly set. The loud speaker could be adjusted by tuning the milled head under its base.

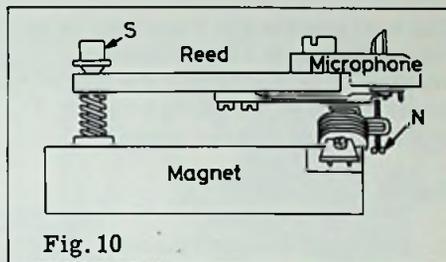


Fig. 10

its position owing to the pull of the permanent magnet. The Disc adjustment may not be sufficient to overcome this, and a slight turn of the adjusting screw towards "Open" will be necessary, but it should be realised, of course, that a fresh adjustment of the Disc may be needed.

This should be done while signals are being received, otherwise the operation may be overdone.

If, after this operation, a crackling noise is heard, it will be due to the granules in the Microphone being disturbed, and a gentle tap on the case will rectify this trouble.

On no account should any other means of adjustment be attempted.

Use phones when tuning in your set, and having made sure your signals (speech or music) are clear and distinct, switch over to the Amplifier. A simple change-over switch is useful for this purpose.

As the Amplifier takes very little current, the six volt battery can be made up of dry cells and will last a considerable period if care is taken to disconnect when not in use.

Storage batteries, accumulators or Leclanché cells answer the purpose equally well, but pocket batteries of the flash-lamp variety are not recommended.

Crystal Amplifier Instructions

This section consists of a reprint from an original S. G. Brown booklet:-

Instructions for using the Brown Microphone Amplifier

"Before leaving the Works, the Amplifier is adjusted to magnify signals of a certain strength. It may be necessary therefore to slightly alter the adjustment according to the strength of the signals received.

To alter the adjustment the Ebonite Disc on the top of the case should be slowly turned in either one or the other direction until the maximum loudness is obtained.

After a new instrument has been in use some time, the reed may change

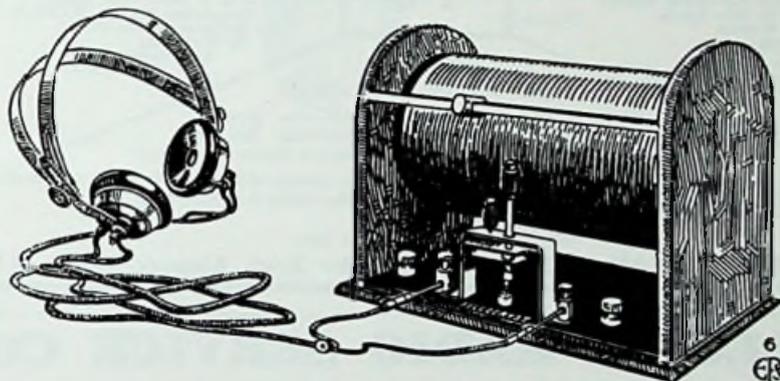
The best use for the Amplifier is in conjunction with a Loud Speaker, because by this means speech or music heard in the phones can be heard all over a large room.

Don'ts

1. Don't jolt the instrument.
2. Don't lay the instrument on its side or upside down: it is intended to stand upright.
3. Don't blame the Amplifier for distorting when your set is over-strained by too much filament current, too high plate voltage, or too tight coupling.
4. Don't expect a great volume of sound in the Loud Speaker when the original signal can scarcely be heard in the phones.
5. Don't let the Amplifier battery drop below 4 volts.
6. Don't think that by increasing voltage beyond 6 volts you will increase amplification.
7. Don't overload the Amplifier with signals loud enough to operate a Loud Speaker direct, or the instrument may be pressed beyond its maximum limit to function."



The FELLOCRYST



THIS is an excellent crystal receiving set, which gives very good results on all wavelengths from 300-1,500 metres, and is suitable for receiving broadcasting, ships and long distance stations.

The adjustments are simple and easily made, and the silicon crystal detector well maintains its sensitive state. No batteries are required.

The set is sent out complete and includes 100 ft. coil of 7/22 stranded copper aerial wire, 2 shell insulators and one pair 4,000 ohms double headphones.

Every set is tested and guaranteed to receive broadcasting up to 15 to 20 miles and Morse signals from a much greater distance.

The "FELLOCRYST" is British Made Throughout.

PRICE COMPLETE £3 : 7 : 6 Postage 1/6 extra.

Extra 4,000 ohms double headphones 30/- (Postage 1/-)

For they are jolly good Fellows

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LONDON, N.W.10**

Telephone : Willesden 1560-1.

Telegrams : Quixmag, Phone, London.

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Post Office Broadcasting Conditions.
Lists of Amateur and Official Stations.
How to Pick Up Time Signals.
The Wireless Societies.
Inventors' Guide.
Morse Code.

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Prof. G. W. O. Howe, D.Sc., M.I.E.E.
E. H. Shaughnessy, M.I.E.E., M.I.Rad.E.
Leslie McMichael, M.I.Rad.E.
Sir Wm. Noble.
N. P. Hinton, B.Sc.
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THE LAST WORD IN CRYSTAL RECEIVING SETS

The Reliance Bijou No. 2

Manufactured by one of the oldest firms in the trade, by highly skilled hand labour throughout. The smallest and most efficient Crystal set ever offered to the public.

Fully guaranteed in every way and can be depended upon for absolute reliability.

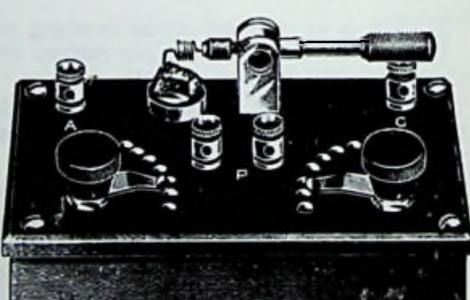
NOTE.—Size of base, 3 1/2" x 2" x 3/4". Will lay comfortably on the palm of the hand.

AS ILLUSTRATED, and with the following Accessories—

One pair 4000 ohms British made double headphones, 100 ft. 7/22 stranded copper wire Aerial, 4 Insulators, 60 feet lead-in wire.

INSTRUMENT consists of Ebonite Panel (mounted on Oak base. Double Tuner comprising 18 tappings taken off inside coil. One .001 Condenser (hand calibrated). Hertzite Crystal, copper spring in arm with ball joint action and variable pressure. Wavelength 900 metres. Range for telephony guaranteed 20 miles and morse much further. Will take 2 pairs double headphones with perfect clearness.

NOT a toy but a scientifically designed Instrument and equal in every respect to one costing double. Call and inspect without any obligation on your part. Demonstrations given by arrangement. Hours 9 a.m. to 7 p.m. Send for Catalogue, post free.



PRICE £2 15 0 complete, no further outlay.

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CHAPTER 3

VINTAGE WIRELESS TRADEMARKS

A-B Abbey Industries
Abbiphone Abbey Industries
Abel Austin Bros. Electrical Co.



Abelsco Albion Electric Stores
(Leeds)
Abgar Abgar Electrics
Abgar Holthouse (Plymouth)
Acrophone Watkins (Salop)
Adaptolite Attaix Ltd.
The Advance Equipments Ltd.
Aeriola Aeolian Co. Ltd.
Aeroelectric Aeolian Co. Ltd.
Aerophone J. A. Coomes (London)
Aethercepta Mitchell's Electric &
Wireless
Aladdin Aladdin Industries Ltd.
"All-clear" W. Dibben & Son
"All-on" Rogers Foster & Howell
"All-wave" Radi-Arc Electrical Co.
Ltd.
Altraphar Vavasour Earle
Amac Amac Ltd. (Birmingham)
Amplex Collins & John Ltd. (Bir-
mingham)



- Ampliphone Harris
- Amplivox Sterling Telephone Cr
- Andia Andia Ltd.
- Anodian Sterling Telephone Co.
- Apollo Craies & Stavirdi
- Arcadian Baron & Coates
- Argus Anderson's Wireless Sales Agency
- Aristocrat General Radio Ltd.
- Aristophone C. F. Elwell Ltd.
- Astra Freeman & Weldon
- A.T.M. Automatic Telephone Manufacturing Co.
- A.T.E. Anderson's Wireless Sales
- A.T.M. Turner
- Audalion Lee de Forest, New York
- Audioform Pacent Electrical Co. Manhattan, USA
- Auriolphone Auriol Supplies Co.
- Autobat Climax Radio Electric
- Autocrat Rogers Foster & Howell
- A.W.S. Ashcrofts Wireless Stores
- Banbat Prima Co. (Birmingham)
- Barnes Multiphones S.O.S. Patents Co.
- Barsome Barnett & Soans (Kettering)
- B.B.C. British Broadcasting Company
- Beauty Gramophone Manufacturing Co.
- Becop British Electrical Manufacturing Co.
- Benbow Falk Stadelmann & Co. Ltd.
- Berclif Simmonds Bros. (Birmingham)
- Bijou British Thompson-Houston Co. Ltd.
- Bijouphone Wates Bros. Ltd.
- B & F Bannister & Fitton (Lancs)
- "Bird" (Design only) Cahill & Co.
- "Bluebell" (Design only) Lissen Ltd.
- Blue Spot Ideal Radiotelefon und Aparate Fabrik Gesellschaft, Berlin
- Bonnivox Kennedy (London)
- Brandes Brandes Ltd.
- Brandola Brandes Ltd.
- B.R.C. British Radio Corporation (Weybridge)
- B.R.C. W. J. Henderson & Co. Ltd.
- Briticent The British Central Electrical Co.
- British Best Built Lincoln Trust Co.
- Britmax British General Manufacturing Co. Ltd.
- Britphone British Wireless Supply Co. (1924) Ltd.



- | | |
|--|--|
| Britwire British Wireless Supply Co. | C. & H. Pratt & Co. |
| B.R.M. British Radio Manufacturing Co. | Chello Climax Radio Co. |
| "Broadcaster" Radi-Arc Electrical Co. | Clarabut J. Macdonald & Co. |
| Broadco Broadcast Wireless Co. | Clarecryst P. Sherman. |
| Brown S. G. Brown Ltd. | Claremont P. Sherman |
| Brownie J. W. B. Wireless Co. (becomes Brownie Wireless Co.) | Clairvox Kent House Engineering Co. |
| B.T.H. British Thompson-Houston Co. Ltd. | Claristal Ward & Goldstone (Manchester) |
| Bullphone Bullen (London) | Claritone Automatic Telephone Manufacturing Co. (Liverpool).
See also Ashley Wireless Telephone Co. |
| Burndept Burndept Ltd. | Clarity Gramophone Manufacturing Co. |
| Capitol Hobday Bros. | Clearcryst Auriol Supplies Co. |
| Carmalite Merchants & Agencies Ltd. | Climax Climax Patents Ltd. |
| Castaphone Gordon Castognoli (Essex) | Colvern Collinson's Precision Screw Co. Ltd. |
| C.A.V. C. A. Vandervell & Co. | Compactum Edison Swan Electric Co. |
| Celestevox Rogers (Birmingham) | Concertone Lyons (Blackpool) |
| C. G. H. Mellowtone Midland Radiotelephonic Manufacturers Ltd. (Stourbridge) | Condit Autoveyors Ltd. |
| Chakophone Eagle Engineering Co. Ltd. | Connode C. F. Needham & Brother Ltd. (Sheffield) |
| Chakophone Mayall & Co. (Birmingham) | Connaught Will Day Ltd. |
| Challenge Radiax Ltd. | Conquest Thomas (Birmingham) |
| Chantry Dawson, Chantry Radio Co. Rotherham, Yorks | Cosmos Metropolitan-Vickers (and Metro-Vick Supplies) |
| | Critic Franklin & Freeman |
| | Crystolia J. H. Holland & Co. (Cheshire) |



- Crystophone Forbes (London)**
Crystophone Wireless Supplies Co.
Crystor Forbes (London)
Crystvalve Crouch End Motor & Engineering Co.
C.S-Eones Smith & Craik
Curfew Watkins (Salop)
Cymosite Northern Eastern Electric Instrument Co.

Dario Impex Electrical Ltd.
Davreach Millington (Birmingham)
Decca Barnett Samuel & Sons Ltd.
Derenco A.W. Hughes (Sheffield)
Deskaphone Holborn Radio Co.
Deucalion Yorkshire Radio Co.
Devicon Radio Devices Co. (Notts.)
Devostat Falk Stadelmann & Co. Ltd.
Diamond Diamond Wireless Equipment Co.
Dimic L. McMichael Ltd.
Dinaxa Page (London)
Discol Gent & Co. (Leics.)
Donex H. Soley & Co.
Dribat Western Electric Co.
Duco Brown Bros.
Dulcetone Edison Swan Electric Co.
- Duodyne Peter Curtis**
Duosona T. Grimes & Co.
Duovalve C.A.C. Valve Distributing Co. Ltd.
Duric Radio Acoustics Ltd.
Dymo Dynamergy Mains Supply (Staines)
Dynophone Farquar (London)

Eagle Engineering Supplies
Eddystone Rainsford & Laughton (Birmingham)
Edinaphone Scottish Radio Centre (Edinburgh)
Edison Bell Edison Bell Ltd.
Efesca Falk Stadelmann & Co. Ltd.
Efescaphone Falk Stadelmann & Co. Ltd.
Efficiency Gambrell
Electrad Electrad Inc. (New York)
Electrola Gramophone Co.
Electromophon Electromophon Gesellschaft (Stuttgart)
Emerald Emerald Radio Co.
Em-Pe-A-Adyne M.P.A. (Wirless) Ltd.
Emsco Electrical & Mechanical Supplies Co.
Encore West & Jackson (London)



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|---|---|
| Equitone Hull Co-operative Society | The Fez Cap Lyon (Suffolk) |
| E.S. Edison Swan Electric Co. | Finstone Stone (London) |
| Esono Edwards Sons & Co. | Fireside Rawle Bros. (Birmingham) |
| Ethovox Burndept Ltd. | Flemicon Gorton Manufacturing Co.
(Birmingham) |
| Ethodyne Burndept Ltd. | Flinderphone Flinders (Wholesale)
Ltd. |
| Ethophone Burndept Ltd. | Fortevox Fraser & Glass |
| Ethophonola Burndept Ltd. | Fourplex Sterling Telephone Co. |
| Ethopower Burndept Ltd. | Frelat Naamlooze Vennootschap
Frelat Export MIJ (Amsterdam) |
| Euphone E. E. Rosen | Fullertone Cabinet Gramophone Co. |
| Eureka Electric Appliances Co. | Gecophone General Electric Co.
Ltd. |
| Eurekaphone Electric Appliances
Co. | Gegostie General Electric Co. Ltd. |
| Exaphone International Exaphone Co.
(Derby) | Geraco Wireless Radio Corporation
(USA) |
| "Exchange" British Radio Corpora-
tion | Gillan Gilfillan Bros. |
| Exceedall W. Wilson & Son Ltd. | Gimbolder Igranic Electric Co. |
| Faeritone Mechanical Utilities Co. | G. K. Liquitone Gladwell & Kell Ltd. |
| Faithfull Service Paul Taylor (Ket-
tering) | Gledallphone Birmingham Wireless
Co. Ltd. |
| Fallowflex Jonathan Fallowfield &
Co. Ltd. | Goldstream Axelrad (London) |
| Fellophone Fellows Magneto Co.
Ltd. | Goltone Ward & Goldstone (Man-
chester) |
| Fellowcryst Fellows Magneto Co.
Ltd. | Gordon Falk Stadelmann & Co. Ltd. |
| Fewco F. E. Wilson & Co. (Birming-
ham) | Graybar Western Electric Co. Inc. |
| | G.R.C. General Radio Corporation |



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|---|--|
| Holrose Holrose Manufacturing Co. | Lanite Lambshear & Porritt (Manchester) |
| Harmony Gramophone Manufacturing Co. | Lecodyne London Electrical Co. |
| Hart-Collins Hart Collins Ltd. | Ledion L. E. Dowse & Co. |
| Hogarth International Motors Ltd. | Lesradio Superlamp Ltd. |
| Ideal A. W. Gamage Ltd. | Levis Butterfields Ltd. (Birmingham) |
| "Ideal" S. G. Brown Ltd. | Liberty Radi-Arc Electrical Co. Ltd. |
| Ignaphone Igna Eng. Co. Ltd. | Lilliput Sterling Telephone Co. |
| Interdyne Radio Instruments Ltd. | Lintophone The Lintophone Co. |
| Ionophone J. A. Coomes | Liquitone Gladwell & Kell Ltd. |
| Ionophone John Henderson (Bucks) | Lissen Lissen Ltd. |
| Iris Marconi Wireless Telephone Co. Ltd. | Lissenola Lissen Ltd. |
| Izon Walton (London) | Listenoleon Radiophones Co. |
| | Listophone Pennington (London) |
| | Liverphone Liver Radio Manufacturing Co. Ltd. |
| Jecophone General Electric Co. Ltd. | Lodge N. Circuit Cleartron Radio Ltd. |
| J.R. Jean Rigaut (London) | Lodgen Lodge Ltd. |
| Kaidaphone Clark (Surrey) | Loewe-Radio Loewe Ltd. |
| Kaynite A. W. Knight Ltd. | Lucitone Victoria Wireless Co. |
| Kay-Ray K. Raymond (London) | Lyrian Radio Instruments Ltd. |
| King Radio H. Stanley Price | Lyrianette Radio Instruments Ltd. |
| Kodel Carpax Co. (Manchester) | |
| Koh-i-noor Anglo-American Chemical Co. | M Manhattan Electrical Supply Co. |
| Kylbro Klein Bros. | Macradio MacArthur |



- Magnadyne Burne-Jones & Co.
- Magnatone Sparklets Ltd.
- Magnavox Magnavox Co. (California, USA)
- Magnora Conduit Wireless Co.
- Magnum Burne-Jones & Co.
- Majestic Edison Bell Ltd.
- "Major" Radi-Arc Electrical Co.
- Mandem McLeod & McLeod
- M.A.P. M.A.P. Company
- Marblok Ideal Radiotelephon und Apparate Gesellschaft (Berlin)
- Marconi Marconi Wireless Telegraph Co. Ltd.
- Marconiphone Marconi Wireless Telegraph Co. & Sterling Telephone Co.
- Markas Gordon Bros. (Manchester)
- Mastavox Master Radio Manufacturing Co.
- M.A.X. Automatic Telephone Manufacturing Co.
- Melbaphone Aeradio Ltd.
- Melloxdyne Pollock Bros. (Scotland)
- Mellotone Diamond Wireless Equipment Co.
- Mellowtone "Mellowtone" Co.
- Melokay W. Hayes
- M.E.W. Mitchell's Electric & Wireless Ltd.
- M.H. L. McMichael Ltd.
- Mic-Met Cox & C. J. Arigoni
- Midge G. H. J. Trading Co.
- The Mighty Atom Ortega (London)
- Mippophone M. I. Vaughton (Birmingham)
- Monodyne Gilfillan Bros. Ltd.
- Monosone Premier Manufacturing Co.
- Monosonic Anglo-American Chemical Co.
- Mozzulphone B.D.S. Wireless Co. (Birmingham)
- M.R. Neutropath White & Ritchie (Edinburgh)
- Multicon Price's Battery & Radio Co. Ltd.
- Music Master Music Master Corporation (Philadelphia, USA)
- Music Master Wireless Radio Corporation (USA)
- Musikon Will Day Ltd.
- M.P.A. M.P.A. (Wireless) Ltd.
- Nelson Multi Warner (London)
- Neutrodyne Hazeltine (New Jersey, USA)
- Neutrola Fada Radio Co.
- Neutrolette Fada Radio Co.
- Neutrola Grand Fadio Co.



