

BRITISH

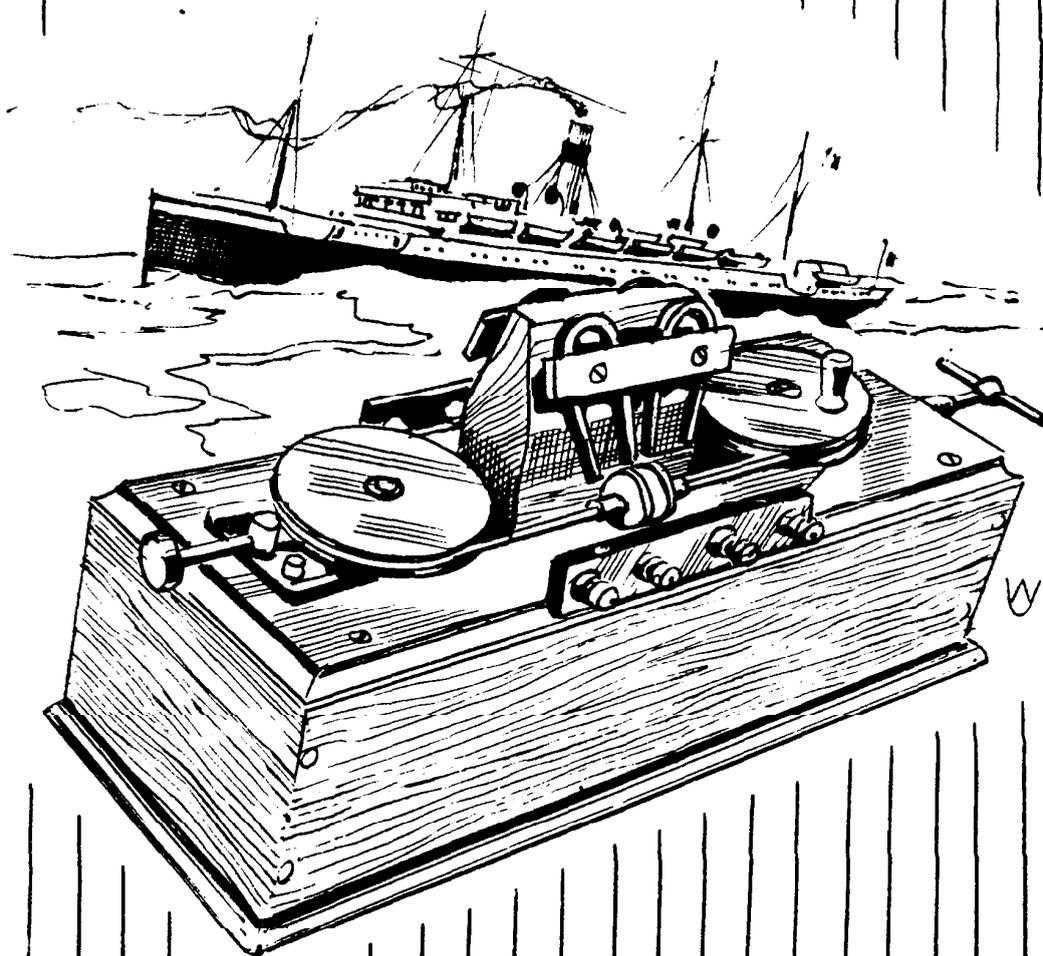
# VINTAGE WIRELESS

SOCIETY

Bulletin

Vol.1 No.3

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THE BRITISH VINTAGE WIRELESS SOCIETY

All correspondence relating to the Bulletin should be sent to:

THE EDITOR, BVWS BULLETIN,  
18, Ravensbourne Gardens,  
Ealing, London, W13 8EW Tel: 01-997-7564

The BVWS hopes to have its first annual general meeting in two to three months time and all members will receive notice of the meeting as soon as details have been worked out. Elections for office will be held at the A.G.M. for Chairman, Vice Chairman, Secretary, Treasurer, Bulletin Editor and up to five other committee members.

In the meantime, the acting hon. Secretary is: Jon Hill,  
11, Gainsborough Gardens,  
Hampstead,  
London, N.W.3.  
Tel: 01-794-2764

The acting Hon Treasurer is: J.A.Gillies,  
33, Lannock Rd.,  
Hayes,  
Middlesex  
Tel: 01-561-5199

The acting Bulletin Editor is: A.R.Constable,  
address as at top of page.

FRONT COVER ILLUSTRATION

The magnetic detector was not a very sensitive detector but its robustness and reliability made it the ideal instrument for use aboard ship. It was used for transatlantic signalling and was adopted almost universally for Marconi ship stations. It required very little adjustment and no batteries and functioned just as well in the presence of atmospherics and was not at all affected by vibration and remained in use from about 1903 until well into the 'valve age'. Its only drawback was that it had to be wound up every half hour or so and if the wireless operator was not on the alert he might miss the all important distress signal simply because he had failed to wind the spring motor. If he kept the headphones on he always heard a faint rustling sound and it was said that the absence of this sound when the motor ran down was sufficient to waken the sleepy operator.

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## EDITORIAL

Wireless history means many things to many people but to all serious collectors and historians the need for literature must rank very high on the priority "shopping-list".

Books, booklets, magazines, scientific journals and advertising leaflets give the collector hours of pleasure as well as providing vital source material. An extremely good exercise for a quite advanced engineering or physics undergraduate consists of giving him (or her) any well known piece of quite simple electronic equipment and asking him to write a detailed specification and instructional manual for the equipment without referring to any existing literature. This is an extremely difficult exercise and serves to remind the student never to omit acquiring the manufacturer's manuals when purchasing even the simplest equipment in the future.

Collectors are often in a similar position. They can trace circuits quite easily but the task of tracing patterns of usage, determining exact values of components and working out authentic operating specifications can be quite formidable without assistance from contemporary literature. The less technical features of the instrument are also of great concern to the collector who frequently delves through mountains of paper work trying to find clues which will be of help in the task of restoration - such as the type of knob, panel texture, cabinet finish or the precise style of the missing panel screws.

Several members of BVWS are already in continuous contact exchanging information from their personal 'libraries' and it is hoped that this activity will continue to expand as the Society grows. To help members contact each other a membership list will be prepared and circulated very shortly. Also, to help members become familiar with the books that are available on the subject of early wireless, a feature will occasionally appear in the Bulletin under the title "From the Editor's Book Shelf". This will contain a short synopsis of a book (or books) thought to be of special interest to collectors ..... your suggestions for titles will be most welcome and if you think you have a particularly rare book your written synopsis will be particularly welcome.

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The G.P.O. registration number project is well under way - but many, many more numbers are needed. When a number appears on a set it is normally in the form 'G.P.O. Reg No.....' not simply 'Reg No....' which may mean something quite different. Some collectors have spoken about a registration number on headphones - to my knowledge no G.P.O. registration number appears on any headphones or other 'components'. Crystal sets, valve sets and amplifiers were given G.P.O. registration numbers between late 1922 and perhaps mid 1924. Please check carefully and use the list published in this Bulletin - it might help to know what number to expect for a given instrument. Your co-operation so far has been most helpful - thank you very much - and keep looking.....we've a long way to go.

