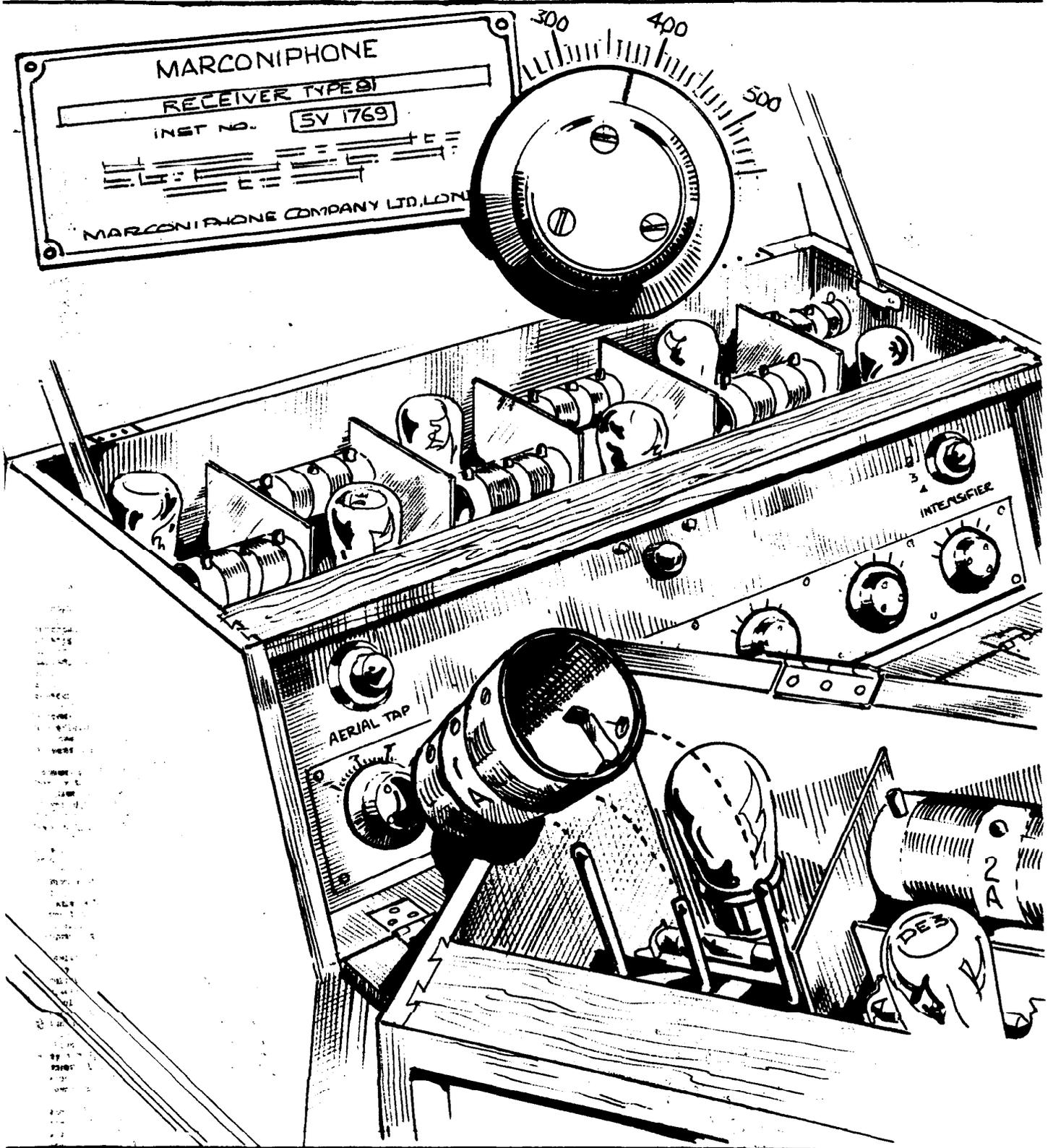


BRITISH

VINTAGE WIRELESS

SOCIETY



Bulletin Vol.3 No.1

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THE BRITISH VINTAGE WIRELESS SOCIETY

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DEADLINE for the next issue of the Bulletin.... 31st August 1978

Articles and letters and ads and any other material should be typed if possible but don't let this put you off.....please begin preparing your contribution to the next Bulletin. You don't need to wait until the deadline....it is perfectly acceptable well in advance of 31st August. If you are a serious collector or wireless historian you must have something to say about it - please write and say it in your Bulletin. We need new authors, new ideas, new problems and NEWS.

FRONT COVER ILLUSTRATION

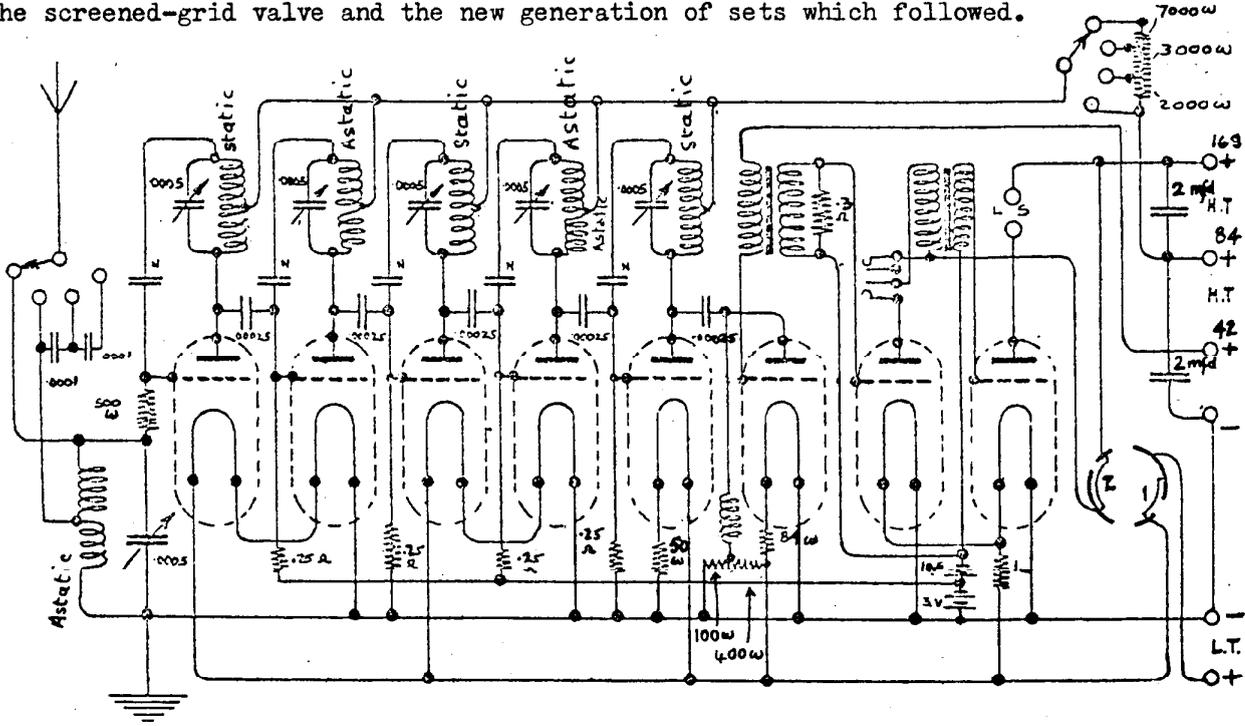
The Marconiphone 81 was an eight valve set. The first five valves were HF stages and each was neutrodyned. See Ian Higginbottom's article on page 2. The detector stage is quite unusual but was intended to produce a distortionless output. Each of the HF stages and the aerial input has its own independent tuning control. Single dial tuning of multiple tuned HF stages never really caught on in this country in the 1920's and many very good reasons can be cited for this. By contrast, the single dial operation of several variable condensers was much more popular in the United States. Three condensers mounted side by side were operated by a central knob linked directly to one condenser and by way of various ingenious mechanical linkages to the others - these linkages included metal belts, crank levers, gears etc. Various mechanisms were incorporated for correcting the tracking errors. In this country, the manufacturers were very shy of going in for anything so elaborate for the domestic market. Amateur constructors though had plenty to choose from - both the side linked variety and the coaxial variety were available on the British market from the very early 1920's. Here is an interesting subject for an article - any offers? Which was the first commercial receiver in Britain to use any form of ganged tuning? Of course, one can say that the 'pre-historic' Marconi Multiple Tuner was ganged - but this was a passive tuning circuit and doesn't really count. In the meantime, collectors fortunate enough to own an '81' might try linking their knobs with rubber bands!