- Neutroreceiver** Fada Radio Ltd.
Neutrosonic Igranic Electric Co.
Newman Jonathon Fallowfield Ltd.
Nocturne Ryeland (Birmingham)
Nomag Ferranti Ltd.
Nora Aron Elektizitäts Gesellschaft
 (Charlottenburg, Germany)
Nuk Neufeldt und Kuhrike (Kiel,
 Germany)

O.K. Hambling Clapp & Co.
Omarvella Stevens (London)
Omni Scott Taggart (London)
Operadio Operadio Corporation
 (Chicago, USA)
Operatone Sparklets Ltd.
Operavox Edison Swan Electric Co.
Oracle Witteringham Ltd. (Northamp-
 ton)
Ortho-Sonic Federal Radio Corpora-
 tion (Buffalo, USA)
O-Solowd British Radio Wireless
 Manufacturing Co. Ltd.

Pacent Igranic Electric Co.
Palophone Morch Bros.
Paradyne Paradyne Manufacturing
 Co. (Essex)
Patrone Harrison & Culff

Pegasus Clark & Roberts
Pelican Cahill & Co. Ltd.
Pelmerset Peronet Ltd.
Perflex Wireless Apparatus Ltd.
Peter Pan Radio Accessories Ltd.
Pharo Phone Eastern Radio Service
Pharos L.H.M. Engineering Co.
Phonophore Radio Phonophore and
 Electrics

Phonos Pettigrew and Merriman
 (1925) Ltd.
Pipsopan Archdale (Torquay)
Pival La Société Pival (Tulle,
 France)
Polar Radio Communication Com-
 pany Ltd.
Portadyne Whittingham Smith & Co.
Powercryst Urech Supplies (Lewis-
 ham)
P.P.P.P. Plessey & Co. Ltd.
Premier Auriol Supplies Co.
Princeps Concert Prince's Electric-
 cal Clocks Ltd.

Priorphone W. H. Collins & Co.
 (Birmingham)
Promac R. W. Proffitt (Bolton)
Pleasure Time General Radio Ltd.

Q Primus Manufacturing Co.



- Q.P.** Quality Products (Cheshire)
Quality S.A. Lamplugh Ltd.
- Radcom** Radio Components Ltd.
- Radcroix** Wholesale Wireless Co.
- Radiak** Ashley Wireless Telephone Co.
- Radiac** Radio Accessories
- Ra-Diag** W. Samuel Wilson
- Radialities** Partridge's Ltd. (Birmingham)
- Radiobrix** Metropolitan-Vickers (and Metro-Vick Supplies)
- Radiocert** Mitchell's Electric & Wireless Ltd.
- Radiodyne** Radiodyne Ltd.
- Radiofone** British Radio Sales Co. Ltd.
- Radiofone** Lincoln Trust Co.
- Radiola** Eccles (Birmingham). Except gramophones.
- Radiola** Electric Appliances Co.
- Radiolys** Radioland Ltd.
- Radiomatic** Gent & Co. Ltd.
- Radionette** Peter Curtis Ltd.
- Radio Palabra** Pala A. Spal (Slaug, Czechoslovakia)
- Radiostar** Edison Swan Electric Co.
- Radiovim** Radiovim Ltd. (Liverpool)
- Radio-Wave** Medical Supply Association Ltd.
- Rayol** Engineering Works (Electrical & General) Ltd.
- "Real"** Read Radio Ltd.
- Reco** Roberts Engineering Co.
- Rectaloy** J.H.T. Roberts (Roberts Engineering)
- Rectron** R.C.A. (USA)
- Red Diamond** Jewel Pen Co.
- Red Seal** Tippetts (Warwicks)
- Re-Echo** Re-Echo Electrical Manufacturing Co.
- Regent** Will Day Ltd.
- Regent** Hawley's
- Regentone** Regent Radio Supply
- Reliance** Reliance Radio Service Co.
- Resistoflex** Scott Taggart
- "Resistor"** British Thompson-Houston Co. Ltd.
- Revo** Cable Accessories Co.
- Revophone** Cable Accessories Co.
- Rexophone** Morch Bros. Ltd.
- Rhapsody** R. May (Croydon)
- R.I.** Radio Instruments Ltd.
- Ripplephone** Dungay (London)
- Rodeo** Sel-Ezi Wireless Supply Co. Ltd.



- Rolls Hoare & Jagels
- Rotola Rotax Ltd.
- R.S.N. Auto Sundries Ltd.
- Runco Runwell Cycle Co.
- Resonic Thorp Roderick Ltd. (Beds)
- Sacophone Standard Automobile Co.
(Bradford)
- St. Vincent Falk Stadelmann & Co.
Ltd.
- Salient "S. A. Cutters" Ltd.
- Sarumphone T. J. Johnson (Salisbury)
- Seagull Seagull Ltd.
- Seamark C. E. Needham & Brother
Ltd. (Sheffield)
- Sedonia Sheffield Wholesale Motor
Supplies
- Selector Selectors Ltd.
- "Super-Selector" Radi-Arc Electric
Co. Ltd.
- Sencon Brook Engineering Co.
- Sentinel Sentinel Trading Co.
- Service Service Radio Co. Ltd.
- Seymour Falk Stadelmann & Co. Ltd.
- Sferavox Société Française Radio-
Electrique (Paris)
- Siemens Siemens Bros & Co. Ltd.
- Silver Knight Eliot (London)
- Silvervox The India-rubber Gutta-
perch and Telegraph Works Co.
- Simplex H.P.R. Wireless
- Simplicity Read & Morris Ltd.
- Simplodyne Elstree Radio Co. Ltd.
- Simplon Dargue Bros Ltd.
- Sonola Ward & Goldstone
- Sonoradio Sonoradio Inc. (New York)
- Spa Spa Radio Co. Ltd.
- Spensertone Spensers (Scotland) Ltd.
- Spinnet Hart Collins Ltd.
- Splendo Wholesale Fittings Co. Ltd.
- Spotter Yorkshire Radio Co. Ltd.
- Stadiovox Barson (Leics)
- Standard S.T.C. Ltd.
- Stanophone W. Vanstone Ltd.
- Stella Stella Products
- Sterling Dinkie Sterling Telephone Co.
- Stiradio Stirlings Ltd. (Kingston-
on-Thames)
- Success Super Beard & Fitch Ltd.
- Superdyne Burndept Ltd.
- Superdyne British Radio Manufac-
turing Co. (Liverpool)
- Superfone Radio Supply Co. (Bir-
mingham)
- Superhetrodyne La Société Radio
Française (Paris)



- Superhexadyne** La Société Radio Française (Paris)
Superial New London Electric Works
Super Neutrodyne La Société Radio Française (Paris)
Superpentodyne La Société Radio Française (Paris)
Super Selectodyne La Société Radio Française (Paris)
Supertetradyne La Société Radio Française (Paris)
Supremam Brahams (Houndsditch) Ltd.
Symphon Mitchell's Electric & Wireless Ltd.
Synchronola Synchronola Radio Co. (Lancs)
Syren H.C. Tofield Ltd. (Birmingham)
The System Automatic Telephone Manufacturing Co.
Statophone C.F. Elwell Ltd.
Tameside Hirst Bros & Co. Ltd.
Tandco Turner & Co.
Tangent Gent & Co. Ltd.
Telal Hill (Manchester)
Telecepta Mitchell's Electric & Wireless Ltd.
Teleola Dale Forty & Co.
Telephonic Apparatus Atwater Kent Manufacturing Co.
Tellite C.F. Elwell Ltd.
Thames Thames Electric Wireless Co. Ltd.
Thermiodyne Thermiodyne Radio Corporation (New York)
Thor S.H.C.S. Co.
Thor Reichmann Co. (Chicago)
Thorola Reichmann Co. (Chicago)
Threflex Sterling Telephone Co.
Thulephone Robert Williamson
Timeoscope Ideal Radiotelefon Gesellschaft Und Apparate Werk (Berlin)
Tom Thumb Richard Brenchley (Paris)
Tomtit C.A. Vandervell & Co.
Toovee Edison Swan Electric Co.
Touchtone Gent & Co.
Tower Brand Tower Radio Supply Co.
Transant W. H. Tant & Co. (Birmingham)
Triumph A. H. Clackson Ltd.
Trix E. J. Lever Ltd.
Trulov Radio Communication Company
T.S.F. T.S.F. Ltd. (London)
Tunion Turncock (Birmingham)
Tunomophone Elliott (Suffolk)



- Tyaphone** Herbert Tyas & Co. (Yorks)
Towncrier Harvery Radio
Trutone Richardson (Manchester)

Ultra E.E. Rosen & Co.
Ultraphone E.E. Rosen & Co.
Uncle Tom's Payne & Hornsby (Newcastle)
Uniplex Burndept Ltd.
Unitron Garrod (Wellingborough)
Utlility Wilkins & Wright Ltd.

Valpo Merton Davis Parnell & Co.
Valvcrys Cable Accessories Co.
Varic Varic Co. (Bedford)
Vasola Thompson (New Malden)
Victor Victor Radio
Voltron Voltron Co.
Voxola Rogers Foster & Howell
Vox Populi Bowyer-Lowe Ltd.

Warwick City Radio Service
Weconomy Western Electric Co.
Wireless Equipment Wireless Equipment Ltd.
- Wirelocepta** Mitchell's Electric Wireless Ltd.
Wootophone Wootten (Oxford)
Wovex Holmes (Cheshire)
Wunderway Steels & Busks Ltd. (Leics)
Wyray Hickson (London)
Wyvern Fairfield & Co. (Leics)
W. & W. Wright & Weaire Ltd.

Yokophone Haywood (Herts)
Yotto Wholesale Fittings Co. Ltd.

Zampa Mic Wireless Ltd. (Wellingborough)

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THE WIRELESS WORLD AND RADIO REVIEW FEBRUARY 3, 1923

T.M.C. WIRELESS



for
football results

A T.M.C. Wireless Set will enable you to follow your favourite team and hear the results of each match practically as soon as the match is over.

Or you may be interested in boxing, the latest news, stock exchange quotations, the weather forecast, delightful concerts or an evening of dancing.

You can have all these, enjoyably and pleasantly in the comfort of your own home with a T.M.C. Wireless Receiver.

There is no trouble to you—T.M.C. have engineers in every large town to advise you, free of cost and without obligation as to the best apparatus to use.

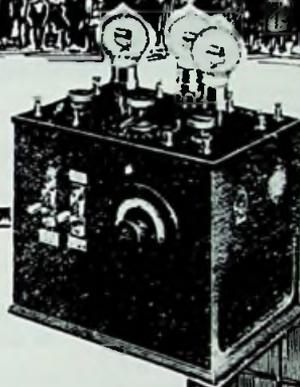
Your choice having been made—T.M.C. engineers will install the apparatus and periodically inspect it.

T.M.C. Wireless Receivers, which are fully approved by the Postmaster-General, bear the seal of the British Broadcasting Company.

The wide variety of models are entirely British Made.
From £4 : 5 : 0 upwards, including all Royalties.

London, Birmingham, Manchester and Newcastle are broadcasting now.

Come and listen to them any evening up to 10 p.m. at our showrooms in :—London, Birmingham, Belfast, Bristol, Cardiff, Dublin, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Sheffield.
Write to us for our nearest address.



The 'Everet' Crystal
No adjustment necessary
Fits any Crystal Receiver
10/- each



ES
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TELEPHONE MFG. CO. LTD.
HOLLINGSWORTH WORKS, DULWICH, LONDON, S.E. 21.

JUNE 3, 1923

THE WIRELESS WORLD AND RADIO REVIEW

XXXV

TRIUMPH WIRELESS SPECIALITIES

SPECIAL DISCOUNTS TO THE TRADE.

CRYSTAL SET NO. 1.

Approved P.M.G. 419.



Complete as illustrated .. 40/-
Receiver only (assembled) .. 12 6
Receiver only (unassembled) .. 10/-

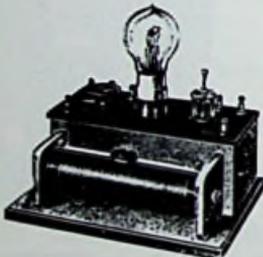
CRYSTAL SET NO. 2.



Complete, as illustrated in No. 1
but with above receiver .. 47 6
Receiver only (assembled) .. 15 -
Receiver only (unassembled) .. 11 6

CRYSTAL SET WITH AMPLIFIER.

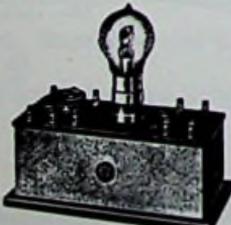
Approved P.M.G. 0591.



Complete as illustrated .. 22 18 6
Parts only .. 12 0 0
Valve (extra) .. 13 6

VALVE AMPLIFIER.

Approved P.M.G. 3321.



Complete as illustrated .. 22 7 0
Parts only .. 12 0 0
Valve (extra) .. 13 6

CRYSTAL.

Super Sensitive. Best Quality.
Plain or in Woods metal .. 1 -

VALVES.

4-Volt L.T., 50 Volt H.T. 13 6
Valve Holders .. 1 3

CRYSTAL DETECTORS.

Superior Dustproof, as No. 2 .. 5 6
Not dustproof, on 4 x 2 Ebonite .. 3 6

VOLTMETERS AND AMMETERS.

To suit all requirements.
10 6

LEAD-IN TUBES .. 1-, 1 2, 1 6
INSULATORS .. 3d, and 4d.
FILAMENT RESISTANCES .. 2 9

HIGH GRADE L.F. TRANSFORMERS.

1 1/2 x 1 1/2.



1 to 1 .. 17 6
5 to 1 .. 15 6
In polished Cabinet with engraved
Ebonite top, 5, extra.

ACCUMULATORS.

Best Quality.

4-Volt 30 amp. actual .. 30 -
6 Volt 30 Amp. actual .. 45 -

H.T. BATTERIES.

66 Volt with Plugs .. 12 6

D.C. CHARGING SETS.



As illustrated.

No. 1, 24 17s. 6d. No. 2, 25 17s. 6d.
Other Sets at 33 - and 55 -.

A.C. CHARGING SETS.



As illustrated.

Output, 25 volts 5 amps .. 210 17 6
Output 50 volts 5 amps .. 211 10 0
Rectifier only .. 26 17 6

TELEPHONES.



Ladies' Handphones, B.B.C. .. 10 6
Headphones, 4,000 ohms .. 20 -
Special quality, B.B.C. .. 27 6

ALL B.B.C. TAXES EXTRA. ABOVE PRICES CARRIAGE PAID FOR CASH WITH ORDER.

TELEPHONE:
GERRARD 5287-5288.

C. T. LTD.,

26, CHURCH STREET,
SOHO, W.1.

Chapter 4

VINTAGE WIRELESS COMPANIES

This index of Companies involved in the Vintage Wireless industry includes a Company's Year of Registration where this is known to have happened between 1922 and 1927, and where possible any alteration of a

Company's name and/or amalgamations during this period. Town or County after name indicates area.

A & C Receivers Ltd. (Staffs) Registered 1927.

Abbey Industries Ltd. becomes Richards Walton Ltd.

Abgar Industries.

Ace Radio Manufacturing Co.

Acrophone Ltd.

Acton Bros. Ltd.

Adastral Wireless Manufacturing Co. (Sheffield)

Advance Wireless Ltd. Registered 1923.

Aedon Wireless Telephones Ltd. Registered 1926.

Aeolian Co. Ltd.

Aeradio Ltd. Formerly H. Stanley Price Co.