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THE MAGNETIC DETECTOR

By A.R.Constable

As early as 1842, Joseph Henry, Professor of Natural Philosophy at Princeton University, observed that magnetised needles became demagnetised when in the vicinity of discharging Leyden jars. Thus the principle of the magnetic detector preceded by many years its practical application.

In 1895, the young Ernest Rutherford working at the time under J.J.Thompson at the Cavendish Laboratory, Cambridge, used this principle to detect Hertzian waves over a distance of three-quarters of a mile. A simple magnetometer indicated the amount of magnetism in a small needle and a decrease of its deflection heralded the arrival of a pulse of radiation from the transmitter .....Fig 1.

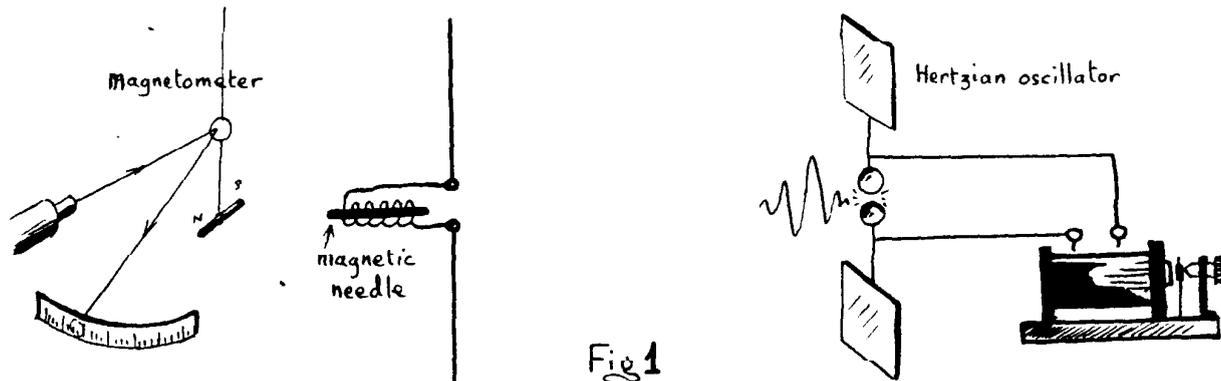
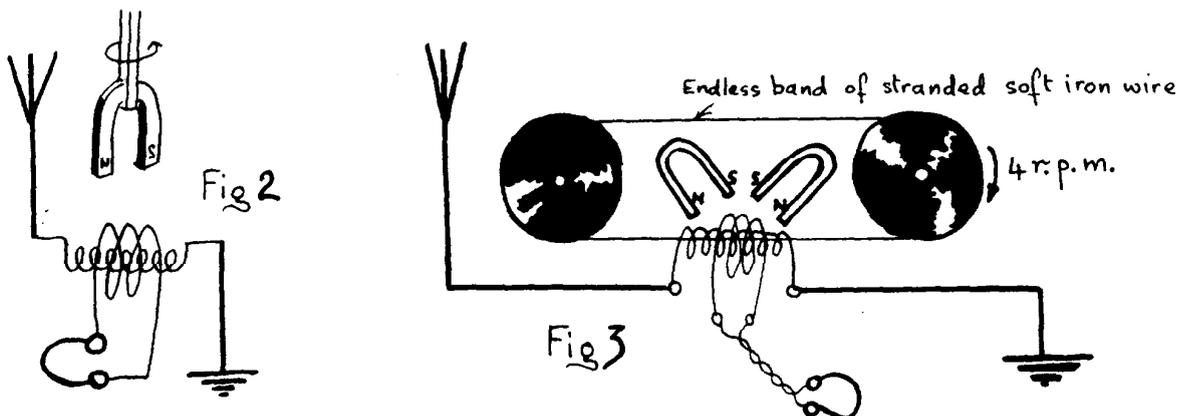


Fig 1

In 1897, Professor Ernest Wilson modified Rutherford's detector to make it automatically restore itself in preparation for the next signal. In 1902, Marconi wound two coils on a soft iron core and subjected the core to a continuous magnetisation cycle by rotating a magnet in the vicinity of the core. One of the coils was connected to an aerial-earth system so that a pulse of radiation would cause the soft iron core to re-adjust its magnetisation condition by an amount which depended on which part of the hysteresis cycle it happened to be in when the pulse arrived at the aerial. This re-adjustment resulted in a change of flux linking the second coil and hence generated a small e.m.f. in this coil. Headphones connected to the second coil responded with a series of sounds corresponding to those arriving at the receiving aerial .....Fig 2.



The final version of the magnetic detector developed by Marconi kept the magnets stationary and fed a continuous band of soft iron wires through the coils .....Fig 3. This detector was used extensively from about 1903 and became the standard form of detector used by marine wireless operators throughout the world.

It is not immediately evident to the modern wireless historian that the magnetic detector can be (and was) used for wireless telephony as well as telegraphy. Professor R.A.Fessenden was experimenting with radio telephony as early as 1900 and he invented several types of magnetic detector. By 1903 he was able to transmit moderately intelligible speech using a spark transmitter! On December 11th 1906 he was able to demonstrate radio telephony over a distance of 10 miles from the National Electric Signalling Company's 2 Kilowatt transmitter at Brant Rock to Plymouth, Massachusetts.

Ships' wireless operators listening for the usual morse signals heard, to their utter astonishment, violin music and speech coming over their headphones. Their magnetic detectors were, in the questionable jargon of a later age, demodulating the incoming signals.

1906 was also the year of the crystal. This was the year in which Dunwoody, Austin and Pickard introduced different versions of the crystal rectifier - the principle of which had been discovered as early as 1873 by Prof. Ferdinand Braun of Berlin (Braun took the Nobel prize jointly with Marconi in 1909). The crystal detector was certainly more sensitive than the magnetic detector but it never really replaced it - the magnetic detector was always considered the more reliable aboard ship. The two detectors co-existed for many years and continued to be used well into the 'Thermionic Valve Age'.

Magnetic detectors are not often found in private collections and I am most grateful to Bill Journeaux who kindly allowed me to make use of his instrument for a recent demonstration lecture on the 'Early Days of Radio' and to continue using it to make a few basic measurements. The poor sensitivity of the magnetic detector for radio telephony is really quite surprising. I recently connected a modern solid state digital microammeter in the telephone circuit of a simple crystal receiver tuned to BBC-3 and measured a full hundred microamps. Using the same 75ft aerial, a Burndept Mk V tuner and the Marconi magnetic detector, it was barely possible to measure one microamp.

A full explanation of the mode of action of the magnetic detector as a rectifier of a modulated R.F. carrier wave is not easy to find in existing literature (ancient or modern) if it exists at all. The best account of the action that I have read can be found in J.Erskine-Murray's book: A Handbook of Wireless Telegraphy, Crosby Lockwood, London, 1907. This account is in fact taken from Dr. W.H.Eccles' paper in a contemporary issue of the Philosophical Magazine. While this account is very thorough, it needs some modification to assist the modern reader to see the device as a rectifier. However, Dr.Eccles work must be read by the serious student of magnetic detection. We hope to include a 'modern account' of the mode of action of the magnetic detector in a subsequent issue of this Bulletin. In the meantime, and for those who wish to do their own measurements on a simple home-made magnetic detector, the coil resistances of the Marconi version are 33.5 ohm (aerial coil) and 149 ohms (telephone coil) and the speed of the soft iron endless loop is about  $\frac{3}{4}$ " per second (4" diameter pulleys revolving at about 4 r.p.m.).