The new front cover graphics were designed by Jon Hill.

EDITORIAL

The second Annual General Meeting of our Society took place this year at St Albans. Although the proud possessions of BVWS members cannot compete for antiquity with the museum contents and out-door displays of this ancient Roman City, none of us felt in the least out of place and the civil-defence origins of the meeting place did not seem at all inappropriate. The turn-out was more than we had anticipated - there were more than 60 people present. Fortunately the catering organisers Mrs Jill Rayment and Mrs Margaret Snelling are obviously endowed with pre-cognitive skills. Their food was not only adequate for the proverbial 5000, the quality and variety were the subject of constant praise. I am sure all present will want to join me in thanking them for their noble efforts. The meeting itself was a great occasion for swapping and buying and selling and most people who took the trouble to bring equipment with them went away feeling they had achieved a good days bargaining. It is obvious that this swap session is only the first of many such future occasions. At the A.G.M. itself, members expressed the feeling that we should hold such a meeting twice a year and, as a result, we will try to organise one for November or December. Please write if you have any ideas where this meeting could be held. Harpenden has been suggested and there is a hall there which we could use. Other suggestions would be most welcome not just town, but the specific building is what we want to know about. In our enthusiasm for continuing bargaining and informal chatter, there were many items that did not get adequately discussed or that were not raised at all at the meeting. For example, we did not go into much detail about the work Roger Snelling is doing to contact firms in the hope that some will still be in a position to supply us with information about their early products and other aspects of their history. This is really quite an enormous task and information is only just beginning to accumulate. If any member has any specific questions regarding these well known companies, it is requested that you write directly to Roger Snelling (at his Chelmsford address: 23, Dorset Close, Chelmsford, Essex CM2 9UD) rather than to the firms concerned. The reasons for this are obvious: the right contacts have already been made and some basic queries can already be answered within our own organisation - even if it is only to say, "Sorry no information available." Unfortunately, this answer is very frequently heard and this is why the Society must go on searching and building up a central collection of what information is available. We are very grateful to McMichael Ltd. for their efforts in preparing a history of the firm's early days (see page 9 of this Bulletin). We are also grateful to Frans Dreisens who has summarised for us the pre-1925 Dutch valve situation (at least as far as Philips were concerned). Information like this is not easy to come by and, together with his 25 fine illustrations, provides most of the source material required for identifying early Philips valves. I apologise to Frans for having had to condense his material a little but I am sure he would be willing to communicate with anyone seeking further information. The A.G.M. once again re-elected the officers of the Society. Some officers will undoubtedly be ready to retire at the end of this year and we hope there will then be plenty of members ready to stand for election. It will probably also be high time there was a new Bulletin Editor. Members interested in this fascinating job may wish to be involved in preparing forthcoming issues don't wait to be asked, nominate yourself by writing to the editor. Look forward to hearing from you.

The type 81 Marconiphone appeared in late 1925 and was marketed for about two years. It is of great interest as an early attempt to minimise distortion and interference in the domestic receiver. It might also claim to have been the ne plus ultra of the neutrodyne with its five stages of TRF amplification requiring, before the advent of effective ganging, six independent tuning controls. It still appeared in the Wireless World Buyer's Guide of November 1927, alongside the type 82, also an eight-valver, but a superhet with single-knob tuning which must have been a more manageable if less spectacular instrument. But the 81 was then already obsolete, with the imminent arrival of the screened-grid valve and the new generation of sets which followed.



The five neutralised high frequency valves and the detector are DE3's (nominal fil. volts 2.8) while the two LF stages use DE5's (5.5 volt filaments). Since a 6volt accumulator is used for LT, the first four DE3's are paired in series and the grids of the second and fourth stages are biased to -3 volts to bring the grids of all HF valves to a common potential (-4.5volts) relative to the mid-points of their filaments (see diagram). Valves 5 and 6 are not in series, because valve 6, the detector, is under-run at a filament voltage of about 2 volts. Each of these valves therefore has a separate fixed filament resistance (of different values:- 50 and 84 ohms).

Apart from the low-tension and biasing arrangements, the five HF stages are conventional, with centre-tapped tuned anode circuits, capacity coupled to the next stage. Alternative static and astatic windings are used, the aerial coil being astatic. The reason for this eludes me; each coil is isolated by screening and if the object was to reduce interaction, why was not each wound astatically? The neutralising condensers consist of several turns of wire wound on a small ebonite sleeve over a straight wire core. They appear to be identical, but could have been made for the individual valves. In either case, the valves must have been made to a high degree of repeatability - unless they were selected to match the fixed neutralising! Certainly the neutralisation is effective and the set is always completely stable.

The most unusual feature of the 81 lies in the detector circuit, which I first viewed with a feeling of disbelief. However, I located a reference to the basic arrangement on page 83 of E.V.Appleton's 'Thermionic Vacuum Tubes' (1932) and Dr. Philip Beckley has kindly provided further references which have filled in some of the detail (see end of article). In this unusual circuit, the DE3 functions as a diode rectifier, with the anode maintained at about 1.2volts above ground by a fixed potentiometer across the LT line, and a relatively large positive potential (4.2volts) on the grid. This arrangement is associated with H.L.Kirke, formerly of

the Marconi Company and later of the B.B.C., and is very similar to the detector employed in the Science Museum demonstration receiver of 1926, where it was known colloquially as the 'Kirkifier'. The positive potential on the grid, by neutralising the space charge, removes the bottom bend of the normal diode characteristic. The latter then becomes virtually linear from the origin at zero anode volts and a theoretically distortionless detector results. It was usual for the diode anode to be capacity coupled to the first L.F. grid but in the 81 the modulation of the detector grid current produced by the signal is transformer coupled (Marconi 'Ideal' 2.7:1) to the next stage. This method might be associated with the rather higher grid potential used, 10 to 20 volts being more usual with the Kirke detector. Clearly, the exact modus operandi of the 81 detector stage would repay closer attention.

The remainder of the set is conventional and, despite two transformer coupled LF stages, the quality (due to diode detection and the absence of reaction) is very noticeably better than one associates with sets of the period, and contemporary loudspeakers could scarcely have done it justice.

With six independent tuned circuits it might be thought that locating a station was akin to picking a combination lock or lining up the lemons on a fruit machine. In practice it is not so difficult because the tuned anode controls are wavelength-calibrated and only have to be set up to the required value, when the signal can then be found by searching with the aerial tuning control. The latter of course is not calibrated and its position varies with the aerial characteristics and the value of aerial series capacitor (if any) switched in. However, one cannot sweep continuously through the broadcast band in the search for programmes, and the relatively low sensitivity of the diode detector is noticeable at low field strengths. This, plus the high selectivity achieved when all circuits are in resonance helps to reduce interference from adjacent continental stations. The volume is regulated by altering the anode potentials on the HF stages in four steps, and by switching in different aerial coupling capacitors. With the present-day field strengths of stations in the London area there is a problem in keeping the volume down, the remaining expedients being to remove first the earth connection and then the aerial.