Alba Electrical Co. (B'ham) Ltd. Registered 1926.

Albany Accumulators Ltd. Registered 1924.

Albion Electric Stores (Leeds)

All-British Wireless Manufacturers Ltd. (Liverpool) Registered 1922.

Alphian Wireless Ltd. Registered 1926.

Amateur Supplies.

American Radio Corporation Ltd. Registered 1926.

Anderson's Wireless Sales.

Anglo-American Chemical Co.

Anglo-French Wireless Co. Ltd.

Anode Wireless and Scientific Instrument Co. Ltd.

Anodon Ltd.

Apollo Wireless Co. Ltd. (Slough) Registered 1924

Ashcroft Wireless Stores

H.E. Ashdown Ltd. (B. ham)

Ashley Wireless Telephone Co. Ltd.

Ashley Wireless Telephone Co. (1925) Ltd. First company wound up 1925. New company registered 1925. Distributors for Automatic Telephone Manufacturing Co.

Associated Electrical Traders Ltd.

Atlas Wireless Co. Ltd. (Kingston-on-Thames) Registered 1923.

Attaix Ltd. (Southampton)

Attracta Radio Co.

Atwater Kent Manufacturing Co.

Aucklands Wireless Ltd. Registered 1923.

Audion Radio Co. Ltd. (Glasgow) Registered 1924.

Auriol Supplies Co.

Austin Bros. Electrical Co.

Automatic Telephone Manufacturing Co. (Liverpool) Ashley Wireless Telephone Co. distributors for the latter.

Automobile Accessories (Bristol) Ltd.

Auto Sundries Ltd.

Autoveyors Ltd.

B.D.S. Wireless Ltd. (B'ham) Registered 1923.

B.S.A. Radio Ltd. (B. ham) Registered 1925, the latter company appears to have had a set making agreement with S.T.C.

Barnett & Soans. (Kettering).

Bannister & Fitton. (Rochdale).

Baron & Coates.

G. F. Barrington & Co. Ltd. Registered 1922.

Basson Electrical Co. Ltd. (Lancs) Registered 1924.

E. J. Baty. (Luton).

Bay-Brooke Co. Ltd. Registered 1923.

Gordon Baynton Ltd. (B'ham) Registered 1927.

Beard and Fitch Ltd.

Beaver Electrical Supply Co.

A. Behm Ltd. Registered 1924.

Belbin & Bowden Ltd. Registered 1924.

Beldam Tyre Co. (1920) Ltd.

Belling & Lee Ltd. Registered 1923.

Beresford Bros Ltd. (B'ham) Registered 1924.

Birmingham Radio & Engineering Co. Ltd.

Birmingham Wireless Co.

Birmingham Wireless Co. Ltd. Registered 1923.

Bloom's (Wireless) Ltd. Registered 1923.

J. B. Bower.

Bower Electric (Bristol) Ltd. Registered 1924.

Bowyer-Lowe Ltd. Registered 1922.

Brahams (Houndsditch) Ltd.

Brandes Ltd. Registered 1924.

Bridge & C. T. M. Co. Ltd. Registered 1921 as C. T. M. Co. Ltd. and new titles taken in 1922.

Brijane Ltd. Registered 1924.

British Broadcasting Co.

The British Central Electrical Co. Ltd.

British Curtis Radio Ltd. formerly Peter Curtis Radio Ltd.

British and Colonial Industries Association Ltd.

British Electrical Instruments Ltd. (Manchester) Registered 1923.

British Electrical Manufacturing Co.

British General Manufacturing Co. Ltd.

British General Radio Co. Ltd. Registered 1923.

British Gramophone & Wireless Co. Ltd. Registered 1923.

British Home Wireless Co. Ltd. Registered 1923.

British L. M. Ericsson Manufacturing Co. Ltd.

British Portable Radio Ltd. Registered 1925.

British Radio Corporation, became English Radio Corporation Ltd.

British Radio Corporation Ltd. Registered 1924, it is thought this company was formerly Taylor, Taylor & Parkinson.

British Radio Manufacturing Co.

British Radio Manufacturing Co. (Liverpool).

British Radiophon Co. Ltd. (Notts) Registered 1922.

British Radio Sales Co. Ltd.

British Radio Wireless Manufacturing Co. Ltd. Registered 1922.

British Thompson-Houston Co. Ltd. (Rugby). This company was controlled by American General Electric.

British Wireless Supply Co. This company became British Wireless Supply Co. (1924) Ltd.

Broadcast Wireless Co.

The Broadway Radio Works.

Brook Engineering Co.

Brown Bros.

F. C. Brown (Electricity) Ltd. (Coventry) Registered 1923.

S. G. Brown Ltd.

Brownie Wireless Co. of Great Britain Ltd. Registered 1925. This company was formerly J. W. B. Wireless Co.

Burke Electrical Manufacturing Co. This company became John Godden & Co. and appears to have also included Frank Kent & Co.

Burndept Ltd.

Burndept Wireless Ltd. This company was formerly Burnham & Co. (Deptford).

Burne-Jones & Co.

J. Burns Ltd.

Bussanel Engineers Ltd. Registered 1923.

H. D. Butler & Co.

Butterfields Ltd. (B'ham).

Cabinet Gramophone Co.

Cable Accessories Co. Ltd.

C.A.C. (Radio) Ltd.

Cahill & Co. Ltd.

Bruce Campell Ltd. Registered 1923.

Cantophone Wireless Co.

Carey Hallelwell & Co. Ltd. Registered 1923

Carpax Co. (Manchester)

J. L. Cartwright & Co. (Manchester)

Celestion Radio Co.

Central Garage & Wireless Co.

L. J. Chambers & Co.

City & General Radio Co. Ltd. Registered 1926

City of London Radio Corporation Ltd. Registered 1926

City Radio Service. (Birmingham)

A. H. Clackson Ltd. (Manchester)

Cleartron Radio Ltd.

Cleartron Radio (1927) Ltd. Registered 1927.

Climax Patents Ltd.

Climax Radio Electric Ltd. Registered 1925.

Cobb Webb & Co. Ltd. Registered 1923.

C. T. Colbery & Co. Ltd.

E. K. Cole & Co. Ltd.

Collinge & Corrigan Ltd. (Southport).

Collins & John Ltd. (B'ham).

W. H. Collins & Co.

Collinson's Precision Screw Ltd.

Consolidated Trading and Manufacturing Co.

Comton Wireless Manufacturing Co.

J. A. Coomes & Co. Ltd.

Coughlan & Tyrell Ltd.

Cox-Cavendish Electrical Co. Ltd.

Cook & Whitfield Wireless Ltd.

Cook's Wireless Ltd. (Norwich).

A. C. Cossor Ltd.

Craies and Stavridi.

Cromtophone Ltd. Registered 1923.

Crouch End Motor and Engineering Co.

Peter Curtis Ltd. This company became British Curtis Radio.

Croydon Engineering Co. Ltd. Registered 1924.

Crystophone Manufacturing Co. Ltd. Registered 1922.

C. T. Ltd. This company appeared to trade under the name Triumph Wireless Specialities.

S. A. Cutters Ltd.

Cymbal Ltd. Registered 1925.

Dale Forty & Co.

Darco Ltd. Registered 1925.

Dargue Bros Ltd.

G. Davenport (Wireless) Ltd.

H. E. Davis Ltd. Registered 1924.

C. & B. Dawson Bros. Ltd. Registered 1924.

Will Day Ltd.

Detex Ltd. Registered 1925.

Diamond Wireless Ltd.

Diamond Wireless Equipment Co.

W. Dibden & Son. (Southampton).

W. Diskett Ltd. (Newcastle). Registered 1924.

C. S. Dunham.

P. C. Dwyer & Co.

Dynamergy Mains Supply. (Staines).

Dynaphone Works.

J. Dyson & Co. Ltd. (Bradford).

Eagle Engineering Co. Ltd. (Warwick).

Eagle Electrical Manufacturing Co. Ltd.

East London Rubber Co.

Eastern Wireless Company.

Eastern Wireless Co. Ltd. Registered 1923.

Easton Radio Service.

Econ Manufacturing Co. Ltd.

Economic Car Light Co.

Economic Electric Ltd.

Eddystone Components Ltd. Registered 1925.

Eddystone Radio Co. Ltd.

Edison Bell Ltd. This company was formerly Edison Bell Radio.

Edison Swan Electric Co. Ltd.

Electric Appliances Co.

Electrical Accessories Manufacturing Co.

Electrical Ohms Ltd. Registered 1924.

Electrical & Allied Instrument Manufacturing Co. Ltd. Registered 1924.

Electrical Devices Ltd. (Newcastle).

Electrical & Mechanical Supplies Co.

Electrophone Ltd.

Elliot & McCarthy Ltd. Registered 1923.

Elliott Radio Manufacturing Co. Ltd. Registered 1925.

Elstree Radio Co. Ltd.

C. F. Elwell Ltd.

English Radio Corporation Ltd. Registered 1924. This company was formerly British Radio Corporation.

Enterprise Manufacturing Co.

Eons Wireless Supply Co.

The Esco Wireless Co.

Essanco Instrument Manufacturing Co. Ltd.

Eureka Electrical & Wireless Maintenance & Guarantee Co.

Ever-Ready Co. (Gt. Brit.) Ltd.

Express Radio Co. Ltd. Registered 1926.

Fada Radio Ltd. Registered 1925.

Fairfield & Co. (Leics).

Falk Stadelmann & Co. Ltd.

Jonathan Fallowfield Ltd.

Faulkner & Co. Ltd. (Manchester).

Felcourt Products Ltd. (East Grinstead).

Fellows Magneto Co. Ltd.

Flactophone Wireless Ltd.

Fleet Radio Co.

Flinders (Wholesale) Ltd.

Forbes Bros. Ltd. Registered 1925.

Forum & Co. Ltd. Registered 1923.

Arthur G. Foulds Ltd.

Franklin & Freeman Ltd. Registered 1926.

Fraser & Glass.

Freed-Eisemann Radio of Great Britain Ltd. Registered 1926. This company appeared to be formerly De Leeuw & Co. Ltd.

J. & L. Galloway Ltd. Registered 1926.

A. W. Gamage Ltd.

Gambrell Bros. Ltd.

A. J. Garrod. (Wellingborough). Believed to be a Valve Repair Co.

G.E.C. Ltd. (General Electric Co.).

General Radio Co.

General Radio Co. Ltd.

General Wireless Co.

Gent & Co. Ltd. (Leicester).

Gibrico Electric Ltd.

Gilfillan Bros. & Co.

Gilfillan Bros. & Co. Ltd. Registered 1925.

G. Gilliver & Co. Ltd. Registered 1924.

Gil-Ray Trading Corporation Ltd. Registered 1925. This company was formerly Gil-Ray Radio Co.

Gladwell & Kell Ltd.

Glevum Motor & Radio Co. Ltd.

R. R. Goding Ltd.

Gordon Bros. (Manchester).

Gordon Radio Co.

Gordon Castagnoli.

Gorton Manufacturing Co. (B'ham).

J. G. Graves Ltd.

T. Grimes & Co.

Halcyon Wireless Supply Co. Ltd. Registered 1923.

Hambling Clapp Ltd.

A. C. Hamilton Ltd. Registered 1924.

Hamilton Bros. Ltd. Registered 1923.

W. J. Hannah Ltd. (Glasgow). Registered 1926.

W. P. Harding & Co. Ltd. Registered 1925.

Harko Ltd. Registered 1926.

Hart Collins Ltd.

Harvey Radio Co.

Hatchett & Co. Ltd. (Southport). Registered 1925.

Hawk Coil Co. Ltd.

Hawley's.

Haydey Ltd.

H. Haydon Ltd. (Leics).

Hazeltine Neutrodyne Radio Sets Ltd. Registered 1923.

Headphones (Manchester) Ltd. Registered 1923. This company was formerly Oxford Electric Co.

H. E. C. Electric Co. Ltd. Registered 1923. This company was formerly Higham Engineering Co.

Helikon Wireless Co. Ltd. Registered 1925.

W. J. Henderson & Co. Ltd. Registered 1925.

R. Herbert & Co.

Hestavox Ltd. Registered 1923. This company was formerly A. H. Rice and H. A. Rice.

Hertz Radio Corporation Ltd.

Adam Hilger Ltd. This company was a subsidiary of Metrop-Vickers.

Hill's Wireless Stores Ltd. Registered 1924.

Hirst Bros. & Co. Ltd. (Oldham).

Hoare & Jagels.

Holborn Radio Co. Ltd. Registered 1922.

J. H. Holland & Co. (Cheshire).

W. E. Holloway Ltd. Registered 1924.

Holrose Manufacturing Co.

Home Radio & Electric Co. Ltd.

J. E. Hough Ltd.

H. P. R. Wireless Ltd.

H. T. C. Electrical Ltd. Registered 1923.

Hull Co-operative Society.

Hutchinson Phonophane Co. Ltd. Registered 1922.

Igna Engineering Co. Ltd.

Igranic Electric Co. Ltd.

The India-rubber, Gutta-perch and Telegraph Works Co.

International Motors Ltd.

International Radio Manufacturers Ltd. Registered 1923.

International Wireless Manufacturers Ltd. Registered 1924.

Isted.

H. Jacobi Ltd. Registered 1924.

J. & C. Manufacturing Co. (Brighton) Ltd.

J. S. Jayes & Co.

J. R. Jennens Ltd. (B'ham). Registered 1927.

Jewel Pen Co.

J. J. R. Ltd. Registered 1926

T. J. Johnson. (Salisbury).

Johnson & Phillips Ltd.

J. W. B. Wireless Co. This company became The Brownie Wireless Co. Ltd.

Kaine-Fish.

H. Kaplan Ltd. Registered 1924. This company was formerly Elkay Wireless Co.

Kathoxyd Ltd. Registered 1925.

K. B. Radio Equipment Co.

Kemps Mills Ltd. (Wolverhampton). Registered 1926.

Kenmac Radio Ltd. Registered 1924.

Kingsway Radio Ltd.

Kirby (Wimbledon) Ltd. Registered 1925.

Knivetown Electric Wire Co. Ltd. Registered 1925.

- Lacland Electric Manufacturing Co. Ltd.** Registered 1923.
- S. A. Lamplugh Ltd.** (B'ham).
- E. A. Langrish & Co. Ltd.** Registered 1926.
- Langham (Diamond Clear) Radio.**
- Lang Squire Wireless Manufacturing Co. Ltd.** Registered 1922.
- Lathartone Ltd.**
- L. H. M. Engineering Co.** Registered 1924.
- Lincoln Radio Supplies Ltd.** Registered 1927.
- Lincoln Trust Co.**
- Lincoln Wireless Co. Ltd.** Registered 1925.
- Lintophone Co.**
- Lipowsky.**
- Lissen Ltd.** Registered 1923. This company was formerly Lissen Co.
- Liver Radio Manufacturing Co. Ltd.** Registered 1924.
- R. J. Lloyd & Co. Ltd.** Registered 1923.
- Lockyer-Sayer (B'ham).**
- Lodgen Ltd.** Registered 1926.
- Loewe Radio Co. Ltd.** Registered 1927.
- London Electrical Co.**
- London & Midland Manufacturing Co. Ltd.** Registered 1927.
- London & Provincial Radio Co. Ltd.** Registered 1923.
- London Telephone Co. Ltd.**
- London Radio Manufacturing Co. Ltd.** Registered 1926.
- London Wireless Co. Ltd.** Registered 1923.
- Luminax Ltd.** Registered 1925.

MacArthur.

Mace Bros. (B'ham).

J. Macdonald & Co.

MacIntyre & Co.

Magnavox Co. (California USA).

Manhattan Electrical Supply Co.

Mansell & Hogan

M.A.P. Company. (B'ham).

Gaston E. Marbaix Ltd. Registered 1925.

Marchand & Chabloz Ltd. Registered 1923.

Marchaphone Ltd. Registered 1923.

Marconiphone Co. Ltd. Valve and Receiver Manufacturing subsidiary of Marconi's Wireless Telegraph Co.

Marconi Scientific Instrument Co. Ltd.

Marconi Wireless Telegraph Co. Ltd. This company co-operated with the Stirling Telephone Co. over manufacturing of Receivers.

Arthur Marriott Ltd. (Loughborough). Registered 1925.

Master Radio Manufacturing Co.

McClelland & Co.

R. McKellan & Co.

M. C. L. & Repetition Ltd. Registered 1926. This company was formerly Midgely Car Lighting Co.

McLeod Bros.

L. McMichael Ltd. Registered 1922

Mechanical Utilities Co.

M. E. L. Ltd.

Medical Supply Association Ltd.

Mellowtone Co.

Merton Davis Parnell & Co.

Meta Manufacturing Co. Ltd. Registered 1924.

Metropolitan Vickers Electrical Co. Ltd. This company had an agreement to make Receivers with R. C. C. New company Metro-Vick Supplies Ltd. formed 1924.

Mic Wireless Ltd. (Wellingborough)

Midland Radio Telephonic Manufacturers Ltd. (Stourbridge). Registered 1923.

Midland Wireless Manufacturing and Supply Co. Ltd. Registered 1922.

Milldale Ltd. Registered 1925.

Millerphones Ltd. Registered 1927.

Milligan's Wireless Co. Ltd. (Glasgow). Registered 1923.

Mitchell's Electric and Wireless Ltd.

Modern Radio Ltd. Registered 1926.

Moncrieff. (London and Bradford)

Morch Bros. Ltd. Registered 1924.

Morgan & Taylor's Radio Electric Ltd. (Cardiff).

