

BVWS bulletin

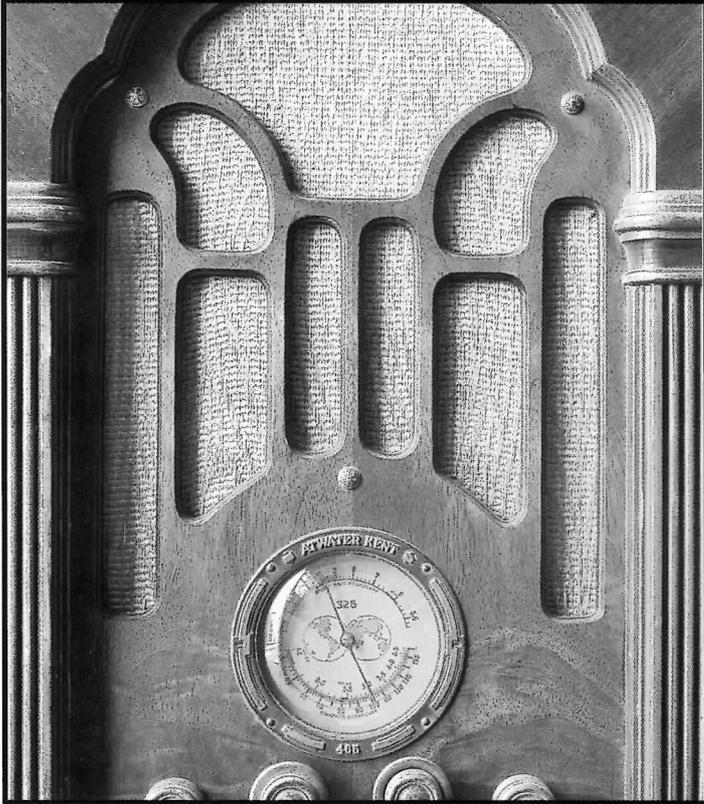
volume 22 number 4 Winter 1997



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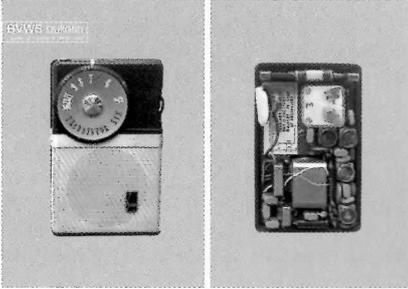
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Separations by Cutting Edge
Printed by Apollo

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Keith Geddes OBE I Ray Herbert
David Read I Gerald Wells



Front Cover: Sony TR-63.
'Sony' brand model TR-63 made by Tokyo Tsushin Kogyo Ltd., in 1957. Their first major export and their first 'pocket' set, mainly exported to the US. (Never exported to the UK.)**
Rear : Inside the Sony TR-63.

*Became Sony Corporation in 1958
**First Sony export to UK was TR620 of 1960 (Radio kindly lent by Jonathan Hill)

Front and rear cover photography by John Trampler. Assisted by Mark Groop and Carl Glover
Graphic Design by Carl Glover

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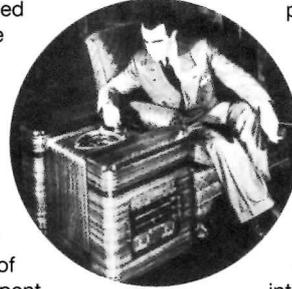
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BVWS Committee

Chairman: Willem Hackmann, Sycamore House, the Playing Close, Charlbury, Oxon, OX7 3QP
Tel: 01608 811110, 01865 277282 (work), email: willem.hackmann@histsci.ox.ac.uk
Bulletin Editor: Carl Glover, c/o Runciter

From the chair

It is this time of year when the damp days draw to a close early and the pungent smell of decay is in the air that one indulges in assessing the successes and failures of the past year. The Society has had a successful year: the Bulletin has gone from strength to strength thanks to the Editor and the contributors, the swapmeets have been well attended thanks to the hard work behind the scenes by the regional organisers and the Events Coordinator, the membership number is healthy and we now have a membership List of those members willing to be listed. Failures there have been few although as my school reports used to say with boring regularity '(he) could have done better'. Some of you undoubtedly feel that we have spent too much time on bureaucratic niceties such as our constitution, but I felt that we are now so large that a well thought out constitution is essential. The donkey work to get it right was Guy Peskett's. The new 'guidelines for swapmeets', too, are important. The need to regulate our meetings has become stronger as the material we



collect has become increasingly more expensive. We cannot ignore the impact of market forces on our hobby. A success has been to reduce the setting up time by the stall holders to twenty minutes - now accepted by most regional swapmeets. I congratulate the Events Coordinator to get this new arrangement passed, and the regional organisers for their flexibility.