Once again, I wish to thank Mr H.H.Journeaux for the loan of his Marconi Magnetic Detector - a beautiful instrument tested at the H.M.S. 'Vernon' Wireless Testing Dept. on 26th September 1910 and still protected in its original robustly made packing case.

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#### A CATALOGUE OF WIRELESS BOOKS

At last!! A catalogue of secondhand books on all aspects of wireless has been published by: L.V.Kelly, Bampton Books, "Franklyn" Deymans Hill, Tiverton, Devon, U.K.

There are well over 600 items listed with a part-I devoted to bound books and a part-II devoted to magazines, booklets and ephemera. The list includes many books on the subject of broadcasting entertainment and no attempt is made to separate these from the more technical works. I hope that future lists from Mr.Kelly will separate these categories into two parts as there is no doubt at all in my mind that they do not belong together. I think Mr. Kelly has on the whole done his homework well on the subject of prices though in a 'first' catalogue of this sort there are sure to be many surprises to us all which, for better or worse, have now been 'written down' as the standard on which all future catalogue prices will be based. To mention but a few items, I think W.T.O'Dea's Handbook of Radio Communication, H.M.S.O. 1934 is good value at £2.50 as it is one of the best books ever written on the history of wireless and is not easy to find. It is a surprise to see Moseley and Chapple's 'Television Today and Tomorrow', Pitman 1930 listed at £30 knowing that, despite its historical importance, it is one of the most badly written books I have ever read. I was also surprised to see H.M.Dowsett's 'Wireless Telephony and Broadcasting' Gresham 1924 listed at £35 despite the fact that this two volume work is perhaps the most important work for the collector and historian of early wireless. The main items in the catalogue are set out in alphabetical order and all details are clearly spelled out. Mr. Kelly is to be congratulated on producing this catalogue (the first one to my knowledge) but, to repeat, I hope he will separate technical from entertainment titles in future issues.

A.R.C.

## THE 'R' VALVE

By Philip Beckley

It has often been observed that in time of war technical development is accelerated to meet a need so that devices become available long before civil development would have made them so.

This pattern certainly applied to the thermionic valve. Around 1913 the Lieben-Reisz valve (which contained mercury vapour) had some degree of use but it was a clumsy device and difficult to regulate for best results. Many valves of the period had rather poor vacua and, although this gave a characteristic with ionisation kinks in it which was good for rectification, it militated against standardisation and simplicity.



It is interesting to note that, prior to 1913, virtually every investigator had concluded that electron emission required the presence of some gas in the tube and that the emission was due to some sort of reaction between the heated filament and the surrounding gas. This accounts for the late appearance of the hard vacuum valve which had to wait until Dr. Irving Langmuir (an American Chemist) proved in 1913-1914 that gas was not necessary and that furthermore, in contrast to the erratic behaviour of the soft valve, the electron current became regular and obeyed definite laws in a hard vacuum.

During World War I research was going on in the French military laboratories in the Champ de Mars in Paris in the shadow of the Eiffel Tower - indeed the tower was used as an aerial mast (try proposing simple ideas like that today!). Among other things, the French researchers developed a valve with a good vacuum, robust and simple in operation, having a standardised set of pin connections (eventually these became standard in Britain as the B4 base) and electrodes whose size and spacing were precise for the day.

What was this new French valve called? There were certainly not enough valves about to need a complex code number so it soon got the name of "French Valve". The filament of the French valve was of plain tungsten and operated at about 4 volts for reception purposes though it was often run at 6 volts to get more emission for transmitter use. When thus over run its life was bright but rather brief - maybe 100 hours or less.

We would not these days look upon a French valve as a miracle of gain, having a  $g_m$  of about 0.2 to 0.3 mA/volt depending on how it was operated, but when compared with some of the German war time valves this is a super performance - worthy of secret protection.

The French valve appeared in two types, Type-S and Type-Metal. This appears to refer to manufacturing sources and Metal valves of various types were made after the war in France. I have never traced the manufacturing source of the S-type French valves. The two forms differed in minor detail only.

Tungsten filaments tended to 'clean up' the vacuum of the valves they were in, so no form of gettering was used at this time for the wartime valves. Being in the Allied Club Britain was able to use the French valve design - and did so. The British version was tested for vacuum by seeing how large an anode potential could be applied before ionization effects set in (blue glow) and one form of classification was:

Type-A	up to 2000 volts
Type-B	up to 1200 volts
Type-R	up to 150 volts

Presumably the Type-R referred to "receiving duties only" and so the famous R valve emerged as a result of this selection.

After the war the country was plentifully supplied with ex-government French and R-Type valves and this aided the beginnings of amateur useage of valves. I have a valve made exactly to the 'French' pattern by Moorhead (San Francisco) so I wonder if the U.S.A. also had access to the French development work - can anyone advise?

Once broadcasting got under way many firms made R-type valves. Marconi brought out a 5 volt type, the R5V, which meant that it was more convenient and safe for 6 volt accumulator use. The Marconi type-LS3 amounted to a low impedance version of the R valve which aided early loudspeaker work.

But now we are beginning to refer to specific specialised types and there this chapter in history should end. The 'R' reigned in the days when a valve was a valve and it was seldom asked what type, only how many.

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### TRANSATLANTIC SIGNALS - LOUD AND CLEAR

The Canadian Vintage Wireless Association and the Antique Wireless Association Inc of New York have shown an interest in the BVWS and there are now several transatlantic members of our Society.

The Canadian Association publish a magazine called the 'Cat's Whisker' and the AWA version is called 'The Old Timer's Bulletin'.

Members of BVWS who wish to explore the international vintage wireless scene may wish to find out more about these much older organisations (The AWA was founded in 1952 and the CVWA was founded in 1970). The addresses are as follows: Canadian Vintage Wireless Association, c/o The Secretary, 84 Golden Orchard Drive, Hamilton, Ontario L9C 6J2, Canada. and Antique Wireless Association Inc., Holcomb, New York 14469, U.S.A. (Secretary, Bruce Kelly)

When communicating with these organisations do use an S.A.E. - postal charges can impose heavy burdens on the treasury as we ourselves are finding. It costs more to airmail a 'Bulletin' to the U.S.A. than to produce it in the first place! And sea mail takes anything from six to eight weeks!

Mention of BVWS in the Old Timer's Bulletin brought a lot of interesting correspondence from across the pond and our thanks go to the editors for the pleasant write-up they gave us.

When I was in the U.S.A. and Canada during the summer I was alas unable to meet members of these organisations owing to a very tight schedule as I travelled between Ottawa, Montreal, Toronto and New York. I did however manage to have telephone conversations with a few people - though most were on vacation at the time. I saw the very interesting collection of vintage wireless equipment at the Ottawa Science Museum and was given a guided tour of the back rooms where all those special items not on display are stored. After arriving back in the U.K., I met the secretary of CVWA (Maurice Chaplin) in London with his wife and we spent a few very pleasant hours discussing vintage wireless - mostly.