M. P. A. (Wireless) Ltd.

The Mullard Radio Valve Co. Ltd.

W. H. Murad & Co. (Manchester).

Music Master Corporation. (Philadelphia USA).

Napia Wireless Ltd. Registered 1922.

Napier-Kimber Ltd.

National Wireless Corporation Ltd. Registered 1925.

National Wireless and Electric Co., subsidiary of R. R. Goding Ltd.

Neutron Ltd. Registered 1924.

New London Electron Works.

Northern Radio Co. Ltd. Registered 1923.

Norton Wireless Co. Ltd. Registered 1926. This company was formerly Norton Electric Co. Ltd.

Operadio Corporation. Chicago, U.S.A.

Ormsby & Co. Ltd. (Richmond).

Oxford Electric Co. This company became Headphones Ltd. (Manchester).

Oxford Scientific Instrument Co. Ltd. Registered 1924.

Oxford Wireless Telephony Co. Ltd. Registered 1922.

Partridge's Ltd. ('B'ham).

M. Partridge & Co. Ltd. (London). Registered 1926.

Passingham's (Bradford) Ltd. Registered 1926.

Patent Electric Co. Manhattan U.S.A.

Payne & Hornsby. (Newcastle on Tyne).

Pell Cahill & Co.

Permion Ltd. Registered 1924.

Peronet Ltd.

Perophone.

Peto Scott Ltd. Registered 1923. It appears that this company was formerly W. Scott Worthington & Co.

Pettigrew and Merriman Ltd. (Liverpool).

Philips Lamps Ltd. (Eindhoven, Holland). Registered 1925.

Phillips Valves Ltd. Registered 1923. This company appears to have been formerly Wireless Installations Ltd.

Pickford Johnson & Co. Ltd. (Sheffield). Registered 1923.

Plessey & Co. (1925) Ltd. Registered 1925.

Polar Ltd. Registered 1925.

W. H. Porter & Co. Ltd. (B'ham). Registered 1927.

Porto Radio Ltd. Registered 1924.

Potteries Radio Co. Ltd. (Manchester). Registered 1924.

Power Wireless Ltd. (Slough).

Pratt & Co.

Premier Manufacturing Co.

Premier Telephone & Wireless Co. Ltd. Registered 1923.

Price's Battery & Radio Co. Ltd. Registered 1924.

H. Stanley Price. Became Aeradio Ltd.

S. L. Price & Co. Ltd. Registered 1924.

Primus Manufacturing Co.

Prince's Electric Clocks Co.

P. S. Wireless Manufacturing Co. Ltd. (Brighton). Registered 1924.

Pye Ltd. (Cambridge).

Quality Products. (Cheshire).

Radi-Arc Electrical Co. Ltd.

Radiax Ltd. Registered 1923.

Radieco Ltd. (Wickford).

Radio Accessories Ltd. Registered 1925.

Radio-Acoustics Ltd. Registered 1923.

Radio Communication Co. Ltd.

Radio Company Ltd. Registered 1924.

Radio Company of Great Britain Ltd. Registered 1925.

Radio Components Ltd.

Radio Constructa Ltd. Registered 1922.

Radio Corporation of Ireland Ltd. Registered 1924.

Radiodyne Ltd. Registered 1926.

Radio Electric Co.

Radio Electric Ltd.

Radio Experts Ltd. (Middlesbrough). Registered 1924.

Radio (Hove) Ltd. Registered 1925.

Radio Gramophones Ltd. Registered 1923.

Radio Improvements Ltd. Registered 1923.

Radio Installations Ltd.

Radio Instruments Ltd. Registered 1922. This company became R.I. and Varley Ltd.

Radiola Wireless Telephone Parts Co. Ltd. Registered 1922.

Radioland Ltd.

Radioelectric Ltd. Registered 1924.

Radiolon Manufacturing Co. This company's sets were sold by Wireless Agencies Co.

Radio Manufacturing Co. & O. I. C. Manufacturing Co. (Swansea).

Radio Manufacturing Co. (Southsea).

Radio, Motors and Cycles Ltd. (Wolverhampton). Registered 1926.

Radions Ltd. (Manchester). Registered 1923.

Radiophones Ltd.

Radio Phonophore and Electricals Ltd. Registered 1923. The radio receiver manufacturing side of this company was acquired by Sterling Telephone Co.

Radio Productions. (Leeds) Ltd. Registered 1924.

Radio Reception Ltd. Registered 1923.

Radio Rendezvous.

Radio Service Co. Ltd. (B'ham). Registered 1925.

Radio Supplies Ltd. (Northants). Registered 1923.

Radio Supply Co. (B'ham).

Radio Telegraph Engineering Co.

Radio Transformer Co. Ltd. (Colchester).

Radio Valves Ltd. Registered 1925.

Radiovox Ltd. Registered 1925.

Radiowave Co.

Radio Waveora Co.

Radio Works Ltd. Registered 1923.

Rainsford & Laughton. (B'ham).

Rapinet Ltd. Registered 1925.

Ratcliffe & Sons (Westport).

Rawle Bros. (B'ham).

Reactone Ltd. Registered 1925. This company was formerly Lewis Harforth & Co.

Read Radio Ltd. Registered 1926.

Read & Morris Ltd.

Receptors Ltd. Registered 1925.

Redhill Electrical and Radio Co. Ltd. Registered 1924.

Re-Echo Wireless Manufacturing Co. Ltd. Registered 1923.

Rees Mace Manufacturing Co. Ltd. Registered 1924.

Reflex Radio Co.

Regent Radio Co. Ltd. Registered 1923.

Regent Radio Supply Co.

Regent Radiophone Co. Ltd. (Notts).

Reichmann & Co. Chicago U.S.A.

Reinke's Wireless Telephones Ltd.

Reliance Radio Service Co.

Reproduction Ltd. Registered 1926.

Residential Wireless Ltd. Registered 1923.

Revalco Ltd. Registered 1923.

Revo Engineering Co. Ltd. (Bedford). Registered 1924.

Reynolds & Bradwell.

Richard Melhuish Ltd.

Richards Walton Ltd. Registered 1926. This company was formerly Abbey Industries Ltd.

Rigaut J.

R. M. Radio Ltd.

Roberts Engineering Co.

R. Roberts Ltd. (B'ham). Registered 1924.

Roddi's Electric Ltd. Registered 1924.

Rodo Patents Ltd. Registered 1924.

Rogers Foster & Howell Ltd. (B'ham).

Rooke Bros. Ltd.

Rose Bros. Electrical Co.

E. E. Rosen & Co. This company became Ultra Electric Co.

Rotax (Motor Accessories) Ltd.

Russell and Shaw.

J. B. Saunders (1923) Ltd. Registered 1923.

S. B. B. Co. Ltd. Registered 1924.

Scientific Appliances Ltd.

Scientific Radio Ltd. Registered 1925.

Scottish Radio Centre Ltd. (Edinburgh). Registered 1923.

Scruby.

Seagull Ltd.

Seal Products Ltd.

Selectors Ltd. Registered 1926.

"Sel-Ezi" Wireless Supply Co. Ltd. Registered 1923.

Service Radio Co. Ltd. Registered 1924.

Sexton-Barnes Ltd. Registered 1924.

S.H.C.S. Co. (Kent).

P. Sherman.

Shipshape Ltd. Registered 1925.

Siemens Bros. & Co. Ltd. (Woolwich).

B. & S. Smith.

S. B. Smith & Co. Ltd. Registered 1923.

Sonora Inc. New York. U.S.A.

S.O.S. Patents Co.

Southern Radio Supplies Ltd. Registered 1922.

Spa Radio Co. Ltd. Registered 1925.

Sparklets Ltd.

S.T. Ltd. Registered 1926.

Stafford Radio Co. Ltd. Registered 1923.

Standard Accessories Ltd. Registered 1924.

Standard Automobile Co. Ltd. (Bradford).

Standard Telephones and Cables Ltd.

Steels and Busks Ltd. (Leics).

Sterling Telephone and Electric Co. Ltd. This company co-operated with Marconi Wireless Telegraph Co. in the manufacture of wireless receivers.

A. J. Stevens & Co. Ltd. (Wolverhampton).

William Stokes Wireless Co. Ltd. It appears that this company was connected with S.W. Radio Ltd. and Wireless Syndicate Co.

Stuart Wireless Telephone Co.

H. W. Sullivan Ltd.

Superadio Ltd. Registered 1922.

Superlamp Ltd.

Surrey Scientific Instrument Co.

Swan Radio Co. Ltd. Registered 1925.

Swift Electrical Ltd.

S.W. Radio Ltd. Registered 1924. It appears that this company was connected with William Stokes Wireless Co. Ltd.

Synchronola Radio Co. (Lancs).

W. H. Tant & Co. (B'ham).

E. A. Taylor.

Telephone Berliner (London) Ltd. Registered 1926.

Telephone Manufacturing Co. Ltd.

Herbert Terry & Sons. (Redditch).

Thames Electric Wireless Co. Ltd. Registered 1923.

Thamesmouth Radio Manufacturing Co. Ltd. Registered 1923.

Thomas, Young & Co. (Cheshire) Ltd.

Thompson Thirsk Co.

Thornton & Vowles Ltd. Registered 1923.

Thorp, Roderick Ltd. (Bedford).

Tingey Wireless Ltd. Registered 1922.

H. C. Tofield Ltd. (B'ham).

Tomlinson.

Tower Radio Supply Co.

G. H. J. Trading Co.

Tredegars (1923) Ltd. Registered 1923.

Trent Bridge Radio Co. Ltd. Registered 1924.

Triumph Wireless Specialities. This appeared to be the trading name of C. T. Ltd.

Truphonic Wireless Co. Ltd.

T. S. F. Ltd. (London). Registered 1926.

Tudoradio Co. Ltd. This company was formerly Tudoradio Co.

Turner & Co.

Herbert Tyas & Co. (Yorks).

Ultra Electric Ltd. Registered 1925. This company was formerly E. E. Rosen & Co.

Union Wireless Co. Ltd. Registered 1922.

Unique Wireless Co. Ltd.

Universal Electric Supply Co. Ltd. (Manchester).

Universal Ledger Supplies Ltd. Registered 1924

U-Phone Co. Ltd. Registered 1925.

Upfields Wireless Ltd. (Hastings). Registered 1926.

Valvcryst Ltd. Registered 1923.

C. A. Vandervell & Co. Ltd.

W. Vanstone Ltd.

Varley Magnet Co. Ltd. This company together with Radio Instrument Co. amalgamated to become R. I. and Varley Ltd.

Varley Radio Co.

Varoto Ltd.

Vauxhall Electrical Manufacturing Co. Ltd. Registered 1923.

Veda Products Ltd.

Ernest Verity Ltd. Registered 1925.

Victor Radio Ltd. Registered 1923.

Victoria Wireless Co. Ltd. Registered 1924.

Vinco Wireless Co. Ltd. Registered 1926.

Voltron Co.

Walters Electrical Manufacturing Co. Ltd.

Ward & Goldstone Ltd. (Manchester).

Waterloo Electric Co. Ltd. Registered 1923.

Waterloo Wireless Co. Ltd.

Wates Bros. Ltd.

Watmel Wireless Co. Ltd.

W. B. C. Ltd. Registered 1923.

W. E. C. Ltd. Registered 1923.

Western Electric Co. Ltd. This company had an agreement with B. S. A. Ltd. in the manufacture of wireless receivers

Western Manufacturing Co. (Gloucestershire).

Western Wireless Telephones Ltd. (L'pool). Registered 1922.

Westfield Wireless Ltd. Registered 1924.

Westforest Radio Co. (Guildford).

Weston Electrical Instrument Co. Ltd. Registered 1923.

Westminster Radiophone Co. Ltd. Registered 1923.

Whale Wireless.

Richard Whaley Ltd. (Manchester). Registered 1922.

White & Ritchie. (Edinburgh).

Whitecroft Instrument Co. (Gloucestershire) Ltd. Registered 1924.

Whittingham Smith & Co.

Wholesale Wireless Co. Ltd.

Wilkins & Wright Ltd. (B'ham).

Wilmore's Wireless Ltd. Registered 1923.

Wilrose & Co. (Birmingham) Ltd. Registered 1927.

W. Wilson & Son. (Herts).

Wilton Wireless Co.

Wilton Wireless Co. Ltd. Registered 1922.

Wingrove & Rogers. (L'pool).

Winteringham Ltd.

J. W. B. Wireless Co. This company became Brownie Wireless Co.

Wireless Appliances Ltd. Registered 1922.

Wireless Construction Co.

Wireless Corporation Ltd. Registered 1922.

Wireless and Electric Ltd. Registered 1923.

Wireless Enterprises Ltd. Registered 1923.

Wireless Equipment Ltd.

Wireless Experts Ltd. Registered 1923. This company was formerly O.K. Radio Manufacturing Co.

Wireless Exploitation Corporation Ltd.

Wireless Installations Ltd. This company became Phillip's Valves Ltd.

Wireless Instrument Manufacturing Co.

Wireless Manufacturers Ltd. Registered 1923.

Wireless Radio Corporation. U.S.A.

Wireless Service Ltd. Registered 1922.

Wireless Supplies Co.

Wireless Supplies Co. Ltd. Registered 1923.

Wireless Valves Ltd. Registered 1924.

W. & M. Wireless Co. Ltd. Registered 1923. This company was formerly Wainwright Manufacturing Co.

H. L. Wood & Son Ltd. (Portsmouth). Registered 1925.

Woodhall Wireless Manufacturing Co.

F. E. Wootten Ltd. (Oxford).

W. P. T. Ltd. Registered 1923.

A. G. Wright & Co.

Archibald J. Wright Ltd.

Yorkshire Radio Co. Ltd. (Sheffield).

W. Yvill & Co. Ltd. Registered 1926.

Zenith Manufacturing Co. This company became Zenith Electric Co. Ltd.

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THE WIRELESS WORLD AND RADIO REVIEW

MARCH 26, 1924

WATES

AN APOLOGY

THE " MICROSTAT " FILAMENT RESISTANCE.

Owing to its sound principle and splendid performance, the " microstat " has been judged the ideal form of filament control, and we are consequently inundated with orders, which we had to deal with in strict rotation. We thank our numerous friends for the patience they have manifested, and having now speeded up production, are pleased to state that by the time this appears we shall be in a position to execute prompt delivery.

" PYRAMID " HIGH-TENSION BATTERIES.

The new model is manufactured by a new secret process, ensuring perfect insulation between the plates, and consequently long life constant voltage, and freedom from all noise. Over 20,000 are giving satisfaction in many parts of the world. Tapped every three volts, and complete with two special insulated wander plugs.



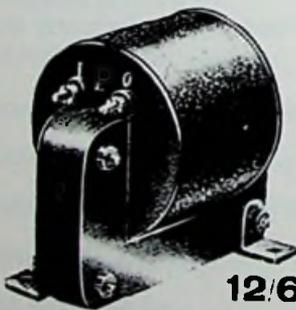
FULLY GUARANTEED

15 Volt	3 6
33 Volt	7 6
60 Volt	12 6
90 Volt	18 6

FULLY GUARANTEED !

Including Two Special Wander Plugs.

WATES' " SUPRA " TRANSFORMER.



12/6 Laminated core. Ratio 5:1.

This transformer has been designed to help you in obtaining best results from your set, and is a high-class transformer at a rock bottom price. The windings are in insulated layers of six sections, giving remarkably distortionless and efficient results

The "BIJOUPHONE" Crystal Set

Exclusive features include variometer tuning, auxiliary condenser for long and short waves, enclosed detector. Moulded ebonite top and base Nickel-plated fittings. Range, 250-700 metres We have many letters testifying to marvellous results which are being obtained with this marvellous little set. Complete B.B.C. tax 1 - extra.



7/6

Send for Illustrated Lists of Our Other Value-For-Money Specialities.

WATES BROS. LTD.

Phone : Gerrard 575-6

12-13-14 Gt. Queen St., Kingsway, W.C.2

Grams : "Zywateseng, Westcent."

Southern Depot (Wholesale), 101, Old Christchurch Road, Bournemouth. Phone : Bournemouth 3573.

South Western Depot (Wholesale), Central Mill, Raleigh Street, Plymouth. Phone : Plymouth 2481.

YOU WILL NEED IN **1923** A WIRELESS SERVICE

TO ENSURE "A HAPPY NEW YEAR"

Whether you are in possession of a Wireless "Listening-in Station," or whether you wisely decide to purchase one, an efficient Expert Wireless Service is indispensable to assist you to obtain and maintain the best results at a small annual subscription.

WIRELESS SERVICE LIMITED.

as our name implies gives REAL service. Our Experts come quickly to you in specially equipped Motor Cars. Our Complete Organisation is at your service, to overcome difficulties, supply new Batteries, re-charge Accumulators, effect repairs. We erect Aerials and install and maintain Wireless Apparatus of every description. Call and choose your set from a selection of the best on the market. Hear them demonstrated in our Showrooms. Correspondence invited.

WIRELESS SERVICE LIMITED
2, Lower John Street, Piccadilly Circus, W.1
Phone—Regent 785. (Just behind Regent Palace Hotel)

"WEMCO" WIRELESS RECEIVING SETS.



This set is sufficient to receive (within a range of about 20 miles) all concerts, etc., under Broadcasting arrangements. Within the limits of these wavelengths (about 300 to 500 metres) it is more efficient than similar apparatus which covers an unnecessarily wider range.



UNIT SYSTEM

Specially designed for Broadcasting under British conditions, and approved by the Postmaster General. See Postmaster General's conditions, and note that this Crystal Detector or Rectifier Panel need not be scrapped at any future date should it be desired to add High or Low Frequency Amplification.