MARCONI "STRAIGHT 8"

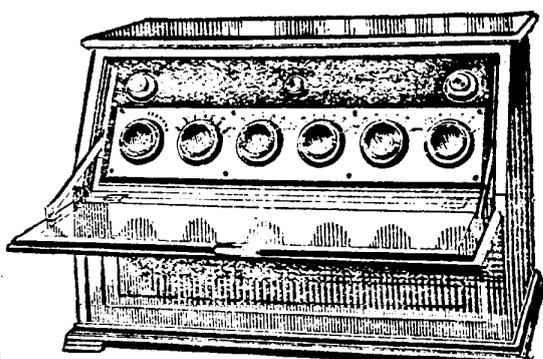


Fig. W2042

In order to ensure absolute perfection of quality the use of reaction has been entirely avoided, the necessary sensitivity and selectivity being obtained by increasing the number of valves. The volume obtainable from this set is sufficient to work up to saturation point any ordinary type of loud speaker, even from distant stations. The tuning coils supplied with the instrument cover a range of 250-550 metres. Other wavelengths can be covered by interchanging these coils.

It is interesting to note that this instrument will separate Bournemouth from London and Manchester from London at a distance within one and four miles respectively, from London.

List No. W2042, Code E/69300	Price £49 10 0
Royalty	£5 0 0

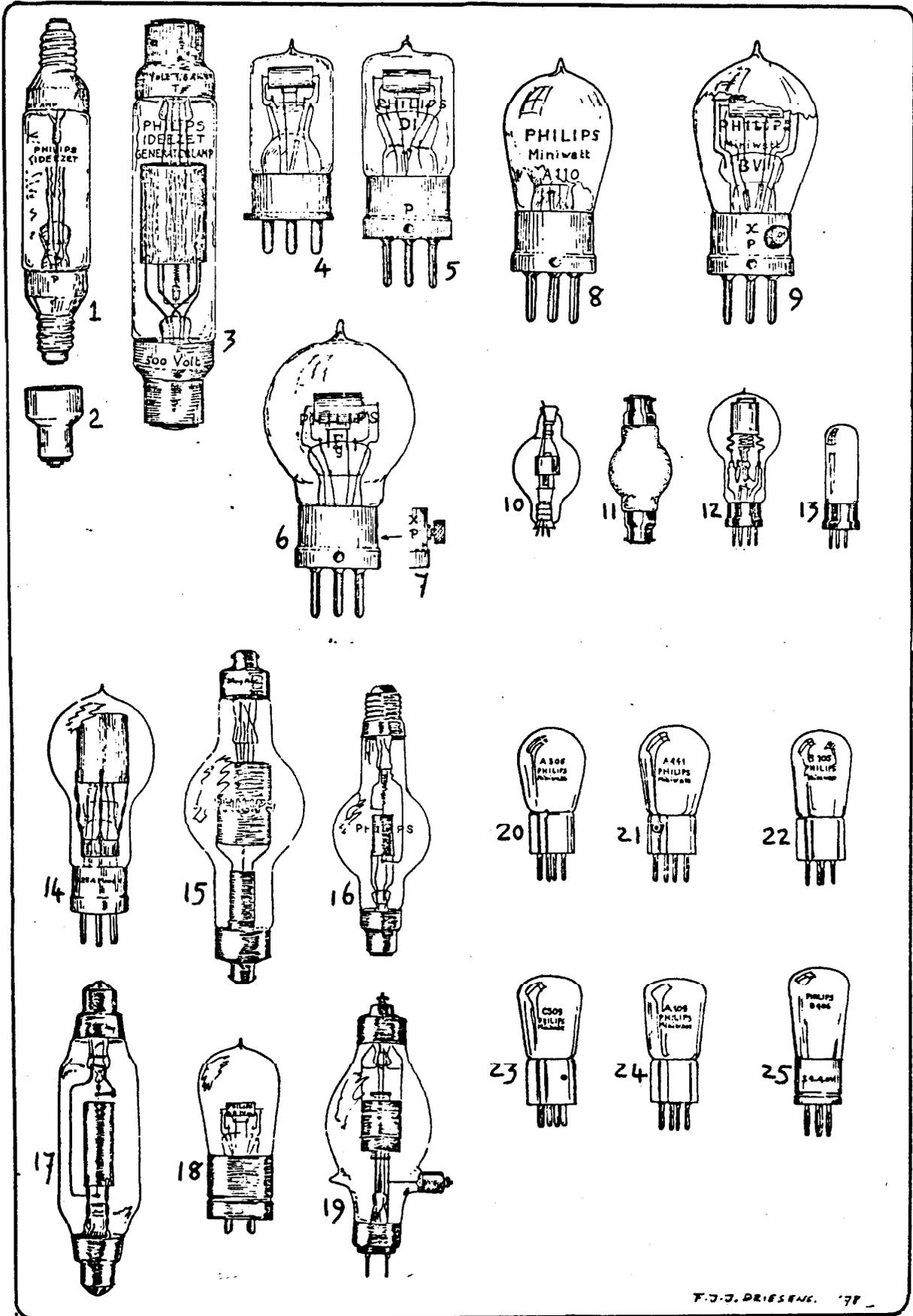
An advert for the Marconiphone 81 set as seen in the 1927 catalogue of R.A. Poole Ltd., Goldhawk Rd., London W.12.

Before restoration, my own set was open-circuited on one DE3, both LF secondaries and the HF choke (on detector anode). In addition the 2mF capacitor across the HF was leaky. Repair was surprisingly easy and consisted of re-soldering one filament connection to the valve leg, reconnecting as necessary the outermost leads to some 'pancakes' of the sectionalised Ideal transformers, and re-connecting one end of the HF choke. No re-winding was necessary, damp having acted only superficially. Windings and stampings were then well doused with WD40 hopefully to resist further damp. The capacitor was repaired by the usual expedient of concealing modern polypropylene types in the original casing.

References: Wireless World; 26/1/27 pp 92-95, 24/8/27 p 232, 11/7/28 p 53, and 12/12/28 pp 783-786. All these refer to the rectifier application of the triode and one mentions that it was the subject of a 1920 patent.

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We hope to include in a future issue a short article on the subject of the B.B.C. set which was demonstrated at the Science Museum between 1926 and 1927. This set was the last word in 'good quality' (Hi-Fi to you). By 1928 writers were able to say it was so well known that it need not be described - over 1000 diagrams were sold.... Ed.



F. J. J. DRIESSEN. '98

Figs 1 - 9 are very slightly over half scale and the remaining drawings are not to any particular scale.

THE FIRST PHILIPS RADIO VALVES

By Frans Driesens

It is already 60 years since the first triodes came onto the Dutch market (see BVWS Bulletins Vol.1, No.4.p.11 and Vol.2 No.2 p 21) made by Pope in Venlo in 1918. (1,2). Also in 1918 Idzerda, seeing a market for such valves ordered 180 to be made by Philips (3) in Eindhoven...Figs 1,2 &3. The first examples were fitted with a bayonet and later types had the 14 mm Edison screw. Between 1918 and 1922 Philips made about 4000 of these tubes.

During the first world war Philips gained experience repairing foreign made transmitting and receiving valves for the government. After the war (Holland was not involved) Anton Philips, the commercial leader of the firm, saw good possibilities for marketing the new radio valves to succeed the rapidly stabilising market for incandescent lamps. But his brother Gerard, founder of the firm and more conservative in his approach saw little in this new 'toy'. Nevertheless, Philips introduced their own types A, B and C in July 1919 - exactly like the Idzerda (Ideezet) valves but with an improved filament (0.5 amp) on the type B & C giving them a longer life. After the economic recession of 1921, Gerard left the firm and Anton then put a lot of effort into developing radio valve production.

These first valves, the A,B & C differed mainly in their filament characteristics: A - 4v at 0.25 A; B - 2v at 0.5 A; C- 4v at 0.5 A. A 1919 catalogue description refers to these valves as 'soft' but it was also possible to order high vacuum versions. According to an article written by Jr. Verff of Philips in 1926 (4), A & C were soft tubes and the type C2 was produced later and was a high vacuum type. During 1920 transmitting valves were developed - type F (5watt) and type G (10 watt). 100watt and 250watt versions also appeared in this year. Also in 1920, Philips bought the French firm 'S.A. Eclairage et Radio' and with it acquired an enormous amount of radio-valve production 'know-how'...built up in France during the war.