Perhaps one of our North American members would like to write something about American Wireless History for one of our subsequent Bulletins ?? There are several outstanding collections of old wireless equipment in the U.S.A. which we would like to hear about and there are probably items of British equipment in the U.S.A. which collectors in this country have never come across.

ARC

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EARLY CIRCUITS On page 7 of the last issue of the Bulletin a circuit was illustrated to test your understanding. As described in Rupert Stanley's Text Book on Wireless Telegraphy (1919), this was a method of receiving undamped waves developed by H.J.Round and Marconi's. Two balanced carbondum detectors are arranged inoposition and adjusted to receive strong signals only. The local buzzer makes the detector circuit conductive at the buzzer frequency and enables the CW to be heard at this frequency .....got it?

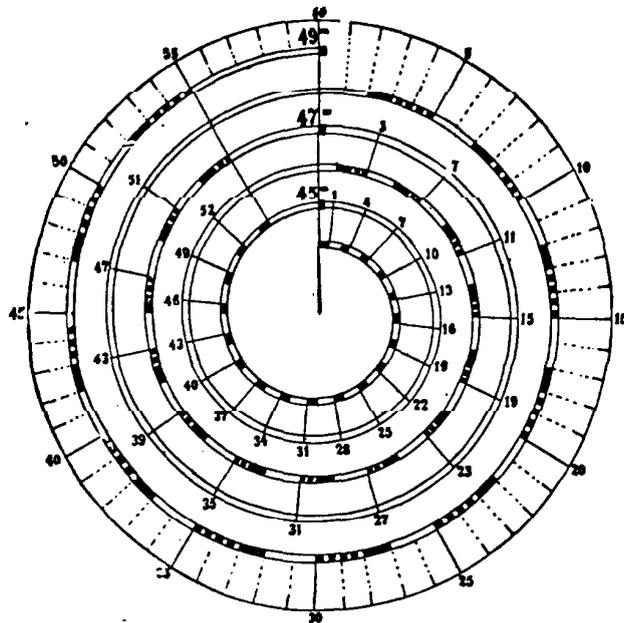
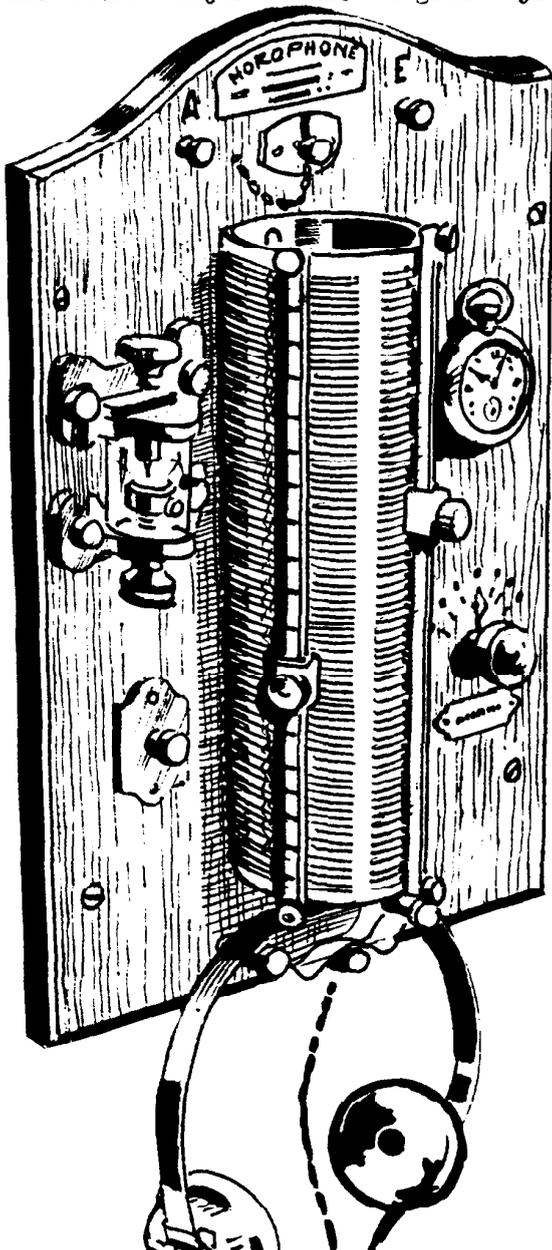
THE HOROPHONE

By Jon Hill

Following Mr Alan Skinner's short article about the Horophone in last September's issue of the Bulletin, I came across the following extract from "The Book of Electrical Installations", published by Caxton in 1915 :-

"The instrument should be erected on a wall free from vibration and preferably in a room where one is not likely to be disturbed by noise. Having joined up the aerial and earth wires to the terminals at the top of the board marked A and E respectively and withdrawn the plug in the centre, place the telephones over the ears and proceed to adjust the detector as follows: Loosen the two clamps on the top and bottom of the crystal detector (on the left of the instrument) about half a turn, and manipulate the little vulcanite knobs until the pointed end of the spiral brass wire is resting on the crystal in the cup. Now press the button on the case underneath the detector and operate the buzzer, which acts as a very weak transmitter of electrical waves, and if the detector is adjusted correctly a loud buzzing will be heard in the telephones. Some parts of the crystal are more sensitive than others and can only be found by trial. When the instrument is finished with never forget to replace the plug at the top of the board. This connects the aerial direct to earth and protects the instrument from lightning. The detector is one of the class known as crystal detectors, and as shown in the diagram is fitted with two substantial aluminium castings mounted on the base by four screws. A cup with three screws is provided for holding the crystal and a brass point selector, perfect selection being obtained by means of the locked ball and socket adjustments. A glass cylinder encloses the crystal and point and the whole

detector can be taken to pieces in a few seconds by simply loosening the fixing screws. The crystal supplied is prepared by special process, and will be found very sensitive and easy of adjustment. No local battery is required, in fact applied E.M.F. renders it less sensitive. Other crystals can of course be used if desired."



These time signals and 'warnings' were transmitted from the Eiffel Tower each day at:

10.44 to 10.49 a.m.  
and 11.44 to 11.49 p.m.

G.P.O. REGISTRATION NUMBERS

The editor thanks all those members (and others) who contributed lists of G.P.O. registration numbers in response to the appeal in the last Bulletin. It should be emphasised once again that the original list which is sure to have existed cannot be traced despite a careful search of the Post Office archives and other probable sources. G.P.O. numbers were given to all early sets from late 1922 to about mid-1924. They were given to crystal sets, valve sets and valve amplifiers and there is no evidence at all that they were given to headphones, valves or any other components. The following list, though by no means complete, is undoubtedly unique and will probably remain so until the original list comes to light - if it ever does. Further contributions will always be welcome - please be on the look out for errors and, particularly, for numbers to fill the gaps - AND KEEP US INFORMED.

For the sake of brevity, where necessary the following abbreviations have been used: oak (ok), mahogany (Mh), walnut (Wl), tapped inductance (ti), condenser (con), buzzer (buz), Galena crystal or other of cat's whisker type (G), carborundum detector (C), variometer (var), valve (v), tuning (tun), no information (Ni)

THE 'HUNDREDS' SERIES All sets with three digit numbers are crystal sets. There has only appeared one exception to this rule and the number (519) seems to have been given to a one valve set. It has not been included in this list and awaits confirmation of its authenticity.