No. 1 SET
((Crystal Detector)
£4 : 15 : 0

Including 4,000 ohm Double Head Gear Receiver.

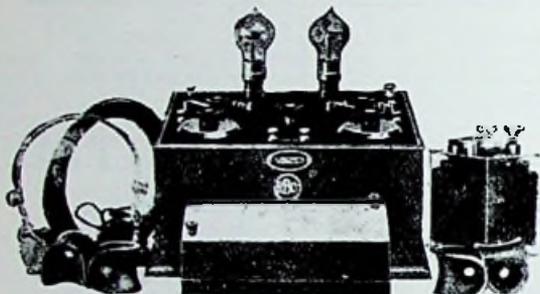
ALL PRICES INCLUDE FREE PACKING AND FREE DELIVERY IN GREAT BRITAIN, AND PROVIDE FOR PATENT ROYALTIES AND MANUFACTURERS' PAYMENTS TO THE BRITISH BROADCASTING CO.
Send a Post Card and ask for our List No. 122 W.W.

MANUFACTURED BY

Walters Electrical Manufacturing Co., Ltd., KENSAL ROAD and CONLAN STREET, LONDON, W.10

Telephone—PARK 653. ESTABLISHED 1890. INCORPORATED 1907.
Manufacturers and Contractors to the Post Office, War Office, Admiralty, etc., etc. Members of the British Broadcasting Company.

A FIRST-CLASS WIRELESS SET FOR THE MAN OF MODERATE MEANS—



The "VAROTO" Broadcasting Model

"VO. II" (Passed by Postmaster - General.

Registered No. 2045.

A SPLENDID 2-VALVE INSTRUMENT AT A POPULAR PRICE.

Extracts from Letter

Tunbridge Wells, 3/4. 23

Dear Sirs,

..... The 2-Valve "Varoto" Set has given far better results than anticipated, and I am particularly struck by the clearness of the tone produced. Recently I missed getting the result of an important law case from London, so decided to try Birmingham. In a very short while I had obtained the desired information. This prompted me to try other stations, and I now get other transmission at will from London, Cardiff, Manchester, Newcastle and Birmingham.

Wishing you all success with the splendid instrument you have placed on the market, I remain, Yours sincerely, H.A.P.

Absolutely no technical knowledge required.

ANYONE CAN MASTER THE "VAROTO" VO.II. MODEL IN A FEW MINUTES.

The VAROTO Model "VO.II" is designed with the object of securing extreme simplicity, coupled with efficiency, and is constructed to obtain perfect Broadcast reception of Speech, Music and Song in a natural, rich and mellow tone, also Ships' Talk. Entire absence of distortion.

Each instrument is made of the finest material and workmanship by skilled scientific labour and is fully tested before leaving our works.

RECEIVER PANEL, polished Mahogany Case (less valves). Price £7 : 17 : 6
Broadcast fee £1 : 15 : 0

COMPLETE WITH ALL ACCESSORIES, ready for use as illustrated. (Including Broadcast Fee) £14 : 12 : 6

If you cannot obtain "VAROTO" Instruments from your local Stores, communicate direct with us.

The "VAROTO" Model Voc. I.

Passed by the Postmaster-General. Registered No. 233.

Can be worked by a child.

WILL RECEIVE QUITE CLEARLY ALL BROADCASTING WITHIN A RADIUS OF 15 MILES.

Price, complete (as illustrated) with all accessories, ready for immediate use (including Broadcast Fee) £3 : 7 : 6



"VAROTO", LTD.

WIRELESS MANUFACTURERS

6, Eldon St., London, E.C.2

Phone _____ Bank 863

Ask your Stores for a Demonstration

Chapter 5

CATALOGUE OF VINTAGE CRYSTAL SETS

The catalogue lists Vintage Crystal Set manufacturers and details of their models have been included where there is evidence of such — review in the technical press, a receiver in a collection, etc.

To form the basis of comparison and unless otherwise stated, the prices listed are for the year 1926.

Manufacturers and their models**ABBAY INDUSTRIES LTD**
Abbey Wood, London, S.E.2.

In January of 1924 advertised various types of Crystal sets from 10/6d. No details known.

AEOLIAN CO. LTD.
Aeolian Hall, 131-137, New Bond St. London.

Model: Aeriola Junior.
Type of Cabinet: Mahogany Case, with lid.
Description & Remarks: Complete with headphones, which fit into case when not in use. Westinghouse U.S.A. is found on some models. Similar to a model by Metropolitan-Vickers.
Price: In 1923 £4. 4. 0.

AMATEUR SUPPLIES
13, Cote Ford St., Tooting, London.

Model: No. 1.
Type of Cabinet: Mahogany Case.
Description & Remarks: Complete with headphones, Aerial and fittings.
Price: In 1922 £4. 5. 0.

ANDERSON'S WIRELESS SALES
9-15, Oxford Street, London, W.1.

Model: A.T.E. Crystal set.
Type of Cabinet: Moulded circular base, in various colours.
Description & Remarks: Set only. Variometer tuning.
Price: 15/6d.

ASHCROFTS WIRELESS STORES
Goodison Road, Liverpool.

Model: A.W.S. Crystal set.
Type of Cabinet: Polished case, with sloping panel.
Description & Remarks: Set only. Variometer tuning.
Price: 15/6d.

AURIOL SUPPLIES CO.
31, Leys Avenue, Letchworth.

Model: Premier.
Type of Cabinet: Sloping or enclosed.

Description & Remarks: Set only.
Price: 14/6d. £1. 2. 6. £1. 5. 0.
according to type of cabinet.

Model: Clearcryst.
Type of Cabinet: Sloping.
Description & Remarks: Set only.
Price: 17/6d.

Model: Auriolphone.
Type of Cabinet: Enclosed.
Description & Remarks: Set only.
Price: £1. 10. 0.

AUTOMOBILE ACCESSORIES (BRISTOL) LTD.
93-95, Victoria St., Bristol.

Model: P.D. Mark O.
Type of Cabinet: Oak Box with lid.
Description & Remarks: Set only.
Price: £2. 2. 0.

BELLING & LEE LTD.
Queensway Works, Ponder's End, Middlesex.

Model: Crystal set.
Type of Cabinet: Polished Mahogany case with lid.
Description & Remarks: Set only. With loading-coil sockets, rotating detector and variometer tuning.
Price: £1. 5. 0.

Model: Crystal set.
Type of Cabinet: Polished Mahogany case with lid.
Description & Remarks: Set only. With loading coil under panel, rotating detector and variometer tuning.
Price: £1. 7. 6.

BIRMINGHAM WIRELESS CO. LTD.
9, 19, 21, Pershore St., Birmingham.

Model: Gledallphone.

Type of Cabinet: Black leather case with lid.

Description &
Remarks: Set only. Slide tuning.

Price: Unknown.

Model: Super Crystal set.

Type of Cabinet: Walnut case with lid and ebonite panel inside.

Description &
Remarks: Set only. Variometer tuning and takes 4 pairs of head-
phones.

Price: In March 1924 £2. 0. 0.

THE BRITISH CENTRAL ELECTRICAL CO. LTD.
6-8, Rosebery Avenue, London, E.C.1.

Model: 'Briticent' Super Crystal set.

Type of Cabinet: Oak case with lid and ebonite panel inside.

Description &
Remarks: Complete with headphones, aerial wire and insulators.

Price: In May 1923 £4. 7. 6.

BRITISH L.M. ERICSSON MANUFACTURING CO. LTD.
67-73 Kingsway, London, W.C.2.

Model: 0/1002.

Type of Cabinet: Oak case with lid.

Description &
Remarks: Micrometer crystal detector—tunes from 300-700 metres,
supersensitive crystal. Provision for loading coils.

Price: £1. 1. 0.

Model: 0/1002A.

Type of Cabinet: Oak case with lid.

Description &
Remarks: Loading coil incorporated.

Price: £1. 4. 0.

Model: 0/1050 Miniature.

Type of Cabinet: Turned and polished ebonite case.

Description &
Remarks: All mechanism concealed, adjustable cat-whisker and
crystal, fine tuning, 300-500 metres.

Price: 7/6d.

BRITISH THOMSON-HOUSTON CO. LTD.
Crown House, Aldwych, London, W.C.2.

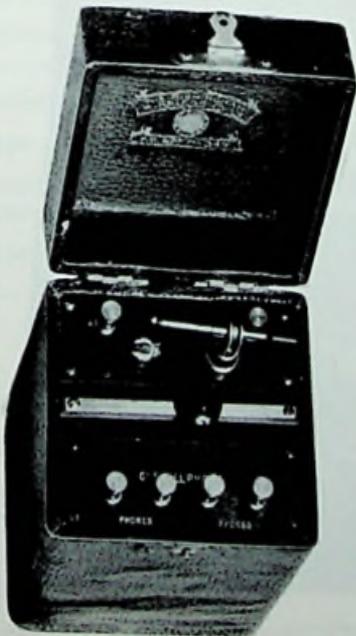
Model: B.T.H. Bijou.

Type of Cabinet: Polished Walnut case with lid.



Aeolian, Aeriola Junior

British L. M. Ericsson
0/1002



Birmingham Wireless,
Gleddallphone



B. T. H. Bijou

B. T. H. Crystal A

×



Description & Remarks: Set only. Variometer tuning. 5XX loading coil device 3. 6d. extra.
 Price: £1. 0. 0.

Model: ✕ B.T.H. Model A.
 Type of Cabinet: Polished Walnut case with lid and sloping panel inside.
 Description & Remarks: Set only. Provided with alternative crystals and change-over switch. Loading device for 5XX 3. 6d. extra. Models B and C are known, but these are similar to A. 'Radiola' appears on some of these models.
 Price: £1. 15. 0.

BRITISH RADIO MANUFACTURING CO.
 Ateneum Works, Hampstead, London.

Model: B.R.M. No. 1.
 Type of Cabinet: Polished, lid-closing case.
 Description & Remarks: Slide Inductance tuning. Complete with headphones.
 Price: In September 1922 £4. 15. 0.

BRITISH RADIO SALES CO. LTD.
 62, Oxford Street, London, W.1.

Model: Radiofone.
 Type of Cabinet: Mahogany case.
 Description & Remarks: Tapped Inductance and Condenser tuning. Complete with headphones.
 Price: In July 1922 £5. 5. 0.

Model: Type C Crystal set.
 Type of Cabinet: Mahogany case.
 Description & Remarks: Set only. Permanent Crystal Detector.
 Price: In September 1922 £3. 10. 0.

BRITISH RADIO WIRELESS MANUFACTURING CO. LTD.
 11, Gerrard St., London, W.1.

Model: 'O-Solowd' set No. 4.
 Type of Cabinet: Walnut case with lid.
 Description & Remarks: Tapped Inductance tuning, enclosed crystal detector. Complete with headphones which fit into case when not in use.
 Price: In December 1922 £5. 5. 0.

BRITISH WIRELESS SUPPLY CO. (1924) LTD.
 6, Blenheim Terrace, Leeds.

Model: Britphone 2A.
 Type of Cabinet: Enclosed Oak or Walnut.
 Description &
 Remarks: Similar to 2B but enclosed cabinet.
 Price: £1. 2. 6.

Model: Britphone 2B.
 Type of Cabinet: Oak case.
 Description &
 Remarks: Variometer tuned.
 Price: 6/6d.

Model: Britphone 3.
 Type of Cabinet: Oak case.
 Description &
 Remarks: Condenser and coil tuning.
 Price: £1. 5. 0.

THE BROADWAY RADIO WORKS
 Devonshire Rd., Bexley Heath, Kent.

Model: Crystal set Type A.
 Type of Cabinet: Mahogany case with lid.
 Description &
 Remarks: Designed to receive the time signals from the Eiffel
 Tower, Broadcasting Stations and Amateur Telephony.
 Complete with headphones.
 Price: In 1922 £5. 15. 0.

✕

BROWNE WIRELESS CO. OF GT. BRITAIN LTD.
 Nelson Street Works, Arlington Road, London, N.W.1.

Model: Brownie.
 Type of Cabinet: Tube type. Ebonite base 1/6d. extra.
 Description &
 Remarks: Complete with D.L. 5 crystal. Slide tuning.
 Price: 7/6d.

Model: ✕ Brownie No. 2.
 Type of Cabinet: Solid moulding.
 Description &
 Remarks: Complete with D.L. 5 crystal. No. 3 is similar to No. 2
 but with change-over switch.
 Price: 10/6d.



Brownie, No. 2

×



Brownie, Tube Type

×

Brownie, No. 3

×



Burndept
Ethophone No. 1



BURNDIPT WIRELESS LTD.

Aldine House, Bedford St., Strand, London, W.C.2.

Model:	Ethophone Junior.
Type of Cabinet:	Polished Walnut case with lid.
Description & Remarks:	Capable of tuning all wavelengths from 250 to 650 metres. Complete with headphones.
Price:	March 1923 £4. 10. 0.

Model: X	Ethophone I.
Type of Cabinet:	Polished Walnut case with lid.
Description & Remarks:	Wavelength range 250 to 650 metres, but a plug-in coil supplied permitted the reception of Paris time signals on a wavelength of 2,600 metres. A second coil 7/- extra permitted the reception of telephony from Croydon and other air stations. Complete with headphones.
Price:	In 1923 £7. 10. 0.

Model:	Ethophone I., Mark III.
Type of Cabinet:	Polished Mahogany case.
Description & Remarks:	Set only.
Price:	£3. 3. 0.

H.D. BUTLER AND CO.

222, Great Dover St., London, S.E.1.

Model:	Telephony set.
Type of Cabinet:	Mahogany case with lid and hinged front.
Description & Remarks:	Set only. Double slide tuning. Engraved ebonite panel and lacquered terminals. See illustration on front cover.
Price:	In May 1922 £2. 10. 0.

CABLE ACCESSORIES CO. LTD.

Britannia Works, Tividale, Tipton, Staffs.

Model:	Revophone.
Type of Cabinet:	Mahogany case with headphone compartment and lid.
Description & Remarks:	Complete with all accessories for local and 5XX stations. Tapped inductance tuning.
Price:	£2. 10. 0.

J.L. CARTWRIGHT & CO.

130/132, London Rd., Manchester.

Manufacturer of Crystal sets from 1922. Details not known.

GORDON CASTAGNOLI

Braintree, Essex.

Model: 'Castaphone' Crystal Receiver.
Type of Cabinet: Oak case with ebonite panel.
Description & Remarks: Set only. Tapped inductance and condenser tuning.
Price: In 1922 £3. 5. 0.

CITY RADIO SERVICE,

226, Warwick Road, Greet, Birmingham.

Model: Warwick No. 1.
Type of Cabinet: Oak case with lid.
Description & Remarks: Set only. Tuning 250/1900 metres.
Price: £1. 6. 0.

CLIMAX RADIO ELECTRIC LTD.

Quill Works, Putney, London, S.W.15.

Model: Climax Popular.
Type of Cabinet: Mahogany case.
Description & Remarks: Set only. Coil for 5XX 3. 6d. extra. Close coupling, wide wavelength variation and fine tuning.
Price: 12/6d.

Model: Climax Junior de Luxe.
Type of Cabinet: Mahogany case, ebonite panel.
Description & Remarks: Set only. Inclusive of 5XX range.
Price: £1. 1. 0.

COLLINS & JOHN LTD.

52, Hatton Gardens, London, E.C.1.

Model: Amplex Model A.
Type of Cabinet: Enclosed cabinet, Oak or Mahogany.
Description & Remarks: Fitted with Amplex patent detector.
Price: £1. 9. 0.

Model: Amplex Model B.
Type of Cabinet: Open panel.
Description & Remarks: Fitted with Amplex patent detector.
Price: 15/0d.



Cable Accessories, Revophone

S. G. Brown
Crystal
Amplifier



S. G. Brown, Microphone Amplifier

S. G. Brown, Crystavox



Model: Amplex Model C.
Type of Cabinet: Enclosed cabinet, Oak or Mahogany.
Description & Remarks: Same as Model A, but with loading coil and fittings for 5XX.
Price: £1. 17. 6.

Model: Amplex 5XX.
Type of Cabinet: Enclosed cabinet, Oak.
Description & Remarks: For 5XX only, fitted with patent detector.
Price: £1. 0. 0.

J. A. COOMES AND CO. LTD.
41, New Oxford St., London, W.C.

Model: Crystal set.
Type of Cabinet: Oak desk shaped case.
Description & Remarks: Set only. Variometer tuning.
Price: In 1923 16/0d.

CRAIES AND STAVRIDI,
4, Bunhil Row, London, E.C.1.

Model: Apollo Type O.
Type of Cabinet: Oak case.
Description & Remarks: Complete with headphones and aerial.
Price: In 1923 £3. 10. 0.

Model: Apollo Type 5.
Type of Cabinet: Mahogany case with lid.
Description & Remarks: Perikon Detector (Zincite and Bornite), variometer tuning. Complete with headphones and aerial.
Price: In 1923 £4. 18. 0.

PETER CURTIS LTD.
75a, Camden Road, London, N.W.1.

Model: Radionette.
Type of Cabinet: Oak, enclosed.
Description & Remarks: Set only. Parallel detector.
Price: £1. 5. 0.

DARGUE BROS. LTD.

Simplon Technical Instrument Works, Halifax.

Model: Simplon No. 1.

Type of Cabinet: Wood case.

Description & Remarks: Set only.

Price: 17/6d.

Model: Simplon No. 1.

Type of Cabinet: Wood case.

Description & Remarks: Complete with headphones.

Price: £1. 10. 0.