The French influence first appeared in Philips' valves in their DI and DII (Fig.5) They have the standard B4 pin configuration with brass skirt and cylindrical anode. An interesting valve of this period was the 'heemaf' rectifier developed for a mains charger unit made by an electrical firm of the same name. The valve simply has two filaments facing each other one of which serves as anode. When the other, which functions as cathode, burns out, the valve is turned in its socket and the spent filament now serves as anode!

During 1921 the high voltage transmitting rectifiers TI and TII appeared and in 1922 came the DIII (a replacement for the Telefunken REII) and the totally new design, the type E (Fig. 6) with a larger anode and capable of withstanding a higher plate voltage and current. In 1923 came the double grid valve (Fig.7) called the type Q and designed to work with a plate voltage of 4.5v ! Three weeks later this valve was re-named the DVI. Also in 1923 came the thoriated filaments on the types BII and BVI. The BII has a filament which consumes only 0.15 amps at 1.6volts - a ten-fold improvement over the type E. The BVI was a double-grid valve with the same filament and these were introduced under the trade name 'Miniwatt'.

It is amazing to know that Philips organised a small competition to find a name for these new valves and the two winning selections 'Minivolt' and 'Miniamp' were combined into 'Miniwatt' and the prize was also combined the two winners shared a box of cigars! The first Miniwatts had no getter but this was added in 1924.

During 1923 fabrication techniques changed affording a recognition device for collectors. Up to 1923 the valve base was made of brass and a 'rose' coloured glue was used to stick base to bulb. During 1923 this changed to a nickel base and a white glue. The glue changed to black in 1924. Things then remained unchanged until the end of 1925 when the well known brown bakelite was introduced. Just before the end of 1923 the types DIV and DV came on to the market - these were in fact the old DI and DII with American bases fitted.

Sales of valves had grown from a mere 200 or so in 1918 to 206,666 in 1923! In 1923 14,962 were sold in Holland, 4,430 in Britain and a staggering 72,894 in Canada!

During 1924, the new transmitting types ZI and ZIIA, ZIIB and ZIII were introduced. There were also the new rectifiers to go with these, the ZGIIA, ZGIIB and ZGIII. Also, in the same year, the battery charger valves 328 and 329 were developed and these were still on the market in 1970 !

At the end of 1924 came a new system of codification for receiving valves which remain in use up to the mid-thirties. The first valves in this series are the A310 and the A110 (Fig.8). The system works as follows: The letter indicates the filament current A = 0.06-0.10amp., B = 0.10-0.20, C = 0.20-0.40, D = 0.40-0.70, E = 0.70-1.25 and F 1.25 amps.

The first figure then states the range of filament voltage thus:

1 = 1.0-1.3 volts, 2 = 1.7-2.0, 3 = 2.7-3.3, 4 = 3.4-4.0, and 5 = 4.5-5.3 volts.

There was also a type C0805 which had a filament working from 0.8volts.

The two next figures state the amplification factor if the tube is a triode. For other valves these two figures indicated the classification thus:- 41,51,61 etc meant tetrode, 42,52 etc meant H.F.-S-Tetrode, 43,53 etc meant o/p pentode etc.

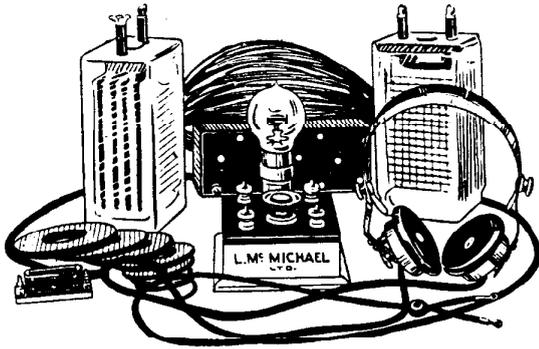
But, back to 1925 to finish the story. In 1925 the top pip disappeared and a long range of new miniwatt triodes and double grid valves began to appear. It was now felt necessary to introduce more powerful valves for the more and more powerful speakers that were now appearing on the market. During 1926 much publicity was given to the B403 not only to stimulate the new loud-speaker business (the 2003 etc) but also to inform the amateur about the necessity of using a negative grid bias voltage on their output valves. And so ends this introduction to the Philips valve interests. The 'toy' of Gerard is now the big business of Anton and a very rapid evolution now begins. The accompanying tables are quite complete for receiving valves though many other transmitting types and special purpose valves were made.

- References: (1) J.Corver, Radio Zenders en Ontvangers, Diligentia (1948).
 (2) Ing. P.A.de Boer, Râdio Electronica (1977) p 27-30.
 (3) Ing. P.A.de Boer, Schotanus a Steringa Idzerda, De Muiderkring (1969)
 (4) Gedenkboek N.V.V R. 1916-1926. Nauta - Zutphen (1926)
 (5) A. Teulings 'Philips Geschiedeins....' Van Gennip, A'dam (1976) p78
 (6) Prof Bouwman 'Anton Philips' Prisma.

PHILIP'S VALVES 1918-1925

No.	Type	Fig	Dimens's Dia/length cm	Date of intro'	Ref	Filament		Anode		P watts	g
						volts	amps	volts	mA		
1	IDZ	1,2	23/115	Apr '18	R.N.	4	0.25	25/30	-	-	6
2	Gener Lamp	3	30/150	Apr '19	R.N.	6	2.25	500	-	10	-
3	A	2	23/115	1/7/19	P.C.	4	0.25	25/30	-	-	6
4	B	2	"	"	"	2	0.5	"	-	-	6
5	C	2	"	"	"	4	0.5	"	-	-	6
6	NERAS	4	30/70	Oct '19	R.N.	3	0.5	12	-	-	-
7	CI	2	23/115	end '19	-	4	0.5	25/30	-	-	-
8	CII	2	"	"	(4)	4	0.5	30/75	1	-	8
9	F	6	50/92	Apr '20	R.N.	4	1.4	200/250	-	2.5	-
10	G	3	30/150	"	"	6	1.6	500	-	10	-
11	HEEMAF	11	"	May '20	"	-	-	-	-	-	-
12	100W	10	"	Jun '20	"	9	5	1500	-	200	-
13	250W	10	"	"	"	11	8	2500	-	500	-
14	DI	5	30/85	Jul '20	"	3.5	0.5	25/30	-	-	-
15	DII	5	"	"	"	3.5	0.5	30/75	1	-	-
16	GI	3	30/150	1/8/21	P.C.	6	2.25	500	-	10/20	-
17	GII	14	58/130	"	"	6	2.25	500	-	"	-
18	H	15	105/285	"	"	9	8	1/1.5kV	-	200	-

COMPLETE AND EFFICIENT ONE-VALVE RECEIVING SET

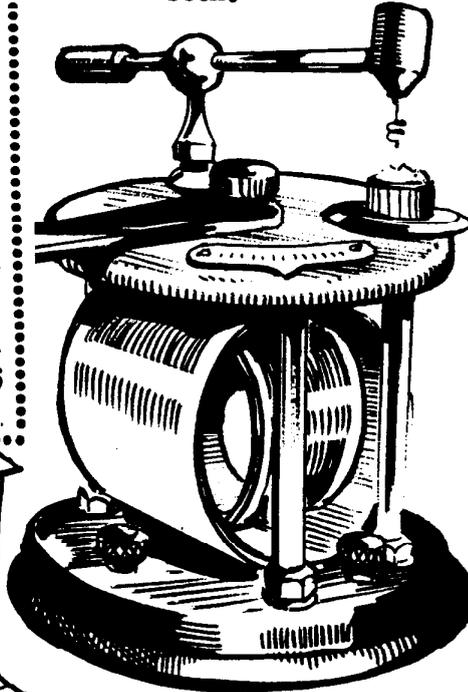


	E.	s.	d.
1 Valve Panel, in mahogany box, with circular filament resistance	1	14	0
1 Variable Condenser	1	0	0
Complete set of slab coils for all wave-lengths	1	15	0
1 Valve (Ex-Government, if in stock)	1	12	0
1 Battery, 72 Volts, tapped off every 4 Volts	1	15	0
1 4-Volt Accumulator	1	0	0
100 ft. Aerial Wire, best enamelled, stranded Copper	1	7	6
2 Insulators	1	2	0
1 pair Head Telephones	1	10	0
60 ft. 19/30 Tinned and Rubber-covered Cable, for earth connection and wiring	1	1	6
	6s	17	0