No.	Manufacturer	Model etc.	Other details
100	Marconi	Junior	Rexine, spade tun, G/C
101	Marconi (& Millet)	Crystal A	Rexine, spade tun, G plus C.
102	G.E.C.	No.1	Ok or Mh, variometer
103	G.E.C.	No.2	Ok or Mh, ti, var, con, G, Buz.
104	Elwell	No.11	Mh, ti, var, G
106	B.T.H.	A, B or C	Wl, var, dual G
110	Associated Wireless	Little Casket	Ni, King's Rd., Chelsea
112	Radio Instruments Ltd.	No.2	Mh, ti, con, G
113	Burndept (Ethophone)	Junior	Ni.
118	H.D.Butler	No.111	Mh, Double slide tun, con, G
119	Ditto	Ditto	Ditto (A possible anomaly)
122	Radio Instruments Ltd.,	Ni	Ni
126	Bower Electric Ltd.,	No.1	Ni, 15, Grape St., London, W.C.2
128	Wainwright Man'g., Co.	W & M	Ni, 25, Victoria St., Lond.
134	Western Electric	44001	Mh, var, G
138	MEC	Ni	Ni, Crownhill Rd., Lond.
142	General Radio	The Rex	Ni
151	Mitchells Elect. W. Co.	No.1 Home	Ni, 188, Rye Lane
153	J.A.Coomes Ltd.	Desk	Ok, var, enclosed G
159	Falk Stadelman & Co.	Efescophone No.3	Ni
167	Gordon Castagnoli	Castaphone	Ok, ti, con, G
176	Gamages	No.1	Mh board, slide tun, G
183	T.M.C.	No.2	Board, slide tun, G
191	Drake & Gorham	-	Mh, var tun, G
226	Gamages	Ideal	Ni, Holborn, London
233	Varoto Ltd.	Voc 1	Board, slide tun, G
249	Fowler & Brigden	The Ceebee	Ni, 130, Euston Rd.
263	Broadway Radio Wks	Type A	Mh, Devonshire Rd., Bexleyheath
270	Bassett Lowke Ltd.	Oracle	Mh, twin ti (course + fine ),G
277	Reliance Radio Service	Ni	Ok, con, G
280	Brit. L.M.Ericsson Man'g	0/1002	Ok.
315	Ward & Goldstone	Sonola	Ni, Pendleton, Manchester
345	Birmingham W. Co	Gledallphone	Blk leather, slide tun, G
349	Cable Accessories	Revophone	Mh, dual ti, G
350	Joseph Hopley & Son	Ently Super 1	Ni, Whitchurch, Salop
391	Associated Wireless	The Scout	Ni, see also 110
412	W.J.Henderson & Co.	B.R.C. 1	Ni, 351, Fulham Rd. Lon.
419	C.T.Ltd.	Triumph No. 1	Tube, slide tun, G

433	Edison Swan Elect. Co.	1923B	Mh, ti, G
441	Nat. Wireless & Elect., Co.	The Gnat	Ni, 42, Gray's Inn Rd., Lond
444	Lintophone Co.	Lintophone	Ok, slide tun, G
460	H.C.Tolfield Ltd.	Syren	Ok, ti, G
485	Sterling Telephone Co.	A.1.	Wl, metal panel, var, auto G
518	Broadway Radio Wks	Junior 1	Ni, see also No.263 & 548
524	B & S Smith	Super B & S	Ni.
548	Broadway Radio Wks	Senior II	Ni, see also No's 518 & 263
561	T.M.C.	No. 5	Ni
599	Siemens	Ni	Ni
615	Edison Bell Ltd.	Ni	Ni
745	O.T.B.	Powder Box	Ni
792	Morch Bros Ltd.	Rexophone	Mh, ti, dual G
817	Thames Elect. Wireless	Thames	Ni
861	B.T.H.	Bijou	Wl, variometer
881	S.L.E.W., Co.	Gem	Ni, 84, West Side, London SW4
886	A.G.Foulds	A.G.F.	Ni

THE 'ONE THOUSAND' SERIES are with few exceptions one valve sets.

1007	Hestavox (Hestia Eng.Co.)	1038	Same as 1027.(10W7 was provisional!?)
1008	Simplex (H.P.R. Wireless Ltd.)	1043	Gamages, London E.C.1
1017	Castaphone (G.Castagnoli)	1045	Broadcast Baby (Peto-Scott Co.)
1018	Audiophone (J.R.Wright)	1055	Valve Set No.1 (T.M.C.)
1019	Deskophone (Holborn Radio Co.)	1087	C.S.Dunham
1027	Wireless Installations Ltd	1094	Valve Set No.3 (T.M.C.) This is a three valve set .
1033	Manchester Radio Co.		
1107	The Ever Ready	1111	Sterling type 1526
1108	A 5 valve set by R.I.Ltd.		

THE 'TWO THOUSAND' SERIES are mostly two valve sets.

2000	Gecophone BC2001	2033	Leslie McMichael
2005	Hestavox Two (Hestia Eng.Co.)	2045	Varoto Voc II (Varoto Ltd.)
2009	Sonus (Gamages)	2049	Hestavox (Hestia Eng.Co.)
2020	Deskophone (Holborn Radio Co.)	2064	H.E.Ashdown, Birmingham
2022	Gamages sloping panel set.	2069	Apollo Type 8. (Craies & Stavridi, 4, Bunhill Row, London EC1)
2029	Ensign (Ensign Radio Co.)		
2100	Type V2A (R.I.Ltd.)	2136	W.J.Henderson & Co.
2106	Castaphone (G.Castagnoli)	2165	Dunham (C.S.Dunham)
2126	Fellowphone Super II (Fellows Man'g Co. Park Royal, Lond., NW10)	2168	Stanophone (W. Vanstone)
		2181	Sterling type 1588
2201	Gecophone type BC 2501	2585	Gecophone 1 valve amplifier. (This seems out of place)
2202	Valve Set No. 7 (T.M.C.)		
2217	Western Elect. 44.081		

THE 'THREE THOUSAND' SERIES are exclusively L.F. amplifiers

3001	V.1.M. 1 valve (R.I.Ltd)	3030	2 valve, Valve set No.2 (T.M.C.)
3006	2 valve (Western Electric)	3042	1 valve, (Holborn Radio)
3015	1 valve Audiophone (see 1018)	3073	1 valve (Broadway Radio Wks)
3124	2 valve (Western Electric)	3186	2 v. (Sterling type 1537)
3185	1 v. (Sterling type 1533)	3188	2 v. (Sterling type 1343)
3276	2 v. (H.E.Ashdown Ltd.)		
3324	1 valve Triumph (C.T.Ltd.)	3360	2 v. Gecophone in mahog cabinet (For use with G.P.O. No's 2000 or 5394)

THE 'FOUR THOUSAND' SERIES is a mixed bag of crystal and valve sets

- 4012 Lintophone Junior crystal set (see also No 444)
- 4031 3 valve Empress Model A set
- 4043 Meepon crystal set (Made in U.S.A. in 1923 - how did this get a G.P.O. Number??)
- 4145 Crystal set of unknown make...built into a pair of headphones.
- 4155 Brownie tube type xtal set (J.W.B.Wireless) (No's 1 & 2 have no G.P.O. numbers)
- 4385 Ediswan 1924B crystal set
- 4542 Ariel crystal set variometer tuned, G
- 4548 2 valve Sterling 'Anodion' type R1589 - small desk top type receiver
- 4553 Belling Lee crystal set

THE 'FIVE THOUSAND' SERIES is also a mixed bag of (apparently) late entries.