Model: Simplon No. 2.

Type of Cabinet: Wood case with lid.

Description & Remarks: Set only.

Price: £1. 12. 6.

Model: Simplon No. 2.

Type of Cabinet: Wood case with lid.

Description & Remarks: Complete with headphones.

Price: £2. 5. 0.

G. DAVENPORT (WIRELESS) LTD.

Manufacturers of Crystal sets. No details known.

C. S. DUNHAM,

234-236, Brixton Hill, London, S.W.2.

Model: C.S.D. 31.

Type of Cabinet: Oak or Mahogany case.

Description & Remarks: Set only. Spare crystal.

Price: £1. 5. 0.

Model: C.S.D. 31.

Type of Cabinet: Oak or Mahogany case.

Description & Remarks: With accessories. Coil for 5XX-4. 6d. extra.

Price: £2. 5. 0.

EAGLE ENGINEERING CO. LTD.

Eagle Works, Warwick.

Model: Chakophone No. 3A.
 Type of Cabinet: Case type with lid.
 Description & Remarks: Set only. Slide tuned with 5XX plug-in coil, and compartment for phones.
 Price: £2. 0. 0.

Model: Chakophone No. 4.
 Type of Cabinet: Open, case type.
 Description & Remarks: Set only. Self-contained condenser tuned 300-500 and 1,200-2,000 metres.
 Price: £1. 10. 0.

EDISON BELL LTD.

62, Glengall Road, Peckham, London, S.E.15.

Model: Edison Bell, Crystal set.
 Type of Cabinet: Oak, with closing lid.
 Description & Remarks: Set only. Variometer tuning. 280-1,600 metres. Nickel plated fittings. Electric lighting under crystal twin detector with opal tubes.
 Price: £2. 9. 0.

Model: Edison Bell, Crystal set.
 Type of Cabinet: Oak, with closing lid.
 Description & Remarks: Set only. Tuned by variable condenser, with detachable loading coil 280-500 metres. Nickel-plated fittings. Electric lighting under crystal twin detector with opal tubes.
 Price: £2. 10. 0.

EDISON SWAN ELECTRIC CO. LTD.

123/5, Queen Victoria St., London, E.C.4.

Model: X Ediswan 1923B.
 Type of Cabinet: Mahogany case with lid.
 Description & Remarks: Tapped inductance tuning. Complete with headphones.
 Price: In 1923 £3. 7. 6.

Model: X Ediswan WL 1924 Short wave.
 Type of Cabinet: Tray, Mahogany finish.
 Description & Remarks: Set only. Accessories £1. 5. 10. extra.
 Price: 12/6d.



Edison Swan, WL 1924B X

Model: ?	Ediswan WL 1924 L Long Wave.
Type of Cabinet:	Tray, Mahogany finish.
Description & Remarks:	Set only. Accessories £1. 5. 10. extra.
Price:	15/0d.

Model: ?	Ediswan WL 1924 P for High Power Station.
Type of Cabinet:	Tray, Mahogany finish.
Description & Remarks:	Set only. Accessories £1. 5. 10. extra.
Price:	£1. 0. 0.

Model: X	Ediswan WL 1924B.
Type of Cabinet:	Walnut, with moulded panel.
Description & Remarks:	Complete with 1 pair headphones. 2 porcelain insulators, 1 6-in. lead-in tube, 100 ft. aerial wire, 3 yds. thick rubber-covered lead-in or earth wire, 1 earth clip. 100/700 metres. 'B' usually only appeared on the instruction card.
Price:	£1. 17. 9.

Model: X	Ediswan WL 1924L.
Type of Cabinet:	Walnut, with moulded panel.
Description & Remarks:	Set only. Accessories and plug to take loading coil, £1. 6. 3. extra.
Price:	14. 0d.

Model: X	Ediswan WL 1924 P.
Type of Cabinet:	Walnut with moulded panel.
Description & Remarks:	Set only, with loading coil 5XX. Accessories £1. 6. 3. extra.
Price:	18/9d.

ELECTRICAL ACCESSORIES MANUFACTURING CO.
 Progress Works, Low Hall Mills, Holbeck, Leeds.

Model:	2B Type.
Type of Cabinet:	Polished Jacobean Oak Cabinet.
Description & Remarks:	Set only.
Price:	£1. 5. 0.

EONS WIRELESS SUPPLY CO.
 115 Fleet Street, London, E.C.4.

Model:	Super Crystal.
Type of Cabinet:	Mahogany case.

Description & Remarks: Complete with aerial and headphones.
Price: In November 1922 £4. 7. 6.

THE ESCO WIRELESS CO.
100 Houndsditch, London, E.

Model: No. 1.
Type of Cabinet: Square Mahogany case.
Description & Remarks: Set only. Escolite Crystal.
Price: In 1924 10/6d.

Model: No. 2.
Type of Cabinet: Oblong Mahogany case.
Description & Remarks: Set only. Escolite Crystal.
Price: In 1924 12/0d.

Model: No. 3.
Type of Cabinet: Mahogany case with sloping top.
Description & Remarks: Set only. Escolite Crystal.
Price: In 1924 14/0d.

Model: No. 4.
Type of Cabinet: Mahogany case with sloping top and lid.
Description & Remarks: Set only. Escolite Crystal.
Price: In 1924 16/6d.

FALK STADELMANN & CO. LTD.
83-93 Farringdon Road, London, E.C.1.

Model: Efescaphone Benbow.
Type of Cabinet: Mahogany, enclosed.
Description & Remarks: Set only.
Price: £2. 1. 0.

Model: Efescaphone Benbow Junior.
Type of Cabinet: Mahogany, open.
Description & Remarks: Set only.
Price: £1. 1. 0d.

JONATHAN FALLOWFIELD LTD.

61-2, Newman St., London, W.1.

Model:	Newman.
Type of Cabinet:	Mahogany case.
Description & Remarks:	Complete with 2 pairs headphones and aerial equipment.
Price:	£3. 3. 0.

FELLOWS MAGNETO CO. LTD.

Cumberland Avenue, Park Royal, London, N.W.10.

Model:	Fellocryst Super.
Type of Cabinet:	Oak case with lid.
Description & Remarks:	Set complete with all accessories.
Price:	£1. 15. 0.

Model:	Fellocryst.
Type of Cabinet:	Oak Base.
Description & Remarks:	Slide Tuning. Complete with aerial and headphones.
Price:	In January 1923 £3. 7. 6.

FLINDERS (WHOLESALE) LTD.

18 Butt Road, and Essex St., Colchester.

Model:	Flinderphone.
Type of Cabinet:	Unknown.
Description & Remarks:	Set only.
Price:	£1. 7. 6.

ARTHUR G. FOULDS LTD.

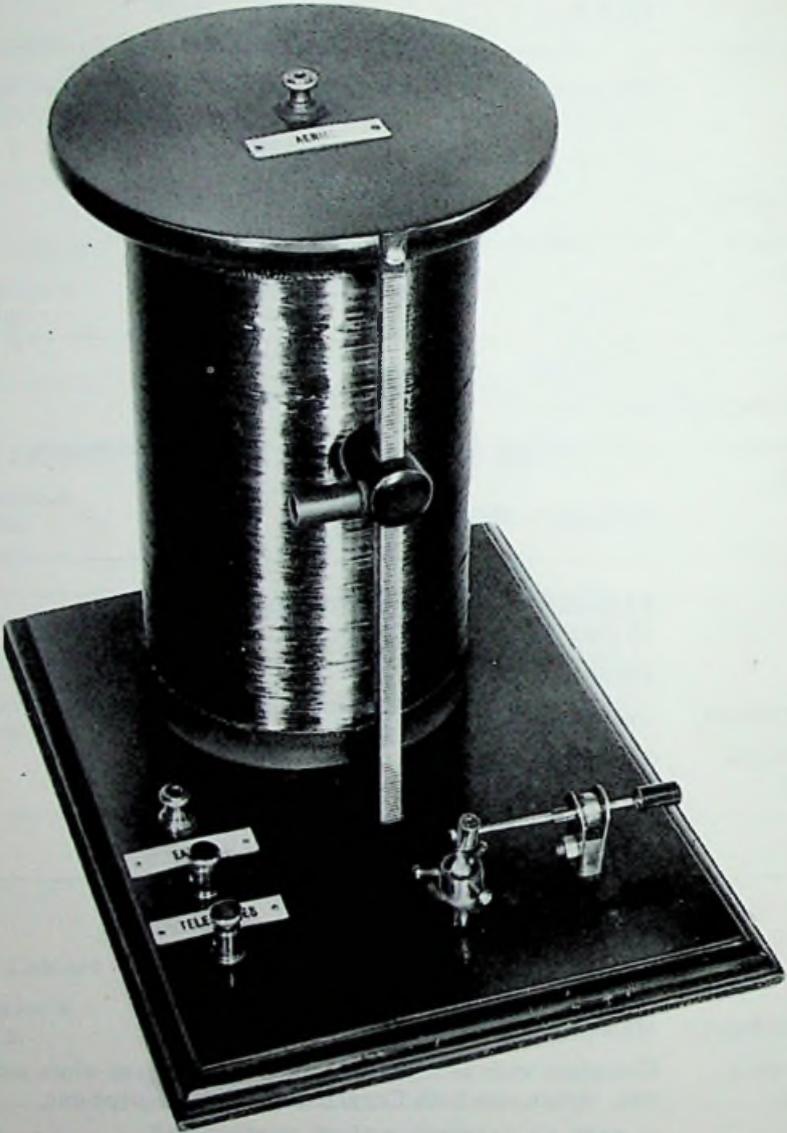
Dunedin Street, Edinburgh

Model:	A.G.F.
Type of Cabinet:	Mahogany case with lid.
Description & Remarks:	Complete with headphones which fit into case when not in use. Spare cup with Crystal and Aerial equipment.
Price:	In 1923 £4. 12. 6.

FRASER & GLASS

Assembly Works, Middle Lane, Hornsey, London, N.8.

Model:	Fortevox, Junior Model No. 1.
Type of Cabinet:	Self-contained with moulded base.



Gamage's, Broadcaster No. 1

Description & Remarks: Set only.

Price: 6. 0d.

Model: Fortevox, Junior Model No. 2.

Type of Cabinet: Self-contained with moulded base.

Description & Remarks: Set only.

Price: 7/6d.

A. W. GAMAGE LTD.
Holborn, London, E.C.1.

Model: Ideal.

Type of Cabinet: Mahogany case.

Description & Remarks: Set complete with 1 pair headphones, lead-in tube, lightning switch, 100 ft. aerial wire, 2 aerial insulators, 20 ft. earth wire.

Price: £3. 5. 6.

Model: Gamages Crystal Broadcaster No. 1.

Type of Cabinet: Mahogany board.

Description & Remarks: 9" tuning coil with Ratchet Slide, capable of fine adjustment and covered a wavelength of 180 to 950 meters. Complete with headphones and aerial.

Price: In 1922 £3. 10. 0.

GENERAL ELECTRIC CO. LTD.
Magnet House, Kingsway, London, E.C.2.

Model: Junior.

Type of Cabinet: Mahogany, open type.

Description & Remarks: Set only. Wavelength 300-500 metres. Two aerial terminals for short or long aeriels. (Two pairs of phones can be connected). Plug-in coil for 5XX 7. 6d. extra.

Price: 16/0d.

Model: Gecophone No. 1.

Type of Cabinet: Oak case with lid.

Description & Remarks: Set complete with headphones and aerial wire. Variometer tuning.

Price: In 1923 £5. 10. 0.

Model: Gecophone No. 2.

Type of Cabinet: Oak case with lid.

General Electric Junior



General Electric No. 1



General Electric No. 2



Description & Remarks: Set complete with headphones and aerial wire. Variable condenser tuning. Tuning the aerial circuit is effected by a step-by-step switch.

Price: In 1923 £9.15.0.

GENERAL RADIO CO. LTD.
235, Regent St., London, W.1.

Model: G.R.C. 6.

Type of Cabinet: Oak case with space for headphones.

Description & Remarks: Receiver only.

Price: £2.10.0.

HAWLEY'S
200-202, Regent St., London, W.1.

Model: Regent.

Type of Cabinet: Polished case—no lid.

Description & Remarks: Two Radial Selector Switch contacts for coarse and fine tuning. Complete with headphones.

Price: In 1923 £6.6.0.

W. J. HENDERSON & CO. LTD.
351, Fulham Road, S.W.10.

Model: B.R.C. 1.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: Set only.

Price: £1.12.6.

Model: B.R.C. 1.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: With headphones and aerial equipment.

Price: £3.2.6.

Model: B.R.C. 1A.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: Set only.

Price: £1.19.0.

Model: B.R.C. 1A.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: Complete with headphones, which fit into case when not in use. Supplied with aerial equipment.

Price: £3. 9. 0.

HIRST BROS. & CO. LTD.

Roscoe St., Oldham.

Model: Tameside R. 535.

Type of Cabinet: Oak, open case type.

Description & Remarks: Set only. Sliding coil tuner. Glass-covered detector.

Price: 10/0d.

Model: Tameside R. 542.

Type of Cabinet: Oak, open case type.

Description & Remarks: Set only. Variometer tuned. Glass-covered detector.

Price: £1. 2. 6.

Model: Tameside R. 424.

Type of Cabinet: Oak, open desk type.

Description & Remarks: Set only. Condenser tuned. Glass-covered detector.

Price: £1. 5. 0.

Model: Tameside R. 545.

Type of Cabinet: Oak, hinged lid.

Description & Remarks: Set only. Condenser or variometer tuned. Shorting plug for loading coil.

Price: £1. 10. 0.

HOLROSE MANUFACTURING CO.

43, Lonsdale Road, Kilburn, N.W.6.

Model: The Holrose.

Type of Cabinet: Leatherette case.

Description & Remarks: Set only.

Price: 8/6d.

IGNA ENG. CO. LTD.

99, High St., Dudley.

Model: Ignaphone.

Type of Cabinet: Leatherette case.

Description & Remarks: Set only.

Price: 15/6d.

T. J. JOHNSON

17-19, Catherine St., Salisbury.

Model: Sarumphone.
Type of Cabinet: Mahogany case, with lid.
Description & Remarks: Set only.
Price: £1. 0. 0.

A. B. JONES AND SON LTD.

Longton, Staffs.

Model: Grafton.
Type: China figure.
Description & Remarks: Built around a china figure (see illustration on front cover) standing 8½" high. Underneath are the words: 'Grafton China Longton England'. The coil is wound around the Top Hat and incorporates a slider for tuning. Headphones, aerial and earth terminals are built into the base. Unfortunately a fire at the Grafton Works destroyed all records, but it is thought that the figure was made at the Grafton Works about 1922 for a Crystal set manufacturer to complete.
Price: Unknown. A similar figure fetched £25 in 1974 at a leading London Salesroom.

KENMAC RADIO LTD.

Dalling Road, Hammersmith, London.

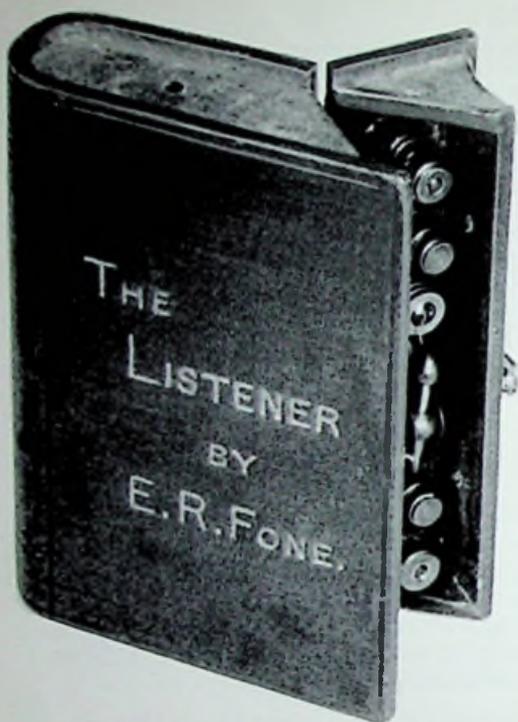
Model: The Listener E.R. Fone.
Type of Cabinet: Book Type.
Description & Remarks: The edge of the book opens to expose the slide coil tuning and crystal detector.
Price: Unknown.

S. A. LAMPLUGH LTD.

Kings Road, Tyseley, Birmingham.

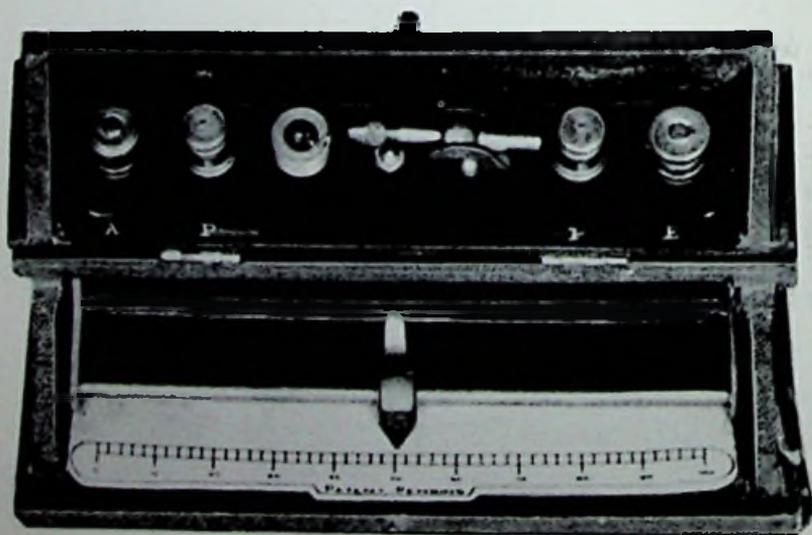
Model: No. 1030.
Type of Cabinet: Oak cabinet.
Description & Remarks: Set only. Variometer tuned, 300-500 metres and 5XX.
Price: £1. 10. 0.