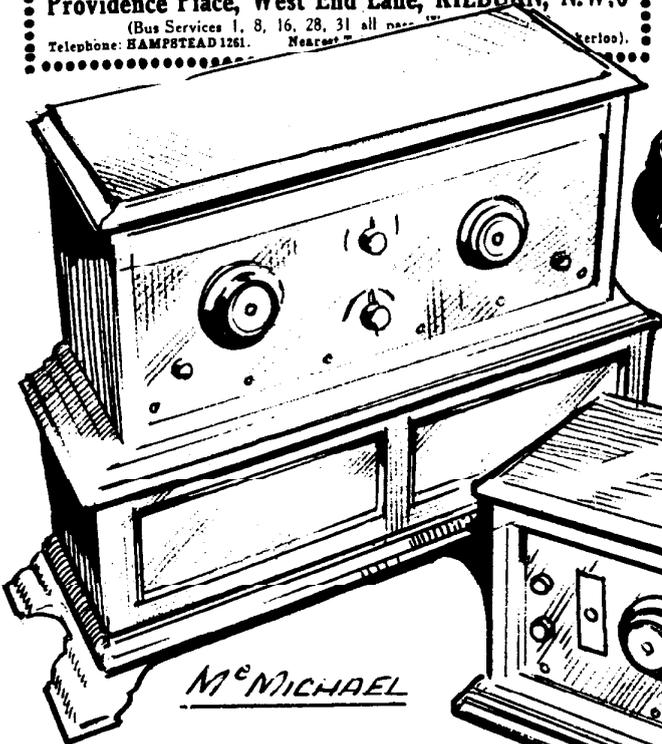
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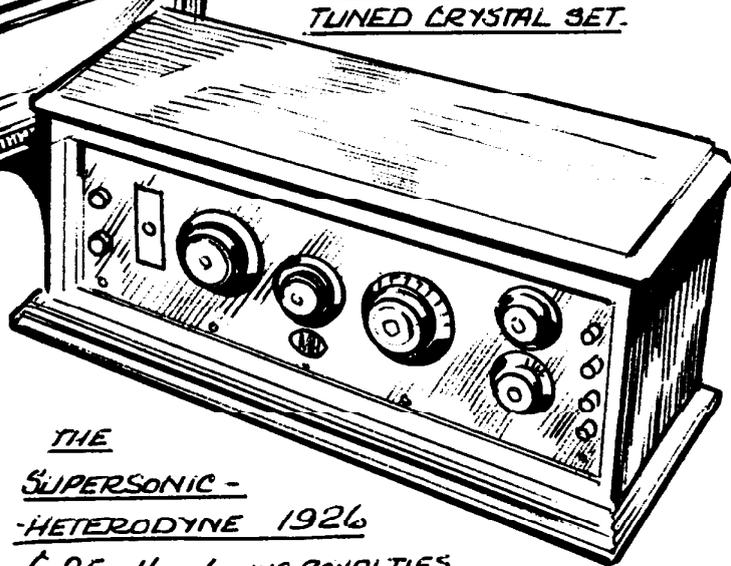
Some early McMichael receivers. The crystal set is the one illustrated on page 1658 of Harmsworth's Wireless Encyclopaedia. The other two sets are illustrated in the 1927 Catalogue of R.A. Poole (London) Ltd., Electric House, 67, Goldhawk Road, Shepherd's Bush, London, W.12 The Ad is taken from Popular Wireless Weekly Oct. 14th 1922 and also appears in Jon Hill's book.



1923 VARIOMETER-TUNED CRYSTAL SET.



McMICHAEL
4V NEUTRODYNE
WITH DUAL TUNING
RANGE £18.5.0
1926



THE
SUPER-SONIC -
-HETERODYNE 1926
£25.16.0 INC ROYALTIES.

L. McMICHAEL LTD.

By A.R.Constable

Many of the successful radio manufacturers of the 1920's came into being as specialist departments within the protected environment of large electrical firms, Viz: G.E.C., B.T.H., Metro-Vicks etc. McMichaels were certainly one of the very well known and successful companies but their origins were more humble.

Leslie McMichael was born in Birkenhead in 1884, served an electrical engineering apprenticeship at Duckett & Brown, served in the Wireless Instructional Section of the Royal Flying Corps in the '14-18 war and was one of the founders of the London Wireless Club in 1913. After the war he established a business dealing mainly in 'War-Surplus' equipment to supply the growing needs of wireless experimenters. This business operated from his home in Quex Rd., Hampstead, London, N.W.6.

In June 1920, McMichael formed a Private Company, L.McMichael Ltd., the directors being himself and Rene Henri Klein. Klein was also a founder member of the London Wireless Club (later the Wireless Society of London) and was its first Hon Secretary from 1913 to 1920. The new company sold wireless books and offered a package deal of "Set 1, 2 or 3 of complete wireless apparatus". It also marketed the components and instruments manufactured by Benjamin Hesketh.

Benjamin Hesketh started manufacturing sets and components early in 1920 at a place called "Chalvey Club House", High Street, Chalvey, Bucks. Working with him were Bob Palmer, Bert Perfect, Charlie Page and his sister Lillian who did all the clerical work and was the firm's 'tea-girl'. These names were recently recalled by Mr 'Curly' Barr who was with Ben Hesketh from the early days and retired after over 50 years service in 1976. Mr Barr recalls that 'Mac' and Rene used to come to Chalvey on Sundays to collect the receivers they had made during the week. Ben also made components in those days and so did not rely on components made by the large companies for his sets. These components included fixed condensers and 'leaks', variable HF transformers, a reactance unit, variable condensers, LF and o/p transformers, valve holders, scale dials and rheostats. Boys from the nearby Eton College used to buy ebonite and components from Ben and, after designing their panels, would return to get them engraved at 1½d per letter. During these early days Mr Barr used to travel to Bens 'Club House' at Chalvey by train from Ealing Broadway for 5/6d per week.

McMichael and Hesketh integrated their two companies early in 1922 and adopted the well known MH trade mark. A new factory was opened in an existing timber and corrugated iron shed on an ex-U.S. Army site at Wexham Rd. Slough then owned by Naylor's Paints Ltd. When Naylor's became part of ICI some two acres of the site were bought by L.McMichael Ltd. This area was bordered by Wexham Rd and the Slough spur of the Grand Union Canal and is the present site of McMichael Ltd. L.McMichael Ltd. established a head office at Hastings Ho., Norfolk St., London W.C.2. and demonstration showrooms at 179 Strand on the corner of Norfolk Street which became known as Radio Corner.



The familiar
McMichael trade
mark remained in use
till the 2nd World War.

By the time of the first All-British Wireless Exhibition at the Horticultural Hall from 30th September to 7th October 1922, the range of McMichael equipment had become quite extensive. The Wireless World (Oct 7 '22 p14) described and illustrated the four receivers MH1, MH2, MH3, MH4 (one to four valves) and described them as being of "exceptionally fine finish and of compact design". Once the broadcasting era began the receivers were designated MHBR (McMichael Hesketh Broadcast Receiver). Most collectors who have handled any of these early McMichael sets will know that they were of extremely high quality and it is not at all surprising that the company rapidly achieved a very high reputation for quality wireless products. Most companies manufacturing wireless sets in those early broadcast days produced moderately priced crystal sets for that vast section of the public who could not possibly afford the several months wages required for the more elaborate valve sets. The only McMichael crystal set I have ever seen illustrated is a very attractive open variometer type as shown on p.1658 of Harmsworth's

Wireless Encyclopaedia. Apart from this, it seems that most MI products were for the more expensive end of the market. (See drawings on page 8).