- 5029 4 valve portable set (City Accumulator Co. London EC3)
- 5318 7 valve superhet (Western Electric type 44002). Another import??
- 5394 2 valve Gecophone BC3200 Mh cabinet, detector & L.F. (Used with 3360)
- 5464 3 valve Gecophone BC3300 (This is the highest G.P.O. no. so far found - any advances on 5464?)

THE 'ZERO' SERIES is again a mixed bag.

- 0109 2 valve (R.I.Ltd.)
- 0112 4 valve (R.I.Ltd.)
- 0113 3 valve Hilophone (HPR Wireless Ltd., Gt. Queen St., London)
- 0124 2 valve Claraphon (Ward & Goldstone, Pendleton, Manchester)
- 0135 3 valve The Simplex (T.H.Isted)
- 0138 2 valve Joyphone (Lipowski Co.)
- 0140 7 valve (R.I. Ltd.)
- 0142 1 valve plus crystal, Crystal Set No.3 (T.M.C.)
- 0143 2 valve plus crystal, Crystal Set No.4 (T.M.C.)
- 0149 2 valve Super reliaphone No.2 (Wholesale Wireless Co., London)
- 0167 2 valve Type W 51 (Radio Installations Ltd., 475, Picadilly, London)
- 0175 2 valve Marconiphone V2A, reflex (Marconi)
- 0177 3 valve Hilophone (H.P.R. Wireless Ltd., Gt. Queen St., London)
- 0179 3 valve Type M2 (Wireless Equipment Ltd.)
- 0181 4 valve Britphone No.4 ( British Wireless Supply, Leeds)
- 0195 3 valve Super Reliaphone No.4. (Wholesale Wireless Co.)
  
- 0222 Crystal Set with 2 valve magnifier (Aukland & Son, 395, St.John's St., London)
- 0236 2 valve (Wireless Installations Ltd., 81, Turmill St., London EC)
- 0260 Crystal plus 1 valve set, Britphone No.2. (British Wireless Supply, Leeds)
  
- 0385 2 valve (Negretti & Zambra, Holborn Viaduct, London, E.C.1.)
  
- 0425 5 valve (Wireless Equipment Ltd., 90, Charing Cross Rd., London)
- 0431 4 valve Britphone 4A (British Wireless Supply, Leeds)
  
- 0519 3 valve Radiovox III (Hodgson, Archer St., London, W.1.)
- 0556 3 valve Marconiphone V3 reflex (Marconi)
- 0591 Crystal plus 1 valve 'Triumph' (C.T.Ltd. ....Triumph Wireless Specialities)
- 0598 3 valve A uklophone Super 3. ( Auklands, 395, St.Johns St., London, E.C.1.)
- 0736 4 valve Type 1593 (Sterling)
- 0736 4 valve Type 1593 (Sterling)
- 0754 4 valve Set No.4. (T.M.C.)
- 0760 5 valve Set No.5. (T.M.C.)

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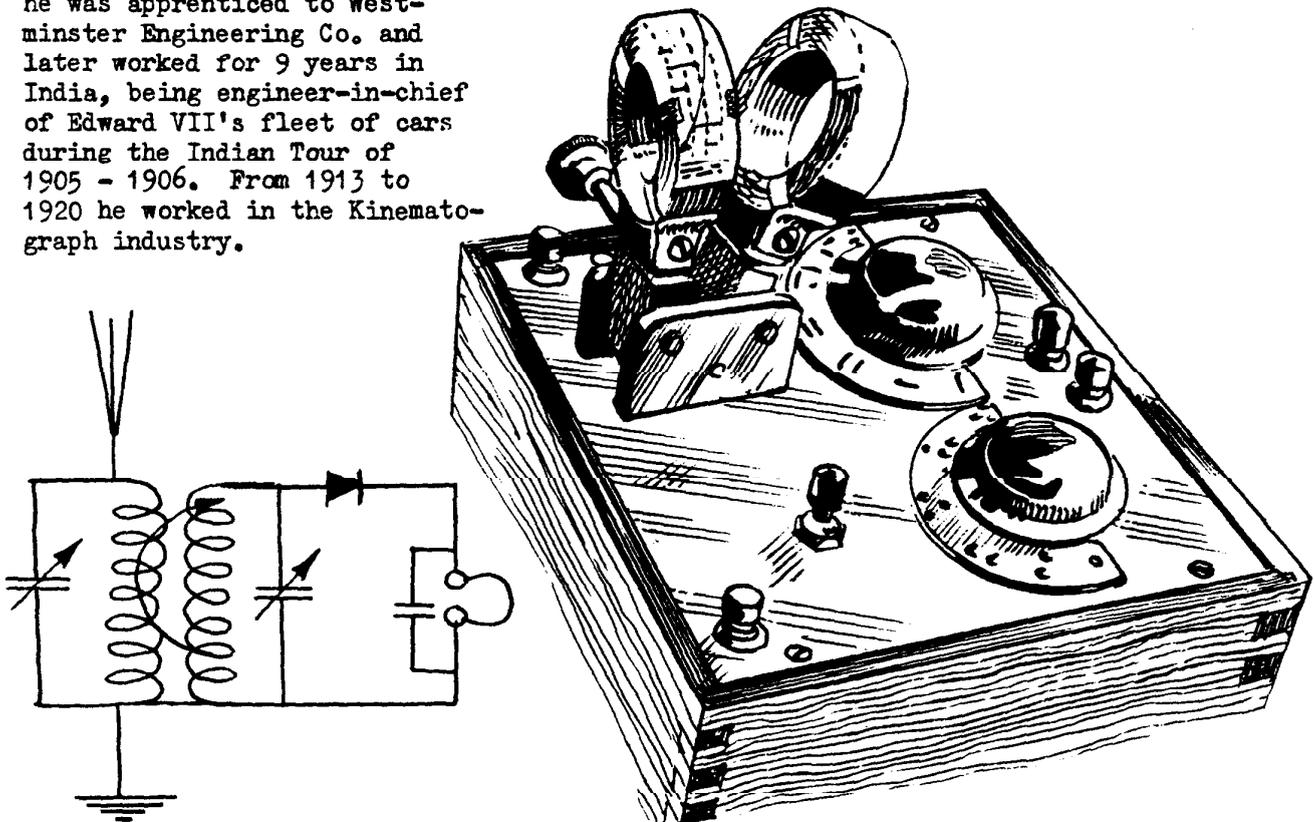
HIGH TENSION BATTERIES Tapped 126 volt H.T. batteries can be obtained from  
'Rupert's', 151, Northfield Ave., Ealing, London, W.13  
Tel: 01-567-1368.