Model: No. 1052 Junior.
Type of Cabinet: Moulded ebonite.
Description & Remarks: Set only. Solenoid inductance. 300-500 metres and 5XX.
Price: 9/6d.



Kenmac,
The Listener
(Half open)

Kenmac,
The Listener
(Open)



Model: No. 1018.
Type of Cabinet: Oak cabinet.
Description & Complete with accessories. Variometer tuned, 300-500
Remarks: metres and 5XX.
Price: £4. 4. 0.

THE LINTOPHONE CO.

Model: Lintophone.
Type of Cabinet: Oak case, with lid.
Description & Slide coil type of tuning.
Remarks:
Price: Unknown.

Model: Lintophone Junior.
Type of Cabinet: Oak case, ebonite panel.
Description & Slide coil type of tuning.
Remarks:
Price: Unknown.

LISSEN LTD.

Lissenium Works, Friars Lane, Richmond, Surrey.

Model: Lissen.
Type of Cabinet: Unknown.
Description & Set only. Appropriate coil extra.
Remarks:
Price: 10/0d.

LIVER RADIO MANUFACTURING CO. LTD.

30, Islington, Liverpool.

Model: Liverphone.
Type of Cabinet: Sloping, oak or mahogany.
Description & Set only. Variometer tuning.
Remarks:
Price: £1. 5. 0.

Model: Liverphone.
Type of Cabinet: Sloping, oak or mahogany.
Description & Complete with headphones and aerial equipment.
Remarks:
Price: £2. 0. 0.



Lintophone



Lintophone
Junior

THE LONDON TELEPHONE CO. LTD.
Donington House, Norfolk Street, London, W.C.1.

Model: Crystal set.
Type of Cabinet: Oak case—lid closing.
Description & Remarks: Complete with De-Luxe Headphones.
Price: In September 1922—£4. 5. 0.

M.A.P. COMPANY
Great Lister Street, Birmingham.

Model: M.A.P. Crystal.
Type of Cabinet: Polished aluminium.
Description & Remarks: Set only. For high and low wavelengths.
Price: £1. 7. 6.

MARCONIPHONE CO. LTD.
210/212, Tottenham Court Rd., London, W.1.

Model: ✕ Marconiphone Universal Baby.
Type of Cabinet: Moulded base.
Description & Remarks: Set only. 300-500 metres. Variometer tuned. Galena type crystal. 5XX loading coil 8. 0d. extra.
Price: £1. 7. 0.

Model: ✕ Crystal A.
Type of Cabinet: Wood case covered in leather cloth with lid.
Description & Remarks: Automatic adjustment for Carborondum Crystal. Spade tuning. Provision for two headphones. This model also appears with the name 'Millet'.
Price: Unknown.

Model: ✕ Crystal Junior.
Type of Cabinet: As Model A.
Description & Remarks: Has two interchangeable crystals Galena and Carborondum with automatic adjustment for the latter.
Price: In 1922—£4. 8. 6.

Model: ✕ Sterling R. 1550.
Type of Cabinet: Walnut case.
Description & Remarks: Complete with 1 pair headphones. Variometer tuned. Semi-automatic crystal detector. 300-500 metres. Switching arrangement for 1, 800 metres.
Price: £3. 3. 0.



Marconiphone,
Universal Baby

X



The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

INSTRUCTIONS FOR USE

1. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

2. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

3. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

4. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

5. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

6. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

7. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

8. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

9. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

10. The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

The **Crystal** is placed in the **Crystal Holder** and the **Crystal** is connected to the **Crystal**...

INSTRUCTIONS FOR USE

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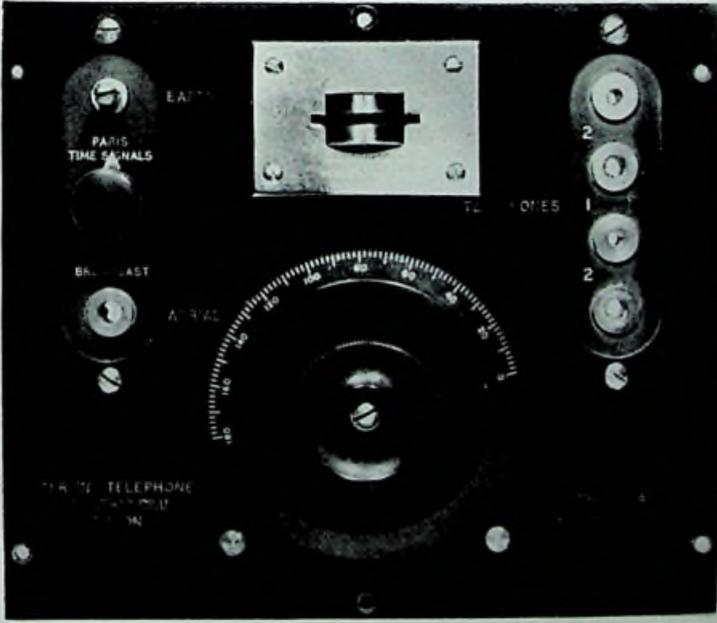
Marconiphone, Crystal A α

Marconiphone,
Crystal Junior

X



Marconiphone Sterling A1 X





X

Master Radio,
Mastervox



Master Radio,
Master Junior

X

Model: ⚡ Sterling No. 1.
Type of Cabinet: Walnut case with lid.
Description & Remarks: Specially selected crystal and aerial tuning switches for coarse and fine adjustment. Complete with headphones.
Price: In 1923—£5. 10. 0.

Model: ⚡ Sterling No. 2.
Type of Cabinet: Walnut case.
Description & Remarks: Fool proof crystal detector, sockets for two pairs of headphones. Model A1 is known, but is similar to No. 2.
Price: In 1924—£4. 10. 0.

MASTER RADIO MANUFACTURING CO.
30, Rosamond Street East, All Saints, Manchester.

Model: ✕ Master Junior.
Type of Cabinet: Mahogany case.
Description & Remarks: Set only. Open type detector. Tuning 250-600 metres.
Price: 7/6d.

Model: ⚡ Mastavox.
Type of Cabinet: Mahogany case.
Description & Remarks: Set only. Dustproof detector. Tuning 250-600 metres. Socket for loading coil.
Price: 8/6d.

THE MEDICAL SUPPLY ASSOCIATION LTD.
167/185, Grays Inn Road, London, W.C.1.

Model: Radio-Wave.
Type of Cabinet: Mahogany case with lid.
Description & Remarks: Tapped inductance and Condenser tuning. Complete with headphones and aerial wire.
Price: In 1922 £10. 10. 0.

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.,
4 Central Buildings, Westminster, London, S.W.1.

Model: Cosmos Radiophone.
Type of Cabinet: Mahogany case with headphone compartment and lid.
Description & Remarks: Complete with headphones, aerial wire, insulators and earthing materials. Also known, is a circular moulded base model, with glass enclosed detector.
Price: In October 1922 £4. 10. 0.

Metropolitan-Vickers,
Cosmos Radiophone



Metropolitan-Vickers
Cosmos



MITCHELLS ELECTRICAL WIRELESS LTD.
 188, Rye Lane, Peckham, London, S.E.15.

Model: No. 1.
 Type of Cabinet: Wood base.
 Description & Remarks: Complete with headphones and aerial wire.
 Price: In 1923—£4. 10. 0.

MORCH BROS LTD.
 35 Tresham Avenue, London, E.5.

Model: Rexophone.
 Type of Cabinet: Mahogany case with lid.
 Description & Remarks: Set only. Provided with alternative Crystals. Tapped Inductance tuning.
 Price: Unknown.

NATIONAL WIRELESS & ELECTRIC CO.
 (R. R. GODING, LTD.)
 42 Gray's Inn Road, London, W.C.1.

Model: Gnat N.Mk.CI.
 Type of Cabinet: Wood.
 Description & Remarks: Set only.
 Price: £1. 1. 0.

Model: Gnat N.Mk.CL.
 Type of Cabinet: Mahogany case with lid, ebonite panel.
 Description & Remarks: Set only. Accessories £1. 7. 6. extra.
 Price: £1. 12. 6.

Model: Gnat N.MK.CX.
 Type of Cabinet: Mahogany case with lid.
 Description & Remarks: Set only.
 Price: £2. 2. 6.

PETO-SCOTT LTD.
 64 High Holborn, London, W.C.1.

Model: Crystal Receiver.
 Type of Cabinet: Mahogany case with lid.
 Description & Remarks: Complete with headphones and Aerial equipment.
 Price: In 1923 £6. 6. 0.



March Bros., Rexophone

RADI-ARC ELECTRICAL CO. LTD.
Bennett Street, Chiswick, London, W.4.

Model: Liberty Ironclad.
Type of Cabinet: Iron cased.
Description & Remarks: Set only. Liberty detector.
Price: 16/6.

Model: Liberty Midget.
Type of Cabinet: Unknown.
Description & Remarks: Set only.
Price: 7/6d.

RADIAX LTD.
16, Palmer Place, London, N.7.

Model: Challenge.
Type of Cabinet: Mahogany case, with lid.
Description & Remarks: Set only. 100-1, 600 metres.
Price: £2.0.0.

RADIO COMMUNICATION CO. LTD.
34-35, Norfolk Street, London, W.C.2.

Model: Polar.
Type of Cabinet: Oak, sloping.
Description & Remarks: Set only. With Igranic Plug-in coil.
Price: £1.7.6.

RADIO COMPONENTS LTD.
19, Rathbone Place, London, W.1.

Model: Radcom.
Type of Cabinet: Polished Base.
Description & Remarks: Double Slide Tuner. Complete with headphones.
Price: In 1923—£4.0.0.

RADIO ELECTRIC CO.
21, St. John Street, Wolverhampton.

Model: The Radio Crystal set.
Type of Cabinet: Oak board.

Description & Remarks: Set only. Slide coil tuning.

Price: In 1923 £1. 12. 6.

RADIO INSTRUMENTS LTD.
12, Hyde Street, London, W.C.1.

Model: No. 1.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: Tuning up to 700 metres. Complete with headphones which fit into case when not in use.

Price: In 1923 £4. 17. 6.

Model: No. 2.

Type of Cabinet: Mahogany case with lid.

Description & Remarks: Large Air Condenser and Series Parallel Switch 200-4000 metres. Complete with headphones.

Price: In 1923 £8. 12. 6.

Model: I.C.

Type of Cabinet: Polished Mahogany case with lid.

Description & Remarks: Set only. Fitted with P.M. Detector. 300-500 metres.

Price: £2. 2. 0.

Model: I.D.

Type of Cabinet: Polished Mahogany case with lid.

Description & Remarks: Set only. Fitted with P.M. Detector. 300-500 metres. Includes 1,600 metres wavelength.

Price: £2. 15. 0.

THE RADIO RENDEZVOUS
709, Romford Rd., Manor Park, London, E.

Model: Black Prince.

Type of Cabinet: Polished Black or Mahogany case. Ebonite panel.

Description & Remarks: Set only. Tapped inductance tuning.

Price: In 1923 17/6d.

RADIO SUPPLY CO.
Superfone Works, Four Oaks, Birmingham.

Model: Superfone Maxum.

Type of Cabinet: Walnut case, with lid.

Description & Remarks: Set only. Variometer tuned, including 5XX coil.

Price: £1. 2. 6.

Radio Instruments, No. 2



Radio Rendezvous,
Black Prince



RADIO TELEGRAPH ENGINEERING CO.
37, High Street, Uckfield, Sussex.

Model: Collier.
Type of Cabinet: Oak case.
Description & Remarks: Complete with headphones and aerial.
Price: £2. 2. 0.

THE RADIO WAVEORA CO.
168, Regent Street, London, W.1.

Advertised complete Crystal Sets in August 1922.
from £3. 2. 6. No details known.

RAWLE BROS.
Stamford Road, Handsworth, Birmingham.

Model: Fireside.
Type of Cabinet: Oak.
Description & Remarks: For local and Daventry 5XX.
Price: £1. 1. 0.

RE-ECHO WIRELESS MANUFACTURING CO. LTD.
16, Hatton Wall, London, E.C.1.

Manufacturer of Crystal sets. No details known.

REGENT RADIO SUPPLY CO.
45, Fleet Street, London, E.C.4.

Model: Regentone.
Type of Cabinet: Mahogany case, with lid.
Description & Remarks: Set only.
Price: £2. 2. 0.

RELIANCE RADIO SERVICE CO.
283, St. John Street, Clerkenwell, London, E.C.1.

Model: Reliance Crystal set.
Type of Cabinet: Oak case with lid.
Description & Remarks: Condenser tuning. Complete with headphones and aerial.
Price: In 1922 £3. 5. 0.

Model: Reliance Bijou No. 2.
Type of Cabinet: Ebonite panel mounted on Oak base.

Description & Remarks: Double tuner comprising 18 tappings taken from coil and one Condenser. Complete with headphones.
 Price: In 1923 £2. 15. 0.

REYNOLDS AND BRADWELL
 41, Church Street, Birmingham.

Model: Crystal set.
 Type of Cabinet: Walnut case.
 Description & Remarks: Tapped inductance tuning.
 Price: Unknown.

RICHARD MELHUISS LTD.
 84, Fetter Lane, London, E.C.4.

Manufacturer of complete Cabinet Model Crystal sets in 1922. No details known.

J. RIGAUT
 108, Euston Road, London, N.W.1.

Model: L Type.
 Type of Cabinet: Mahogany, closed, sloping panel.
 Description & Remarks: Set only. Fine and coarse tuning, and tapped inductance.
 Price: 19/6d.

Model: D Type.
 Type of Cabinet: Mahogany, closed, sloping panel.
 Description & Remarks: Set only. Wound for Daventry 5XX.
 Price: £1. 2. 6.

Model: V Type.
 Type of Cabinet: Imit. Mahogany, open, sloping panel.
 Description & Remarks: Set only. Variometer tuning.
 Price: 11/6d.

Model: S Type.
 Type of Cabinet: Flat Mahogany case.
 Description & Remarks: Slide tuning.
 Price: 6/11d.

ROGERS FOSTER AND HOWELL LTD.
188, Edward Road, Balsall Heath, Birmingham.

Model: R.F.H.
Type of Cabinet: Mahogany case.
Description & Remarks: Set only.
Price: In March 1924 £1. 1. 0.

RUSSELL AND SHAW,
38, Great James Street, Bedford Row, London, W.C.1.

Manufacturers of Crystal Sets. No details known.

SERVICE RADIO CO. LTD.
67, Church Street, Stoke Newington, London, N.16.

Model: Service.
Type of Cabinet: Mahogany case with hinged lid. Compartment for phones and amplifier.
Description & Remarks: Set only.
Price: £1. 10. 0.

S.H.C.S. CO.
10, Clare Terrace, Sidcup, Kent.

Model: Thor No. 5.
Type of Cabinet: Open case, stained Walnut.
Description & Remarks: Set only.
Price: 13/6d.

Model: Thor No. 6.
Type of Cabinet: Mahogany case, with lid and clasp.
Description & Remarks: Set only.
Price: £1. 7. 6.

P. SHERMAN,
12, River Street, London, E.C.1.

Model: O.O.
Type of Cabinet: Leather covered case with clasp.
Description & Remarks: Set only. Nickelled fittings. Variometer tuning, socket and coil for Daventry 5XX.
Price: 15/0d.

Model: O.
 Type of Cabinet: American type, Oak.
 Description & Remarks: Set only. Nickelled fittings. Condenser tuning, semi-automatic detector. Change-over switch for local or 5XX stations.
 Price: £1. 5. 0.

Model: Clarecryst.
 Type of Cabinet: Enclosed, leather covered.
 Description & Remarks: With 1 pair headphones. Tuning either 5XX or local by switching, twin detector illuminated.
 Price: £2. 0. 0.

Model: Clarecryst de Luxe.
 Type of Cabinet: Oak, American type, with doors.
 Description & Remarks: With 1 pair headphones. Tuning either 5XX or local by switching twin detector-illuminated.
 Price: £2. 5. 0.

SIEMENS BROS. & CO. LTD.
 Woolwich Lane, London, S.W.18.

Model: Siemens.
 Type of Cabinet: Mohogany case, with lid.
 Description & Remarks: With 2 detectors, local or 5XX coil and 1 pair headphones.
 Price: £1. 10. 0.

B. AND S. SMITH
 467 Commercial Road, London, E.1.

Model: Super Crystal B. & S. Receiver.
 Type of Cabinet: Desk shaped case.
 Description & Remarks: Set only. Fitted with Shaw's Hertzite Crystal.
 Price: In 1924 19/6d.

SPA RADIO CO. LTD.
 107a, Locksbrook Road, Bath.

Model: Spa.
 Type of Cabinet: Mahogany case.
 Description & Remarks: Set only.
 Price: £1. 7. 6.

Model: Spa.
Type of Cabinet: Mahogany case.
Description & Remarks: Set complete with all accessories.
Price: £2. 5. 0.

H. W. SULLIVAN LTD.
Liverpool House, Middlesex St., London, E.1.

Model: Crystal Receiver.
Type of Cabinet: Wood Board.
Description & Remarks: Complete with headphones, aerial wire, leading-in tube and Insulators.
Price: In 1923 £3.17.6.