A society like ours is like a living organism in that it has to be continually stimulated so that it will not stagnate and die. At present we are looking at ways to revamp our Newsletter, to think up new features for the Bulletin, to develop a BVWS website, and to develop our swapmeets. We are interested in getting members to exhibit at the Harpenden swapmeet and perhaps give talks about their favourite items. We are also looking for ideas on how we should mark the millennium. Send me your ideas! In the meantime 'watch this space', and wishing you all a very happy Christmas and New Year.

Willem Hackmann

Editor Speaks! (part 3)



Crikey! Time to get cracking on the Spring issue!

Crikey! Three years as the Editor! Sometimes it seems I've been working on the Bulletin for ten years and at other times ten months, the latter feeling gets more scarce as time marches by.

Just so that you can get an idea of what the Editor does I'll give you a typical day in my life: 7.00: wake up, wash, eat. 7.40: turn computer on, scan, type and design Bulletin. 9.30: train to work. 10.00: work. 18.30: leave for home. During the two weeks prior to printing I'll often work evenings too. The main reason I work on the Bulletin in the morning is that my partner: Christine, doesn't like to see me doing extra-curricular work at home (she's a designer too). It also keeps the evenings free, as we are rather fond of going out and socialising etc.

I ought to mention the crucial roles played by Ian Higginbottom, Pat Leggatt and David Read in the final stages of each issue. When all available space is filled, I send rough run-outs of the Bulletin to David, Ian and Pat. Usually within

about four or so days I receive amendments from the chaps: these range from corrected spellings to queries of a technical nature. Many are the times that the Bulletin has been saved from having egg on its face by the use of this sensible practice.

After amendments, the Bulletin is downloaded onto a 230 megabyte optical disc and sent to the repro house, followed by the platemakers and finally the printers. After printing, Bulletins and envelopes are sent by van to Gerry Wells' house for envelope stuffing and mailing out. By this point I'm usually working on the next Bulletin...

Well that's enough Bulletin related chat. All that's left for me to say is 'keep those wonderful articles coming in' and 'thankyou for sending them in the first place', not forgetting 'Merry Christmas and a happy New Year!'

Best Regards, Carl

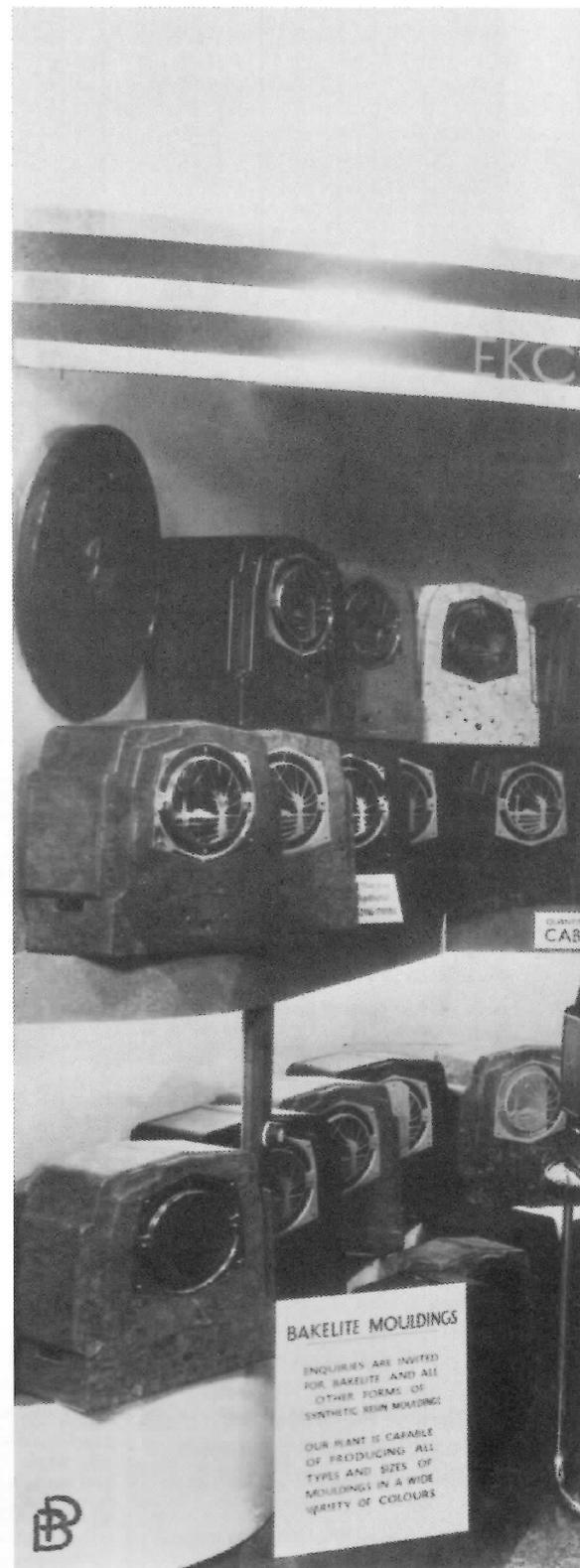
Corporation, 33 Rangers Square, London SE10 8HR (to whom all editorial enquiries should be addressed) Tel / Fax: 0181 469 2904
Treasurer: David Read, 25 Temple Fortune Hill, London, NW11 7XL Tel: 0181 455 9523
Events Co-ordinator: Andrew Zimmer, 17 Newhache, Dormansland, Surrey RH7 6PX Tel: 01342 834363