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A BRAILLE CRYSTAL SET By Jon Hill

On Christmas Day, 1929, Winston Churchill launched the first national radio appeal for the 'British Wireless For The Blind Fund' set up to provide every blind listener with a wireless set. Radio's importance to the blind had been recognised a few years earlier when in 1927 the first issue of the Braille Radio Times was published. The response to Churchill's appeal was overwhelming and many manufacturers donated sets. A few manufacturers became specialised in designing and producing wireless sets specifically for blind people. One such company was Burne Jones who made Braille crystal sets in the early 1930's under their 'Magnum' trade mark. The one illustrated has a number of interesting features and was very thoughtfully designed for the easiest possible use by blind people. The Cat's whisker and crystal are housed beneath the ebonite panel with only the adjusting knob showing - it is spring loaded and can only be adjusted by moving the arm up and down. If the arm is accidentally knocked to the side, this in no way affects the delicate contact between cat's whisker and crystal. The circuit is of the loose coupled type, the two plug-in coils being mounted in a 'Polar Junior' coil holder made by Radio Communication Co. Igranic Triple Honeycombe coils No's 150 and 200 (long wave reception) were found in the set in my possession. Each coil is shunted with a 0.0005 Ormond variable condenser easily adjusted by the two large control knobs which have Braille markings instead of the usual dial numbers. To avoid confusing the terminals, the aerial and earth are set far apart and the two headphone terminals are close together. The panel is inset into a square mahogany box and bears the legend "The Property Of The British Wireless For The Blind Fund".

Note: David Burne Jones formed his radio manufacturing company (Burne Jones & Co., Ltd.) at 309-317 Borough High St., London S.E.1. in the early 1920's. When he left school he was apprenticed to Westminster Engineering Co. and later worked for 9 years in India, being engineer-in-chief of Edward VII's fleet of cars during the Indian Tour of 1905 - 1906. From 1913 to 1920 he worked in the Kinematograph industry.



In Desmond Thackeray's article (vol I, No.2, page 8) on Crystals and Crystal Detectors, the editor took the liberty of using the symbols  $\omega$  for ohms and  $\mu$  for megohms in accordance with the standard practice of long ago. It is hoped that readers did not find this too confusing and that no apologies are needed for a little indulgence in authenticity! Watch out for 'cm' and 'jars' of capacitance!!

SEARCHING

Any early amateur radio equipment, crystal receivers, Marconiphone V2. Sensible prices. Geoff Barnes G 3 AOS 5, Prospect Drive, Hale Barns, Altrincham Cheshire. 061-9802415

Good quality commercially made crystal set or pre-1927 commercially made valve set. A.P.Carter, Trellis Cottage, Shalford, Nr.Guildford, Surrey. Tel. 0483- 4213

Box only (or lid instructions) for Gecophone No.1 crystal set. Also req'd UV valve sockets (bayonet shell type - large) as used with Western Electric valves P.A.4 or 4216A - several wanted. Phil.Beckley, Church Farm House, Bettws Hill, Newport, Gwent NPT 6AD, South Wales. Tel. 0633-213906

Information relating to the 4 valve receiver made by Price's Battery & Radio Co. in 1924. Also req'd, information on 'Fraserphone' sets (James Fraser & Co.). Editor.

Information on British 1920's T.R.F. sets with multiple tuning elements in tandem, especially with bizarre mechanical coupling devices for one dial tuning. Do such sets exist in Britain? Arthur Harrison, 1021 Falcon Drive, Columbia, Missouri 65201, U.S.A.

Marconi Magnetic Detector - any condition. Also any Marconi valve crystal set. Will pay top dollar prices or will trade items of equal rarity - such as De Forest, Telefunken, Slaby Arco etc. Phil. Weingarten, 67-61, Alderton St., Forest Hills, New York New York U.S.A. 11374

DISPOSING

Revophone crystal set, Belling Lee crystal set, BTH dual crystal set - for exchange with other commercial crystal sets. Bill Journeaux, 7 Blair Avenue, Parkstone, Poole, Dorset, Tel. 0202-748072

Murphy 1939 all-wave receiver type A76. Also GEC table model of same period, a battery superhet with 2-v valves & push button wave change. A.P.Carter as above.

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EXPERIENCE VS. THE SCIENTIFIC APPROACH

By John Ludlow

Although not an enthusiastic collector of vintage wireless equipment, reports in your pioneering British magazine suggest that an experience of mine during World War II may be of interest - or even useful- to some readers.

Visiting a friend in the early 1940's, I was invited to try and make his pre-war wireless set work. The set was a Pye 'Cambridge?', with an unusual light-blue chassis and it produced no signal at all though the valves were OK. I took the set to the Factory Laboratory where I worked, and an examination was made using an AVometer. This produced the astonishing result that at least five components - H.F. chokes and resistors - had become open circuit. Any one of the faults would have stopped the set working.

During previous occurrences of this sort I had formed the opinion that an ounce of experience was worth many pounds of scientific skill, and before attempting to make any repair, I consulted a resident member of the 'Aeronautical Inspection Directorate' (the AID) whose peace-time job had been that of Service Engineer in a radio shop. I told him it was a Pye T.R.F. set and described the strange results of my test. "Ah well," he said, "Your friend has been unlucky: there was a standard price for servicing one of that batch - usually £3.10s to £4." Expensive! "Oh no. The first sets lasted years - so did the ones they made to the same design after the 'penny had dropped'." So I asked for the story. It appeared that the Pye Company was very keen before WWII to make as many of their components as possible in their own works. H.F.chokes and various resistors were suitably damp-proofed by means of a malodorous operation involving the brewing of a very special wax. When a small amount of chromium plating had to be done (also rather smelly) the two operations were put together. Thus the wax became impregnated with a self-destruct corrosive feature!!! I wonder if any readers have met factual confirmation of this sad story?

The Summer Holiday

Most vintage radio collectors I am sure take great care to add only relevant and desirable items to their collections. Certainly they would resist obtaining items outside their period or if a different speciality - or would they?

Summer holidays often involve travelling about and travel takes us to strange towns and villages. Only those quite beyond curing of radio collecting would think quickly when a holiday site is proposed - "What are its junk shops like?".

Have you ever avoided Switzerland because it has less cheap junk shops than Belgium? Have you kept well away from a town because 'they' have re-developed it and there are no junk shops left? Of course these secret thoughts are rarely admitted but can be wrapped up in talk of "better sands.....", "boating facilities.." "more favourable exchange rate....." etc etc.

Do you know the French - Dutch - German for "junk-shop" ? Did you know that policemen always know where the seedier parts of town are? (Of course they wonder why you want to know.)

Quite often, in spite of all efforts, one is unlucky - nothing comes to view - you may collect only 1927 B.S.A. sets and none can be found, not even a loose knob. The temptation grows to avoid coming back empty handed; quite the wildest items can be imagined to be "good for swop material, dear". "Of course it will go on the roof rack - a 1904 electric fire is so completely right for the radio room!"

What about electric bells, gramophones, plate cameras, gas brackets etc etc? Can they really all be good swop material? - Oh well!

Hoteliers sometimes react oddly to being asked if they have a little-used attic, - "Can we look in it please?" - "Just in case?".