Model: Crystal Receiver.
Type of Cabinet: Mahogany case with ebonite front panel.
Description & Remarks: Set only.
Price: In 1924 £2. 3. 0.

SUPERADIO LTD.
111 Great Eastern Street, London, E.C.2.

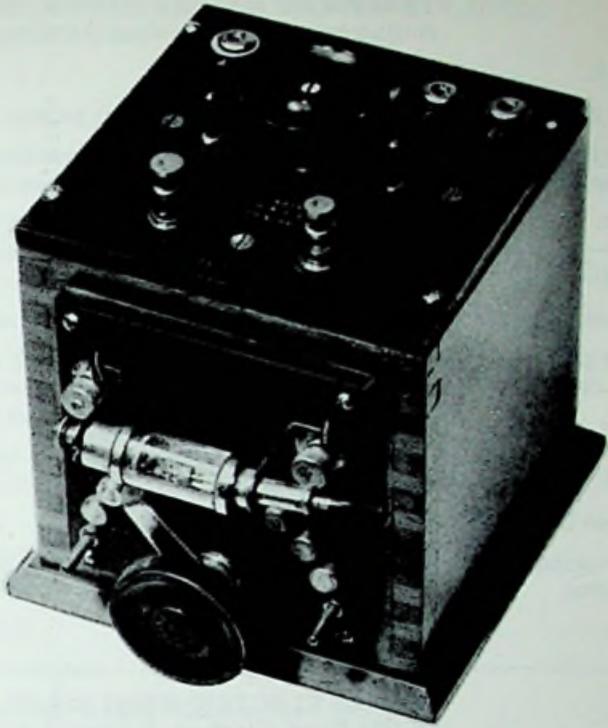
Model: Super Radio No. 1.
Type of Cabinets: Oak Case.
Description & Remarks: Complete with headphones and aerial wire.
Price: In June 1922—£4. 10. 0.

W. H. TANT & CO.
Transant Works, Dollman Street, Birmingham.

Model: Transant.
Type of Cabinet: Polished ebonite.
Description & Remarks: Set only. Enclosed detector and U piece for Daventry coil.
Price: £1. 1. 0.

Model: Transant.
Type of Cabinet: Polished Dark Oak case and lid.
Description & Remarks: Set only. Enclosed detector and U piece for Daventry coil.
Price: £1. 5. 0.

Reynolds and
Bradwell,
Crystal Set



H. C. Tolfield,
Syren \times

TELEPHONE MANUFACTURING CO. LTD.
 Hollingsworth Works, West Dulwich, London, S.E.21.

Model: T.M.C. 2A.
Type of Cabinet: Polished wood lid cover, flat panel.
Description & Remarks: Set only. 300-500 metres. Fixed loading coil for 5XX. No plug-in coils used. Slider tuner.
Price: £1. 9. 6.

Model: T.M.C. 8.
Type of Cabinet: Polished Walnut sloping panel or grained ebonite.
Description & Remarks: Set only. 300-1, 800 metres without use of plug-in coils. T.M.C. Air-wound Variometer tuned.
Price: £2. 7. 6.

Model: T.M.C. 9 Daventry.
Type of Cabinet: Moulded case.
Description & Remarks: Set only. 1, 600 metres wavelength only. Variometer tuned.
Price: 12/6d.

THAMES ELECTRIC WIRELESS CO. LTD.
 40, Old Town, Clapham, London, S.W.4.

Model: Thames.
Type of Cabinet: Desk type.
Description & Remarks: Set only. Also receives Daventry 5XX.
Price: £1. 12. 6.

H.C. TOFIELD LTD.
 Birmingham.

Model: K Syren.
Type of Cabinet: Oak case, with lid.
Description & Remarks: Tapped inductance tuning.
Price: Unknown.

G. H. J. TRADING CO.
 97, Queen Victoria St., London, E.C.4.

Model: Midge.
Type of Cabinet: Tube type.
Description & Remarks: Set only. Spiral tuning rod. Ebonite top on which is mounted Crystal Detector.
Price: In 1923 7/6d.

'TRIUMPH WIRELESS SPECIALITIES' C.T. LTD.
26, Church Street, London, W.1.

Model: No. 1.
Type of Cabinet: Tube type.
Description & Remarks: Slide coil tuning. Ebonite top on which is mounted Crystal Detector. Complete with headphones, aerial and earth wire.
Price: In 1923 £2. 0. 0. Receiver only assembled 12/6d. un-assembled 10/-

Model: No. 2.
Type of Cabinet: Wood board.
Description & Remarks: Slide coil tuning. Complete with headphones, aerial and earth wire.
Price: In 1923 £2. 7. 6. Receiver only assembled 15/- . un-assembled 11/6d.

UNIVERSAL ELECTRIC SUPPLY CO LTD
4, Brown Street, Manchester.

Model: Portable.
Type of Cabinet: Polished case.
Description & Remarks: Single slide tuning inductance.
Price: In July 1922—£3. 5. 0.

W. VANSTONE LTD.
61, Chandos Street, London, W.C.2.

Manufacturers of Crystal sets under the Trade Mark 'Stanophone'. Various types from 18. 6d. No details known.

VAROTO LTD.
6 Eldon Street, London, E.C.2.

Model: Voc. 1.
Type of Cabinet: Wood board.
Description & Remarks: Slide coil tuning. Complete with headphones.
Price: In 1923 £3. 7. 6d.

WALTERS ELECTRICAL MANUFACTURING CO. LTD.
Kensal Road, London, W.10.

Model: No. 1.
Type of Cabinet: Mahogany case.
Description & Remarks: Complete with headphones.
Price: In 1923 £4. 15. 0d.

WARD & GOLDSTONE LTD.
Frederick Road, (Pendleton), Manchester.

Model: Goltone.
Type of Cabinet: Polished wood case.
Description & Remarks: Set only. Tunes to 1,860 metres without additional coils. Vertical dustproof detector, Sonyte crystal variometer tuning.
Price: 7/6d.

Model: Goltone A.
Type of Cabinet: Wood case with ebonite top.
Description & Remarks: Receiver only. Terminals for 300-400 metres, 400 metres and over and plug sockets for over 600 metres.
Price: £1.1.0.

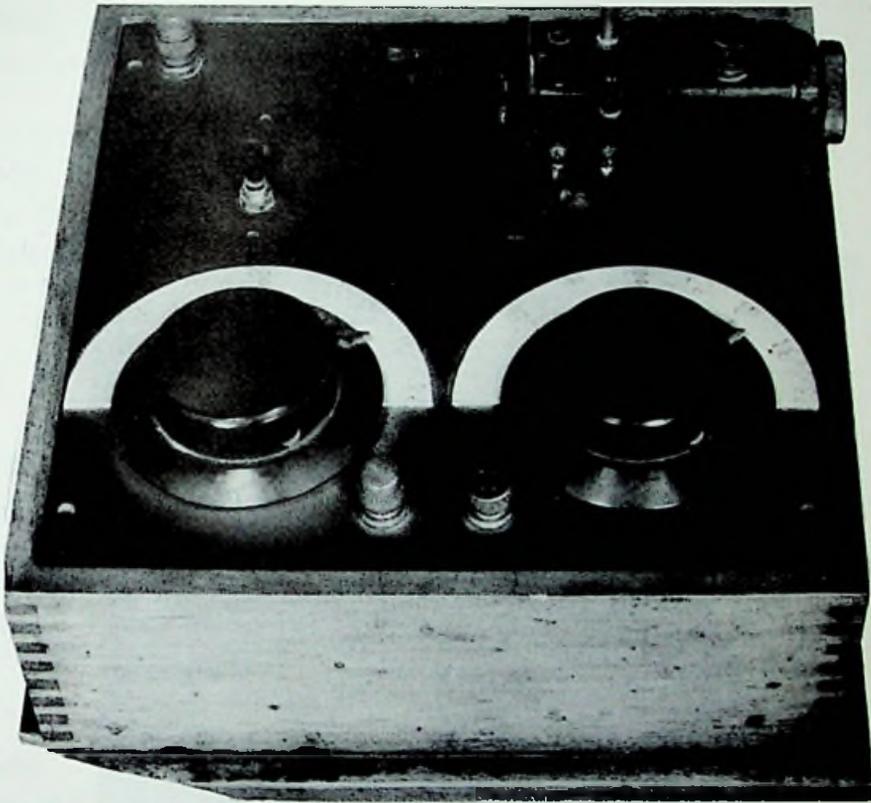
Model: Goltone A.
Type of Cabinet: Wood case with ebonite top.
Description & Remarks: Receiver complete with phones and aerial.
Price: £2.2.0.

Model: Goltone B.
Type of Cabinet: Wood case with ebonite top, and fall down lid with special compartment for phones.
Description & Remarks: Receiver only. Particulars as Goltone A.
Price: £1.10.0.

Model: Goltone B.
Type of Cabinet: Wood case with ebonite top, and fall down lid with special compartment for phones.
Description & Remarks: Receiver complete with phones and aerial.
Price: £2.11.0.

WATES BROS. LTD.
13-14, Great Queen Street, Kingsway, London, W.C.2.

Model: Bijouphone.
Type of Cabinet: Tube type with ebonite top and base.
Description & Remarks: Variometer tuning. Auxiliary Condenser for long and short waves. Enclosed Detector on top of tube.
Price: In 1924 7/6d.



Crystal set with Braille markings



Western Electric 44001

WESTERN ELECTRIC CO. LTD.
62, Finsbury Pavement, London, E.C.2.

Model: 44001.
Type of Cabinet: Mahogany case with lid.
Description & Remarks: Similar to a model by Metropolitan-Vickers. Model 44000 is known but is similar to 44001.
Price: Unknown.

WILKINS & WRIGHT LTD.
Utility Works, Kenyon Street, Birmingham.

Model: Utility.
Type of Cabinet: Polished wood.
Description & Remarks: Set only. Suitable for tuning in any station by means of plug-in coils.
Price: £2. 2. 0.

THE WILTON WIRELESS CO.
120-124, High Street, London, S.W.17.

Model: Supreme Crystal Receiver.
Type of Cabinet: Wood board.
Description & Remarks: Set only. Double slide coil tuning. Similar in appearance to Gamage's No. 1.
Price: In 1922 £1. 10. 0.

WIRELESS SUPPLIES CO.
64, Mortimer Street, London, W.1.

Model: Crystophone No. 1.
Type of Cabinet: Open type.
Description & Remarks: Single slide tuning coil 9" x 4". Complete with headphones. Double slide tuning 5/- extra.
Price: In 1922 £2. 10. 0.

Model: Crystophone No. 2.
Type of Cabinet: Double hinged mahogany case.
Description & Remarks: Single slide tuning coil 9" x 4". Complete with headphones. Double slide tuning 5/- extra.
Price: In 1922 £3. 10. 0.

Model: Crystophone 20TT.
Type of Cabinet: Mahogany case with lid.
Description & Remarks: Tapped inductance tuning. Complete with headphones.
Price: In 1922 £4. 10. 0.

F. E. WOOTTEN LTD.
56, High Street, Oxford.

Model: Wootophone Type H.
Type of Cabinet: Mahogany case.
Description & Remarks: Complete with accessories.
Price: £4. 10. 0.

Model: Wootophone Type H2.
Type of Cabinet: Mahogany case.
Description & Remarks: Set only.
Price: £1. 12. 0.

Model: Cheaper model.
Type of Cabinet: Mahogany case.
Description & Remarks: Complete with accessories.
Price: £3. 0. 0.

YORKSHIRE RADIO CO. LTD.
Western Works, Rockingham Street, Sheffield.

Model: Spotter.
Type of Cabinet: Enclosed, Jacobean.
Description & Remarks: Set only.
Price: 6/6d. to £1. 5. 0.

APPENDIX TO CATALOGUE**J. G. GRAVES LTD.**
Sheffield.

Model: Crystal set.
Type of Cabinet: Mahogany case with headphone compartment and lid.
Description & Remarks: Set only. Vertical dustproof detector. Tuned by variable condenser.
Price: Unknown.

THAMES ELECTRIC WIRELESS CO. LTD.
40, Old Town, Clapham, London, S.W. 4.

Model: Thames.
Type of Cabinet: Mahogany case with headphone compartment and lid.
Description & Remarks: Set only. Variometer Tuning. Plug socket for all wavelengths by use of coils.
Price: In August 1923 £2. 0. 0.

WILTON WIRELESS

REMEMBER THE NAME — IT STANDS FOR QUALITY

- Aerial Wire, 100' 3/6
- Aerial Wire, 150' 5/-
- Lead-In Tubes 1/6
- Insulators 8d., 9d., 1/-
- Fixed Condenser 1/6
- Valve Holders 1/-
- Filament Rheostats 3/-
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- Switch Arms 1/6
- Ex-Govern. " R " Valves 14/-
- Engraved Dial, 2 knobs with fixing Screw 2/6
- Sleeving per yard 4d
- Detectors 3/6

2-VALVE SUPER REGENERATING SET OF PARTS.

Everything Ready including Loop Aerial **£10**

BROADCAST RECEIVER, SINGLE VALVE.

Supplied with 3 Plug-in Coils for Broadcast Croydon, Paris. Ideal for Telephony.



TESTED BEFORE DESPATCH

50/-

Set of Parts 35/-

Some New and Special Bargains

3 Coil Holders, Standard Type **10/6**

Plug and Fixing Bands 2/-

DUO BASKET COILS — for maximum efficiency on short waves—these fit Honeycomb Plugs—

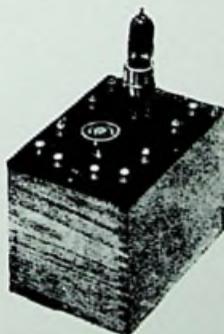
400-700m., 3/-; 500-900, 3/6; 600-1,000, 4/-; 800-1,400, 4/6; 1,000-2,800, 6/-; 2,000-5,000 m. 5/6.

" **SUPREME** " — Wireless Headphones, aluminium, light and comfortable, 4,000 ohm, 25/-; 8,000 ohm, 27/6.

" **SUPREME** " **NOTE MAGNIFIERS** —for attaching to any existing set. Crystal or valve.

Enormously Magnifies Speech—Music.

45/-



FULL SET OF PARTS 35/-

Our Technical Bureau at Your Disposal—Write Your Query—Simple or Complicated—Our Expert Can Help You.

L.F. TRANSFORMERS.
Correct impedance for Telephony 17/6
(Diagram with each.)

H.F. P.M. TRANSFORMERS.
400m. 1,700m. 900m. 1,100m. 3/6 4/- 4/6 5/-

TUNED ANODE TYPE.
Fitted Swivelling Resistance—400m. 1,700m. 900m. 1,100m. 5/6 6/6 7/6 8/6
(Diagram with each.)

VARIABLE CONDENSER in cast aluminium.

FRAMES NEVER WARP.
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17/6 8/6 9/6 12/6
Cabinet Type, 5/- extra.

" **SUPREME** " **CRYSTAL RECEIVER**
Fitted Hertsite Crystal. Wound for Telephony. Neat and Efficient. Every one tested before despatch **30/-**



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120/124, HIGH STREET, TOOTING, S.W.17

TELEPHONE No. FIVEEIGHT 688

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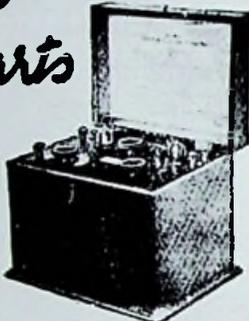
THE WIRELESS WORLD AND RADIO REVIEW

MAY 5, 1923

Guaranteed Wireless Sets & Parts

Our Sets conform with B.B.Co.'s requirements and bear their stamp

2-VALVE SET.



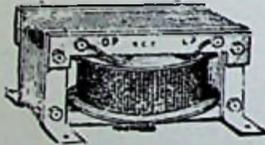
THE CHEAPEST 2-VALVE SET ON THE MARKET. Complete with Low and High Tension Batteries, Aerial Insulators and Headphones. Price £12. **TAX PAID** (Valves extra).

HEADPHONES.



2-VALVE AMPLIFIER. A splendid addition to the above set is our **TWO-VALVE AMPLIFIER** at £8 (**TAX PAID**) specially designed for coupling direct. This gives you a **FOUR-VALVE SET** at **LOW PRICE** of £18 (Valves extra).

Best British Manufacture and specially designed for the receiving of broadcast wireless. Fitted with double head bands. A great bargain. Quick delivery guaranteed. 4,000 ohms, 21/- De Luxe Type, 30/-.



INTER VALVE TRANSFORMERS.

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"BRITICENT" SUPER CRYSTAL SET

With radius of 15 to 20 miles. This set comprises Ebonite Panel mounted in Oak Cabinet, with Crystal Detector, Condenser, one pair of 4,000 ohms Headphones, Aerial Wire and Insulators. Price complete, 24 7s. 6d. B.B.Co.'s surcharge 7/6 extra.

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The British Central Electrical Co., Ltd.
6/8, Rosebery Avenue, London, E.C.1

'Phone—Clerkenwell 1848.

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It's the easiest thing in the world to carelessly twist your wires round those fascinating little terminals, and say to yourself, "Well, that's that!" Yet later, you may be wondering why **2 LO** seems further away than usual. You tap your valves—twiddle your tuners, and then eventually discover that those wretched terminals have "let you down" again. That's the "fly in the ointment." Attend to these at once as you would a leak in a gas pipe by **SOLDERING**. Soldering is child's play when you've a tin of **FLUXITE** at hand to help you, or better still, a complete Soldering Set that we have had specially prepared for the convenience of customers. Ask your Ironmonger or Hardware Dealer to show you the neat little

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