In the pre-screened grid days McMichael produced a very fine five valve portable set but when, in 1928, the tetrode valve came into widespread use, several sets appeared using this new form of stable HF amplification. There were the Screened Dimic Three (1928-1931), the Super Range Portable Four (1928-1931), the Super Screened Portable Four (1928-1931). The first of these was a very successful set and was supplied to the Radio Research Board, the Crown Agents for the Colonies and to other important home and overseas users. The word DIMIC referred to a range of high efficiency plug-in coils covering the full spread of wavebands from 15metres upwards.

McMichaels were producing superheterodyne receivers in the mid 1920's and were one of the few firms in this country producing a successful neutrodyne set for the commercial market. Their first mains set appeared in 1928 and their first radio-gram was produced in 1930.

The company went public in November 1932 under the name of 'McMichael Radio Ltd.' the directors being Hubert Leslie McMichael, Rene Henri Klein, Benjamin Hesketh and Sir Clyn Hamilton West. Throughout the 1930's McMichaels continued to be one of the country's top manufacturers of domestic radio sets and at the same time began to establish themselves in the more professional fields of electronic equipment. They worked in close collaboration with the Radio Research Board establishment at Ditton Park, Slough. They had been involved in the production of two experimental Cathode Ray Direction Finders (in 1928) which were commissioned for the United States Navy Department. They had close personal and professional contact with Mr (later Sir) Robert Watson-Watt and were thus involved in the early stages of the development of Radar and continued in this field during the second world war. Their pre-war activities in television began about 1936 but were brought to an abrupt halt in 1938 by the increasing demands made on the company by the National Effort.

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I am most grateful to McMichael Ltd for providing us with much of the material that went into the writing of this article. In particular, I wish to thank Mr. R.W.J. Morgan (Publicity Manager), who provided our Roger Snelling with the first part of the company's draft history. Very sincere thanks are also due to Mr Philip M. Moss who is writing this history, to his predecessor Mr Diver and to McMichael 'Old-Timer' Mr 'Curly' Barr. Mr Moss is preparing a diamond jubilee brochure to celebrate sixty years of McMichael in 1980. I sincerely hope other companies will follow McMichael's example and try writing their histories.
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Note: there is a lack of information on early McMichael superhets. If anybody has circuit details of these classics of the 1920's we would very much appreciate as much detail as possible - both for historical records and for restoration work. Ed.

A NOTE FROM THE TREASURER

When making any payments to the British Vintage Wireless Society, cheques and postal orders should be made out to B.V.W.S. (either spelled out in full or in the abbreviated form). Cheques should never be made out to individual officers.

For overseas members: If not paying by sterling notes payment should be made by either 'Direct Mail Transfer' by instructing bank to remit to British Vintage Wireless Society (a/c No. 36697079), National Westminster Bank Ltd., 101, New Oxford Street, London, WC1A 1DX, U.K.

Or Send a Banker's Draft payable in Sterling. This method is preferred, as the draft is paid into the bank by the treasurer and therefore he has a better check on the details of the transaction.

Ordinary personal cheques (including 'Eurocheques') can in principle be paid in London but the Society has to bear the transaction charges and, for the small amounts with which we are involved, these charges can be a large percentage of the total.

As mentioned in previous letters, the Antique Wireless Association (AWA) is by far the largest organisation of its kind in the U.S.A., having a membership in excess of 2000. However, by reason of great distance, time requirements and expense (obviously), many members are unable to attend the AWA National Conference which is usually held near the Association's museum at Holcomb in the State of New York.

As a result, the AWA has sponsored regional conferences throughout the country, several of which were mentioned in the last issue of this Bulletin. You may be interested in the format and a summary of the activities of the Fourth Western Regional Meeting of the AWA which was co-sponsored by my own local organisation, the California Historical Radio Society.

The conference was held at Foothill College, 40 miles south of San Francisco, on April 22nd. There was a registration fee of \$1.50 and an additional fee of the same amount to those who used space in the parking lot to sell or swap vintage equipment. The swap meet continued from 8.00 a.m. until noon and about 40 carloads of 'goodies' arrived.

During the morning, contestants brought in their finest equipment to the Foothill Electronics Museum for display and to be judged by a panel of experts. The eight contest categories were: crystal sets, regenerative receivers, T.R.F. sets, super-hets, wireless gear, tube transmitters, test equipment and replicas of early gear using authentic vintage components (a trend which I approve). The number and quality of the entries exceeded by far those of contests at previous Western Conferences.

After lunch in the College cafeteria, we adjourned to a spacious lecture hall on the campus and enjoyed an illustrated condensed lecture on the development of the vacuum tube through the year 1920 (approx) given by Loren Peckham of New York and chairman of the AWA tube committee. This informative presentation was followed by a 40 minute slide show which I presented and which consisted of pictures of sets from the collections of Roger Shivas (our lonely Scotsman), Roger Snelling and our Editor, Tony Constable. In addition our Western collectors saw many of the choice sets in the British Science Museum and I gave them a complete coverage of our first AGM at the former home of station 2MT. The audience, needless to say, was extremely impressed and interested, even more so when I discussed the subsequent show at the Victoria & Albert Museum and the effort expended by our members in this regard. The Western Conference asked that I convey their best wishes to the BWWS for continued success.

The final event consisted of a visual-audio show provided by the Amateur Radio Relay League captioned 'Polar Adventure' which depicted amateur radio's contribution to the successful exploration of Antarctica, including the rescue of Admiral Byrd. This impressive show was a fitting close to the program and was of particular interest to the many radio 'hams' in the audience.

The total attendance was about 170 and seven Western States were represented.

The U.K. emerged with flying colours. A British set, name unknown but found in a local British Antique shop, won first place in the crystal set category. A British 4 valve AJS Type F captured one of the two major awards as the most unique set of the show.

Believe it or not, one friend of mine from the state of Oregon brought along a Marconiphone V1. What a beauty! Needless to say, he couldn't be parted from it - not even to enter it in the competition.

I close on a depressing note.... I entered my 'homebrew' wavemeter in the contest to no avail. Oh well, back to the drawing board and prepare for next year.

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Thanks Dave for this impressive account of your meeting. The formula looks good and maybe one of these years there will be enough American visitors to our AGM to guide us in conducting a meeting along these lines. Ed.

THE TOWNSEND WAVEMETER II

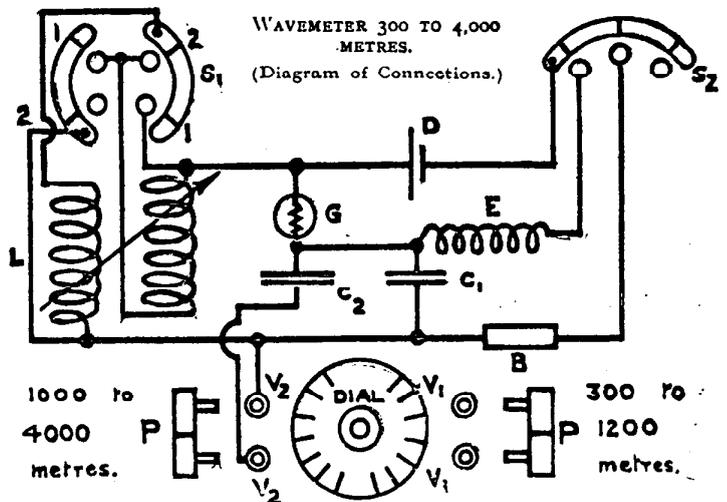
By A.R.Constable

The short article on this instrument which appeared in an earlier Bulletin (Vol.1, No.2 p 10) was written before acquiring the official instruction pamphlet issued to the services in November 1918. This pamphlet indicates that there were three such wavemeters available covering the ranges 750-3000 metres, 125-1600 metres and 300-4000 metres. They were intended for use as accurate portable wavemetres for all general purposes, for adjusting spark or C.W. transmitting or receiving sets.