Membership Secretary/Membership applications: Pam Zimmer, 17 Newhache, Dormansland, Surrey RH7 6PX Tel: 01342 834363
Newsletter Editor: Ian Higginbottom, 5 Templewood, Ealing, London W13 8BA Tel / Fax: 0181-998-1594
Ordinary Members: Mike Barker, Pat Leggatt, Guy Peskett,

Temples of Modernity

a design history. of J.K.White. by Martyn Overs.

It's just a thought... But I dare say that at some time or other, we've all been guilty of describing the appearance of a particular wireless receiver with some imprecise or generalised stylistic tag such as Art-Deco-ish... Gothic-ish... etc. Needless to say, as a result of the very often hackneyed and sometimes vacuous designs that were churned out by certain manufacturers, it could be argued that these scant and somewhat vague descriptions are really all that such radios deserve. Fortunately however, this is not always the case and occasionally we become aware of a model the appearance of which stands head and shoulders above the rest, inviting us to study it more closely and wonder why it has been given the outward appearance that it has?



Left: John Kenneth White. 1902-1983

Top: Ekco mouldings displayed at the 'British Industries Fair' 1933, courtesy of Taco Vonk archive, Holland.



One such radio, or to be more precise four models with two distinct designs, that have elicited such investigations, are the Ekco models RS2/RS3 and M23/SH25 produced in 1931 and 1932 respectively.

A severe fire at Ekco's Southend works on February 5th 1932, necessitated the cabinet designs from 1931 being re-used for the 1932 season's models. As a result of improvements to the circuitry employed, minor differences existed between the cabinets of these two consecutive production runs. These included a change to the position of the on/off switches; concentric knobs on the SH25 as opposed to the two on the RS3, the embossed wording

for 'GRAM' on the RS3 being removed, and a twin cursor being employed on the SH25. Whilst the circuitries varied enormously between the four models, for the purposes of this article the four receivers will be grouped into the two cabinet designs RS2 and RS3.

Both cabinet designs are attributed to J.K.White, but who was he... and with two such unusual and intriguing designs, which of them was conceived first?

John Kenneth White (Jake) was born in 1902, and whilst living in Brondesbury Pk., Nth. London, attended the Merchant Taylor School. His father Henry White, worked in Grafton St. at Duveens Gallery as their

specialist in English Art, alongside other eminent academics including the critic and authority on Italian Art, Bernard Berenson. Jake's sister Bettie studied Fine Art at the Royal College, and so, not surprisingly given this artistic and aesthetically-minded pedigree, Jake developed a keen talent in art, alongside an appreciation for architecture, drawing and design. Notwithstanding this artistic precedent, and despite his being awarded a distinction for drawing at the Merchant Taylor School, in 1926 Jake chose to move away from London and study English at Selwyn College, Cambridge.

1926 was also the year that sister Bettie

married John Wyborn, an old school friend of Jake's and who since 1922, had been in employment at the Marconi Company at Chelmsford. While Jake, after graduation from Cambridge in 1929, embarked upon a career as a school teacher, brother-in-law John was already settling into his new job. Poached away from Marconi in December 1928, John Wyborn appointed to Chief Engineer for the young and emergent radio manufacturer based at Southend-on-Sea.