No radio collector should be at a loss for words in any situation. You may meet the Director of the European Office of your firm while on holiday - very nice you may think. However, at the time of meeting him, you were standing in a builders skip in a Zurich street as he happened to walk by. - No, I'm not going to tell you the correct greeting as you stand clutching a defunct accumulator. As a true radio collector, your own excuse would be magnificent I've no doubt.

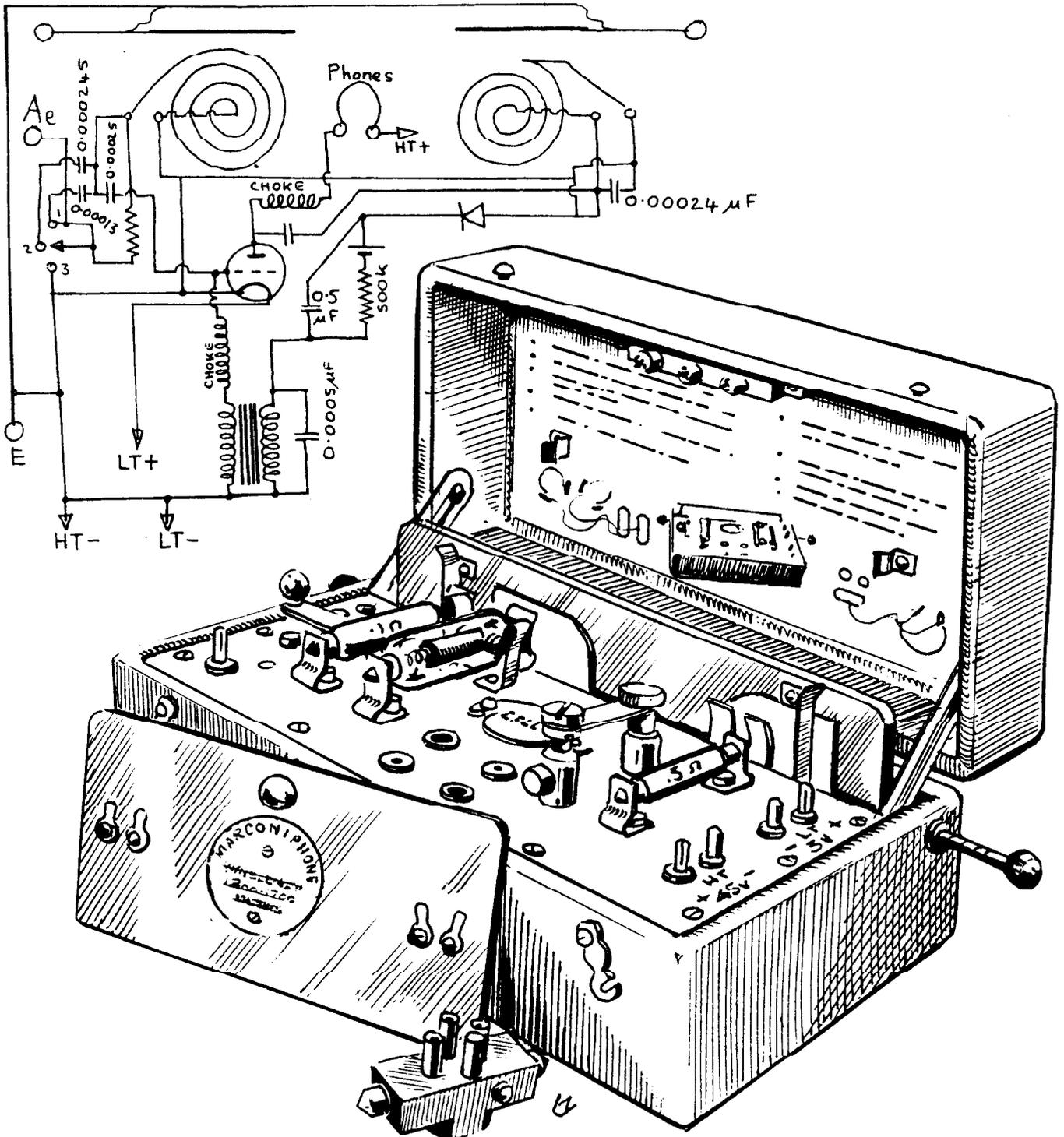
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FROM THE EDITOR'S BOOK SHELF

Radio Telephony by Alfred N. Goldsmith, The Wireless Press, New York, 1918. 247 pp.

The author of this book was Director of the Radio Telegraphic & Telephonic Laboratory & Professor at The College of the City of New York. Apart from a very early work by Ruhmer in 1907, Goldsmith's book seems to be the first serious work on the subject of Radio Telephony. It is very well written and covers all aspects of telephony: CW generators (Duddell-Poulsen and other arc systems), RF sparks of every variety, vacuum-tube oscillators, RF alternators, modulation, high current and other microphones, control systems, antennae etc etc and is copiously illustrated (225 figures about equally divided between line drawings and photographs). The book is very informative on such topics as: Armstrong's regenerative coupling (1915), the Meissner, Arco, Telefunken oscillators of 1913, the various de Forest oscillators, General Electric's pliotron, the Hull dynatron (with its negative characteristic, 1000 fold voltage gain, 1 Hz to 20 megahertz frequency response and 100 watt output) and the Hull 4 electrode pliodynatron - the original tetrode? The Lieben-Reisz and H.J.Round valve systems are mentioned but the French valve does not appear - perhaps it was still on the secret list when the book was being written. As well as dealing with the contemporary technical world of wireless telephony the author discusses many historical aspects of the subject. This book is of the utmost importance to the serious wireless historian on both sides of the Atlantic.

This well known little receiver was one of the first sets available to the public when the BBC began broadcasting in 1922. It is spade tuned and has range blocks identical to the V2. The circuit is also very similar to the V2 with the exception that a crystal detector (carborundum or Galena) is used. A D.E.V. valve serves as H.F. amplifier and L.F. amplifier by the reflex method and I have found the overall performance of the set at least as good as the V2. The set is housed in a black rexine covered wooden box and was generally sold with a similar box (though slightly larger) to contain the batteries. The D.E.V. valve takes 0.2 amp at 2.8 volts and was meant to be driven from a 3 volt dry battery together with a 45 volt battery for H.T. The small side contact valve required for this set is quite irreplaceable and it is useful to have the small adaptor shown in the diagram which enables one to use any ordinary 4 pin valve for demonstration purposes - the D.E.V. valve can then be reserved for those special occasions when one risks lighting up the filaments of old valves. The set was known as the RB10 and the Post Office registration number is, unfortunately, not known.



# ANNIVERSARY

75 years

December 12th 1901

...  
S

The first transatlantic wireless telegraphy message (the morse letter 'S') was transmitted by John Ambrose Fleming from Poldhu, Cornwall to Signal Hill, St. John's, Newfoundland.

The message was heard by Marconi and Kemp shortly after mid-day on December 12th 1901 using Solari's self restoring coherer with no tuning circuitry and a temporary aerial consisting of about 500 ft of twin wire flown from a kite.

The Poldhu transmitter consisted of a 24kw 45Hz alternator which was transformer coupled to capacitors, spark gap and inductances and radiated at a wavelength of about 250m.

To obtain maximum sensitivity, Marconi used a pair of Collier-Marr headphones rather than his morse recording apparatus.