The pamphlet goes on to say, "It differs from the station tester in principle, in that the variation of wavelength is obtained by means of a variable inductance or variometer, the condenser remaining fixed, whereas in the station tester the condenser is variable, the inductance being fixed. It is possible on this principle to construct an instrument which is strong and portable and not likely to become inaccurate with ordinary usage. It differs also from the station tester in having a small electric lamp as a resonance indicator when used with a transmitter, instead of the crystal rectifier and telephones." Certainly, in my own experience, the accuracy of this instrument is really quite amazing considering that the variometer is wound in a very open structure on a wooden former which looks as if it should have warped all over the place by now. I normally keep the instrument near a fairly modern superhet and frequently demonstrate its use as a precision instrument. I can almost dispense with my AVO signal generator!

The pamphlet continues, "It is made up in a polished mahogany case with ebonite front and is also provided with a waterproofed outer case of wood, with lid and falling front which are secured by a pair of spring clip fasteners when the case is closed. A diagram of connections is inserted inside the lid and a set of working instructions inside the falling front, both protected by celluloid sheets." Although using the wavemeter for receivers is quite a simple matter people have occasionally asked how it is used on transmitters. To quote the pamphlet, " To tune a transmitter, the point of resonance is indicated by the lamp lighting up. The lamp is more sensitive when the filament is heated to dull red, by a small current from the cell. This is obtained by setting the switch in the 'lamp' position..... If there is sufficient oscillating current in the circuit to be measured and the coupling is sufficiently close, the switch may be set in the OFF position. The glow lamp is still in circuit in this position and will indicate the resonance point." The choke coil is provided in series with the dry cell and lamp to prevent the high frequency current from passing through the cell. In the 750-3000 metre version, there is an additional 'inducing coil' consisting of four turns of wire on the fixed former of the variometer and its ends are brought out to terminals on the front panel enabling a strong coupling to be achieved by connecting this coil in series with the aerial circuit of the transmitter.... only when the aerial current is very small. ... "If the transmitter is giving a very small aerial current (of the order of 0.07 amp.) the wavemeter must be connected in the earth circuit of the transmitter." i.e. connect this inducing coil in the earth circuit. The pamphlet reminds users that the best position of the instrument is when the lines of magnetic force from the transmitter are perpendicular to the base of the instrument.

Should any collector want information that might be found in this pamphlet, please let me know. The circuit was included with the original article: The pamphlet's version now illustrated has a more vintage 'flavour' to it. The original article also included one of Norman Jackson's drawings of the instrument itself. The switch schematics on the attached circuit might confuse the modernist.... on S1 position 1 e.g., contact is made independently between diametrically opposite studs and the adjacent contact arcs got it? Does any collector own the 125/1600m or the 750/3000m version or the outer case referred to above?



FROM THE EDITOR'S BOOK SHELF

Thermionic Tubes in Radio Telegraphy and Telephony, by John Scott-Taggart, Iliffe & Sons Ltd., London 1921 (2nd edition, 1924 470 pp.)

As John Scott-Taggart wrote a lot of material for the popular wireless press, one can mistakenly assume he did nothing else. How wrong such an assumption would be can quickly be gleaned by reading the present work. This book is a first class contemporary account of valve technology and is well worth looking for. One feature of the book that will gladden the hearts of the modern historian is the copious supply of patent numbers and the frequent references to journal articles. The book was first written in 1921 when the author was in his mid-twenties and, considering that the hard triode only got properly under way during the '14-18 war, it is quite amazing how much sound practical technology had come into being by this time. The author himself had contributed significantly to this technology and, as one would expect, he makes many references to his own patents and publications. My own copy of this book is the second edition published in 1924 which of course includes a considerable amount of additional material. Some of this material has been added a little untidily. For example, on page 418 the author says it will not be possible to give details of his 'negatron' as the patents have not yet been published. And yet, despite this plaintive little note, the valve is fully described in no less than five pages with no index reference (Psst! it is on pages 435-440). Such matters add considerably to the pleasure one gets from reading this delightful book. The S.T. negatron has achieved a new lease of life recently: Owners of Gerald Tyne's new book, 'The Saga of the Vacuum Tube' will recognise the negatron as the front cover illustration. My own copy of S.T.'s book has a written note from the author inside the cover "from the author - to show how clever he is!" Said in jest no doubt, but anybody who could write a book like this at that time was indeed a man of considerable knowledge. To the author, who will be 82 on his next birthday, thank you for writing this book and to the collector, try to find a copy.

Radio's Conquest of Space, by Donald McNicol, Murray Hill Books Inc., N.Y. 1946 374pp.

This book is subtitled 'The Experimental Rise in Radio Communication' and from these titles and the unassuming appearance of the book, one might be excused for not bothering to explore the contents. However, the merest glance into any part of the book will reveal its true colours - this book is a history of radio from the earliest times, is well documented with journal and patent references and, although written from the American point of view, attempts to be quite international in scope. Like Scott-Taggart's book mentioned above, this one also provides the reader with numerous patent numbers - though this time, the vast majority are understandably U.S. numbers. The contents of McNicol's book are so wide that the task of summarising is considerable. Very early history is discussed and names like Volta, Oersted, Ampère, Faraday, Henry, Ruhmkorff, Davy, Maxwell, Hughes, Hertz, Branly etc etc crop up in the first five chapters. All the early spark and arc devices, the coherer and magnetic detectors, electrolytic and crystal detectors, accounts of spanning the Atlantic and the novel theories of Tesla are dealt with by the end of chapter 14. From chapter 15 onwards the vacuum tube is dealt with starting with Edison's observations and discussing in some depth the extent to which the Edison effect was investigated by many scientists prior to the appearance of the Fleming valve in 1904. The audion and other early triodes are dealt with and the part played ^{by} H.D. Arnold and telephone technology in the making of the triode into the marvellous device it became is clearly spelled out. Chapter 24 deals with regenerative receivers though not very thoroughly - S.T.'s book (above) provides the historian with a much more detailed account of its origins and of the large number of people who were involved on both sides of the Atlantic. Reflex circuits, neutrodyne patents, heterodyne and superheterodyne circuits and their historical origins are moderately well dealt with and the author seems well aware of the various international controversies surrounding some of these. In the last chapter (ch.30) the author discusses microwaves, FM, TV, and radar. Despite this tremendous breadth of cover, this book is not written for the amusement of the layman. It is full of good sound technical and scientific and historical discussion and provides a very good guide to the literature for the serious radio historian. It is a book well worth searching for and don't be put off by the 'Space-Age' title. The space referred to is not of the post-Sputnik era - look at the date.

EXCHANGE

SEARCHING Circuit and other details for the Majestic Super Screened Grid Model 131. R.James, 'Iona', Pinesfield Lane, Trottiscliffe, Kent, ME19 5EN.

G.E.C. Gecophone shorting links required. Also looking for information on a 'D.W.' Poplar three valve set manufactured by Davenport Wireless Ltd. Circuit diagram and component layout would be most appreciated. D.J.Derrick 143, Mayfield Avenue, Grove, Wantage, Oxon OX12 7HE.

Old television sets of interest to: D.S.Jones, 239, The Fairway, Ruislip, Middlesex, HA405N. Tel: 01-845-5035

Information (operators manuals, service manuals etc etc.) for laboratory test gear such as AVO signal generators, Wayne Kerr Component Bridge, AVO service valve multimeter (CT38) etc etc. Also for associated measuring instruments such as wheatstone bridges, galvanometers etc made by such firms as Cambridge Instruments. Such information is in short supply so if you do possess any such booklets or manuals will you kindly let me know (even if you don't wish to dispose of it). It is important to know where the information can be found. Editor.

Vintage Wireless Register: We are still searching for information from members. The list is now quite large but many members have not yet provided us with a list of their sets. Editor.