Ekco were already committed by an agreement with A.E.G. in Germany, to the use of Bakelite for the manufacture of their radio cabinets, and the management would have been only too aware of the need for new and striking designs, to replace their somewhat staid, and it could be argued 'A.E.G. imposed', models 312 and 313 from the previous year. With a combination of talent and aesthetic pedigree, it would have seemed only natural that Jake's name be put forward as a potential designer for the new cabinets. Company records show however, that Jake did not become a fully paid-up employee of E.K. Cole until 1936, so the adoption of these early designs gives credence to an argument that Ekco was the first wireless manufacturer to employ the services of an outside specialist for the design of their cabinets. Whilst J.K.White was not referred to by name, the important part played by an outsider in the new radios development did not go unrecognised, and sales literature of the day stated that...

*The exquisite designs of the new models are the creation of an eminent British Artist, who has employed all his delicate skill and artistry through the medium of Bakelite moulding, and the result is figured perfection which will add charm and distinction to any home. *1.*

While differing in size, the RS2 and RS3 with their complex stepped and angular cabinets share an identical outline and basic shape, yet the treatment of their front elevations is noticeably very different. The RS nomenclature indicates that these were indeed Ekco's first combined receiver and speaker sets, and as a consequence their cabinet shape could be considered as being merely a logical way of containing the many components. In addition to this, it could easily be argued that the two sizes of cabinet were deemed necessary in order to market a choice of two radio receivers with different prices, the larger and more technically advanced RS3 being more expensive than the smaller and somewhat simpler stablemate the RS2. But why the need for such a radical contrast in the stylistic treatment of the two cabinets?

Jake's original artwork clearly shows that his complex design proposal remained largely unaltered, and that the title given to his drawing 'Design for Wireless Cabinet in Bakelite No.1' confirms that with its decorative bronzed bezel, the RS3 was indeed the first of the two designs to be conceived. The only discernable difference between his design and the cabinets that were finally produced is the alteration from a carrying recess shown in the design sketch, to a handle-aperture incorporated lower down in the final moulding. However, upon closer scrutiny it can be seen that Jake had indeed considered other decorative treatments for the front of the RS3. Faint but clear markings are evidence that a number of roundels or rosettes had been considered for embellishing the bottom edge of the receiver, and that Jake had also thought of covering the entire front of the cabinet with the same textured surface incorporated on the sides of the receiver. This stippling effect was a stylistic tool that had often been used by a Bakelite moulding

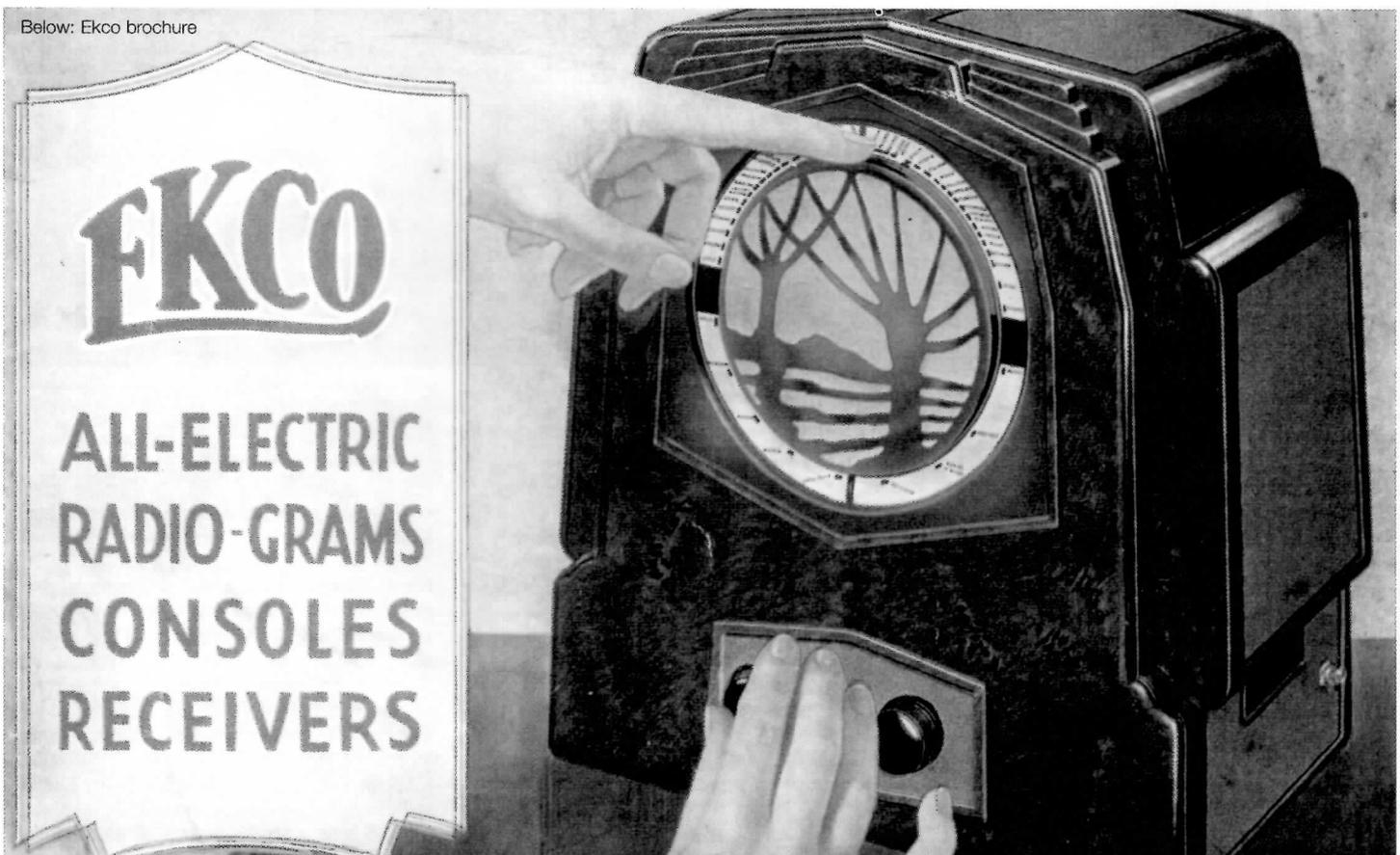
industry never really confident of achieving a consistently smooth and flawless finish from its moulds.

The RS3 is generally accepted as being the first British receiver to be printed with station names on its tuning scale, and the inclusion of this demonstrated a confidence on the part of the Ekco management that stations would indeed remain where they had been allocated. Given this and in the absence of any known precedent, Jake White would have been faced with the difficult task of aesthetically and meaningfully incorporating this novel feature into the design of his wireless receiver.

The bronze effect fretwork depicting willow trees on the banks of the River Cam is now familiar to us all, but other rough sketches produced by Jake illustrate that he had indeed considered two alternative and quite different stylistic treatments. While the first of these suggests the prow of an ocean-going liner, the other depicts a global type map of the world, with Great Britain being positioned very much at the centre.

If one acknowledges that in 1931, wireless in general was still regarded by the general public with a certain awe, considered essentially masculine, technologically advanced and a medium which conveyed all that was essentially modern, then it would seem only logical that Jake would have sought not only to imbue his design with connotations of modernity, but consciously attempt to de-mystify it and make it more acceptable within the home.

The 1930's saw rapid progress made in the dissemination of information, facilitated not only by newspapers and the new medium of wireless, but by advances being made in travel. Trains now moved faster, ocean liners grew bigger, and in addition to flying boats and other aeroplanes, a new era of airship travel promised a public that they could now



fly more conveniently and with less effort than ever before.

Notwithstanding these influences, the fret showing willow trees was used, indicating that Jake understood the need for a balanced approach within his design. The radio industry of 1931 was extremely competitive and any pressures there may have been to overtly portray modernity could not at this early stage in Ekco's life override the commercial need to make the wireless receiver more aesthetically acceptable within the home. Jake also knew, that his cabinet designs would have to appeal more to women; after all it was predominantly the woman who planned and chose the decorative schemes inside the home. Not only was the patented 'STATION BY NAME' tuning method a major sales coup for Ekco, but the following statement taken from the Wireless and Gramophone Trader of that year illustrates that Jake's balanced approach to his cabinet design had clearly succeeded,

'What pleased me most was the interest which women took in the station dial. The idea of being able to tune-in by name captured their imagination. Instead of having to submit to the humiliation of watching the competent skill with which John, George, or Bill tuned in foreign stations for their gratification, these women had visions of being able to do the job themselves and of proving it by showing the name of the station to which the receiver is tuned. I think that Ekco is the first firm to produce a receiver which really appeals to women as well as men.' *2.

Suggesting reasons for the implementation of a balanced design for the speaker fret is all very well, but the reason for Jake's overall complex shape is still not clear.

Nikolaus Pevsner described Ekco's new cabinet as being....