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DISPOSAL Large quantity of 'bits and pieces' from late 1930's. These items are said to be for 'general disposal'. Interested collectors should contact Paul Anderson, 65 Beechwood Rd., Sth Croydon, Surrey

A comprehensive handbook for the RADIOLAB (of about 1933 vintage, I think) manufactured by 'The Radiolab Manufacturing Co., Sandridge Works, St. Albans, Herts'. Any collector who own this complete valve and set tester would undoubtedly like to have this booklet if he hasn't already got a copy. This one is in very good condition and is available for a nominal sum or some odd bit of ephemera in exchange. Notional value, approx £1. Contact editor.

BVWS posters can still be had at the original price of £1.50 per set of three (covering the periods 1922-30, 1931-1940 and 1946-1956. The price includes postage. Write to Jon Hill, Hon Membership Secretary (address inside front cover).

Members who haven't yet got their copy of Jon Hill's book 'The Cat's Whisker' (See review in BVWS Bulletin Vol 2 p.61 - March '68) can get one by writing directly to Jon (address inside front cover) Price £4.95 (plus 55p for postage and packing if you live in the U.K. £1.68 if overseas.).

If any member still wants to get a copy of Gerald Tyne's 'Saga of the Vacuum Tube' please let David Read know so that he can place a fresh order with the U.S. publishers. Please write now: David Read, 25, Temple Fortune Hill, London N.W.11 or telephone 01-455-9523.

MEMBERSHIP RENEWALS. Those members who have not yet paid their 1978-79 renewal subscriptions are kindly asked to do so. A reminder and an extra renewal form will be included with this Bulletin for those members who, according to our records, have not yet paid. We will normally send two Bulletins following the renewal date (and this is the second!) and no further reminders will be sent - and no further Bulletins will be sent.

Thank you.

MISCELLANEOUS ITEMS

The Royal Corps of Signals Museum. Blandford Camp, Blandford, Dorset.
This museum is open Monday to Friday 9.00 a.m. to 12 noon and 2.00 p.m. to 4.30 p.m.
The Curator is Major L.J. Taylor M.B.E.
Telephone: Blandford 52584 Ext: 248. Admission Free.
The museum is open to the public and is situated in the camp about one mile from the town. It is devoted to army signals and there is quite a bit of early wireless equipment to be seen there. The period covered is 1900 to 1970.
The museum has a good reference library and very helpful staff.
Two recent BVWS visitors; Bill Journeaux and Tony Constable.
Do visit Blandford next time you are in the area - it is really worth while.

Omissions from the Exchange page of this Bulletin:

Searching for circuits, handbook etc for 1935 Hallicrafter Super Skyrider. Bill Journeaux, 7, Blair Ave., Poole Dorset. Tel: 0202- 748072.

Members wanting photocopies of Trader Service Sheets from 1933 to 1940 - Bill Journeaux has 500 of them and will be pleased to hear from you.

After the recent A.G.M. at St Albans, one of our members lost a very important piece of his equipment. As it turned out, he infact lost the set near his home during the unloading operation when he returned from St. Albans. It finally turned up after the area had been circulated with notices and a £20 reward offered. This little story has a moral. All collectors must be aware of the value of their equipment⁹ keep accurate records of everything they have; they should have a proper printed name and address label attached to each item; they should keep a record of special identification features (such as blemishes or repairs or serial numbers). Now that the Society is fairly well established, it is probable that any lost or stolen item will soon come back into circulation among other members. Before a stolen item comes onto the market and money begins to change hands, it is essential that members are circulated with information - so, if this ever happens to you, let as many members as possible know about it straight away - forewarned is forearmed.

Obtaining insurance cover for your collection might pose problems. First there is the que tion of valuation and secondly you have to decide whether an 'all risks' policy would be appropriate - this is expensive but it dose cover you when you take the equipment out of your house to meetings, exhibitions etc etc. Many members have items of equipment which can easily be valued at between £50 and £100. Some items however have to be valued much higher than this. A lot of choice sets now come into the £100 to £200 bracket. Some simply have to be valued much higher than this and it would not be unrealistic to select a few of those rare and much coveted sets from the early 1920's and from the 1st world war period for valuations as high as £300 or £400. Insurance companies normally require a valuation certificate for named items worth over £200 and we will consider ways in which this might be achieved. If any member has had any special experiences of insuring valuable wireless equipment, please write and tell the Editor of this Bulletin all about it - - it would be very helpful to share such experience with those of us to whom the intricacies of insurance policies is a closed book.

At the St. Albans A.G.M. somebody put a few components in my car in the mistaken⁴ belief that they were mine! They are: a very splendid 'Titan' coil unit, a 'Goltone' DW/8 Dual wave coil and a Sovereign P.J. coil....all boxed in original cartons. Will the owner contact me for return Editor. Also at St. Albans who was it who asked me for some white engraving compound????

In next issue:- a short history of Cossor..... among other things.

THE SECOND BVWS A.G.M.: ST. ALBANS

SUNDAY MAY 21st 1978

This year's A.G.M. (the second in the history of the Society) was held in the old Civil Defence Hall at St Albans and attracted over 60 members from as far afield as Southampton and North Wales. The location no doubt played a big part in this encouraging turnout since, for many, it did away with the awkward necessity of negotiating a traffic clogged London.

For the first time we had decided to combine official business with a swap-meet and when I arrived at around 2 o'clock the tables placed round the walls of the hall were already supporting a heavy array of receivers, components and other interesting wireless items although there was little to suggest who was selling or disposing of what and for how much. WE were labelled....why weren't the sets?! Next time we will know better. A few members had brought items for display only. David Read had a marvellous working show of early equipment including a near mint crystal and valve B.T.H. set. Definitely not for sale! There were however lots of useful components for disposal - among them various unused parts for the V2, boxed head phones at £10, boxed 2-pin coils, all sorts of valves (dud display bright emitters included) and batteries. I bought a boxed unused 'Seaford' crystal detector - quite a good buy at £2, and it didn't weight the car down for the journey home! Sets from all periods and in all conditions of repair were in evidence although 1930's mains receivers and crystal sets predominated. Talking of crystal sets, Mike Field and Tony Constable displayed side by side crystal sets that were used at the beginning and the end of the first world war. Mike Field's trench set made by Robert W. Paul was really quite huge and the Mk IV tuner belonging to our editor and Chairman showed the dramatic reduction in size that had been brought about by advancing technology and possibly by material shortages towards the end of the war.

From talking to other members at St. Albans I came to the conclusion that most people had been a little hesitant about bringing too much stuff along since this swap-meet was very much a trial affair. However when the official business began at 3.00 p.m. it was suggested that, as well as an Annual General Meeting, the Society should hold a meeting once a year in the winter months specifically for swapping, buying and selling surplus equipment. This idea met with approval all round.

One of the main objects of the A.G.M. is to bring members together to meet each other and to let everyone there see who is 'running the show'. In fact I'm glad to report that all members present showed faith in the present committee by re-electing us for another term of office, although we would welcome some new blood on the committee next year. Another thing we would welcome is a flood of ideas from members for some sort of symbol to be used as the official B.V.W.S. emblem, for use on letterheads, badges and ties etc. Do have a think about this and send your ideas to me (vocal or rough drawings).

As membership secretary I'm pleased to report that we can now offer an Associate Membership to any member of a full member's family (fee £2.00) and this will allow voting rights at B.V.W.S. meetings.

Concerning the A.G.M. and the swap-meet, can anyone suggest a suitable venue for either?? The sort of place we have in mind would be somewhere convenient for all members (the Midlands has been suggested as a possibility for the next swap-meet - how does that sound?). There should be available a suitable sized hall - large enough to accommodate 100 people and 50 trestle tables, adequate parking facilities and it should be in an area where our families can happily wander off if they wished to enjoy the view and other bits of local colour.

With the official part of the afternoon over we were treated to an outstanding tea assembled by the wives of Roger Rayment and Roger Snelling eating and drinking accompanied further bartering and rounded off a very successful and enjoyable day.

Jonathan Hill, Hon Membership Secretary.

Most members will have seen Len Kelly's Broadcasting Catalogue number three - again Len deserves to be congratulated on a fine production....lots of good information here.