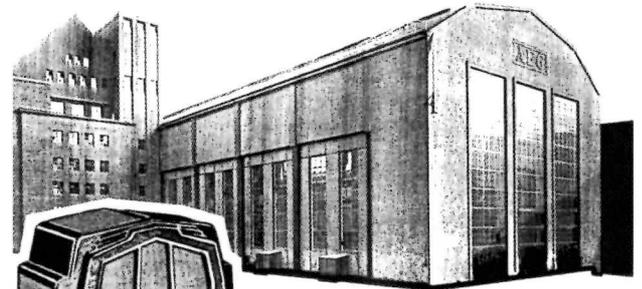
'Jazz Modernat its most horrible' *3.

and Robert Hawes declared it as being ...

'early art nouveau...' *4.

Indeed many other pundits have suggested that by his inclusion of winged motifs at the top of the cabinet, Jake's design is clearly Egyptian in origin. So which of these 'tags', if any, fits the bill? Suffice to say that with his proven artistic pedigree, Jake would have been only too aware of these and any other acceptable influences, not least those that had developed as a consequence of the design exhibition held at Paris in 1925 (*5), and he certainly would not have forgotten the emerging and powerful presence of the Bauhaus in Germany. Nevertheless, as none of these really help in explaining the shape, perhaps closer scrutiny of Jake's rough sketches, where he had considered using symbols of travel and communication, might reveal some answers.

Amidst news reports of Amy Johnson's record breaking flight to Australia and accounts of Sir Malcolm Cambell's fight for



Left: Ekco brochure

Top: AEG Turbine Assembly Hall, Berlin. 1914. Designed by Peter Behrens and shown alongside Ekco Model RS2

Above: Hangars at Cardington in Bedfordshire, built to house the hydrogen filled airship R101

speed supremacy with Major Segrave and Kaye Don in the autumn of 1930 newspapers would have been full with the testing, launch and subsequent disaster on October 5th. of the airship R101. Public interest in airship travel was now at its height, and like thousands of others Jake would have shown a keen interest in not only the airship itself, but in its architecturally innovative hangar built at Cardington in Bedfordshire. In stark contrast with the RS3, the smaller RS2 is devoid of any decoratively fretted grille, being designed instead with a much plainer front elevation consisting of three vertical apertures. Indeed with its distinctive outline, the airship's hangar could have provided Jake with inspiration for his designs and the vertically divided doors perhaps explain the simpler design treatment given to the RS2. This architecturally-based theory can be developed further. Both Jake and John Wyborn had travelled on several occasions to the A.E.G. plant in Germany to discuss matters of Bakelite moulding, where they would have become only too aware of the all-pervading presence of the A.E.G.'s design and architectural advisor, Peter Behrens.

Apart from designing the first truly Modern Movement house in England, 'New Ways' at Northamptonshire in 1926, Behrens was already regarded in industrial design circles as being something of a pioneering high priest, predominantly for his work in implementing a corporate identity for the large industrial and electrical manufacturer A.E.G. This involved a wide range of design projects, including company letterheads, a variety of small

electrical appliances, and even huge architectural schemes such as the widely acclaimed Turbine Assembly Hall designed in 1909 at Berlin. The illustration shows another of these A.E.G. assembly halls designed by Behrens in 1914, and clearly shows in addition to a remarkably similar roofline to that employed on the hangars at Cardington, three distinctive vertical fenestrations much like those which were incorporated by Jake into his cabinet design for the RS2.

Fact or fantasy? Liberal encouragement for designers of wireless cabinets to turn to architecture began to appear throughout the early thirties, and Captain Gregory, the editor of the popular periodical 'The Cabinet Maker' suggested for example, that as the concept of wireless appeared to most people as a mystery, then

'When the ancients became aware of a mystery they built a temple. Why could not the wireless trade make wireless temples instead of wireless cabinets...' *6.

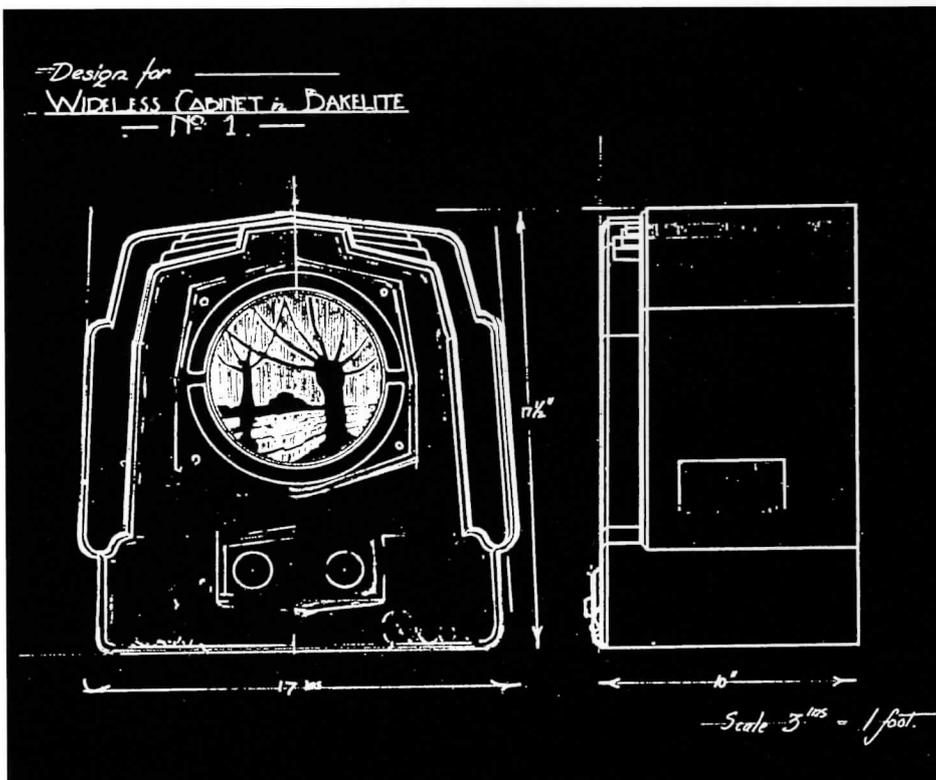
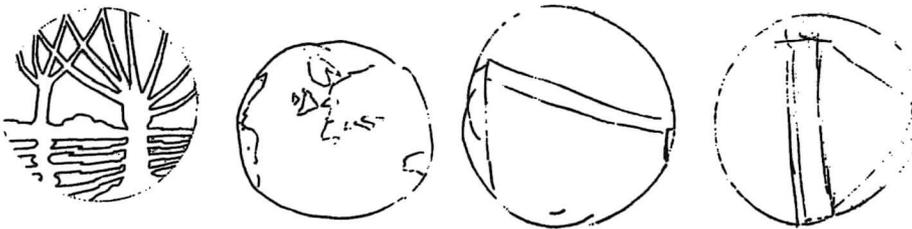
Although it is unlikely that these ideas were consciously implemented by radio designers, many cabinets appeared throughout the early thirties influenced by Greek or Egyptian architecture. Therefore, despite Jake's adoption of an Egyptian winged motif at the top of his RS2 and RS3 designs, a theory begins to emerge which adds strength to the idea that by his appropriation of a contemporary architectural vocabulary, Jake was in fact creating the first wireless cabinets that could be construed as being 'Temples of Modernity'.

The next few years were to see Ekco develop this architectural theme even further, and their appointment of the young and emerging modern architects Wells Coates and Serge Chermayeff has been well documented. J.K. White however, on his return in 1936, headed a team of six designers that went on to produce dozens of designs for radios that were produced in wood, in addition to the more usual Bakelite. This is not to mention the huge range of other products that were moulded by the 1,000 ton presses operating at Ekco.

The large picture on page five shows a photograph of Ekco mouldings taken at the British Industries Fair of 1933. Although only in black and white, it clearly shows that in addition to the advertised shades of Dark Jade, Mahogany and Walnut, Ekco produced a weird and wonderful array of coloured cabinets to promote their expertise in Bakelite moulding; not least were the Twin Colour mouldings for the M23 cabinets. It is also interesting to note that the bezels on the SH25 exhibition cabinets, appear un-bronzed with some even being chrome-plated.

Jake White died in 1983, and of all the cabinets that he designed, it is the RS2 and RS3, being so evocative of the thirties era, that have proved to be the most sought after by collectors today. It would seem appropriate therefore, that rather than using vague and vacuous tags, a fitting tribute to these quite remarkable designs, should be to describe them as being true 'Temples of Modernity'.

© 1997. Martyn Overs.



Acknowledgments:

I would like to express my very special thanks to Carol Black, Pauline Durrant, Bettie Wyborn and Ken Stone for their kind help with my research concerning Ekco.

References:

- 1 Ekco sales brochure of 1931
- 2 Ivey Smith, Publicity supervisor for E.K Cole quoted in the 1931 'Radiolympia Special' of 'The Wireless and Gramophone trader'
- 3 Pg. 190. 'Broadcasting comes of age' by Nikolaus Pevsner. The Radio Cabinet 1919-40, Architectural Review. Vol. 87.
- 4 Pg. 77. Radio Art. Robert Hawes.
- 5 'The Exposition Internationales des Arts Decoratifs et Industriels Modernes' held in Paris in 1925. This was the exhibition responsible for giving us the term 'Art Deco'.
- 6 pg. 86. 'The Cabinet Maker' 21st. Oct. 1933.

Top Left: Rough sketches by Jake for the fretwork of the RS2

Left: Jake's original artwork for 'Design for Wireless Cabinet in Bakelite No. 1'

Willow Patterns

A 'hands-on' assessment of the RS3

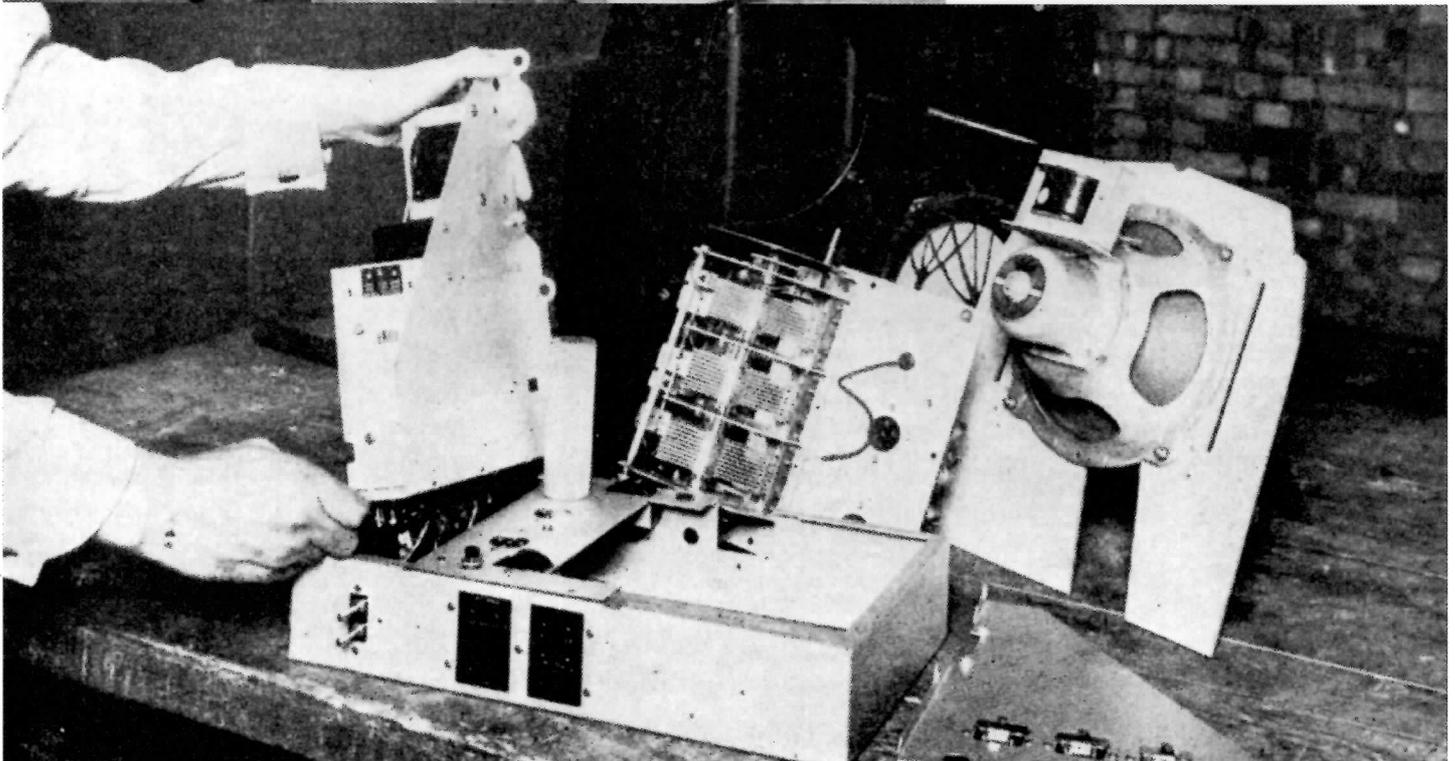
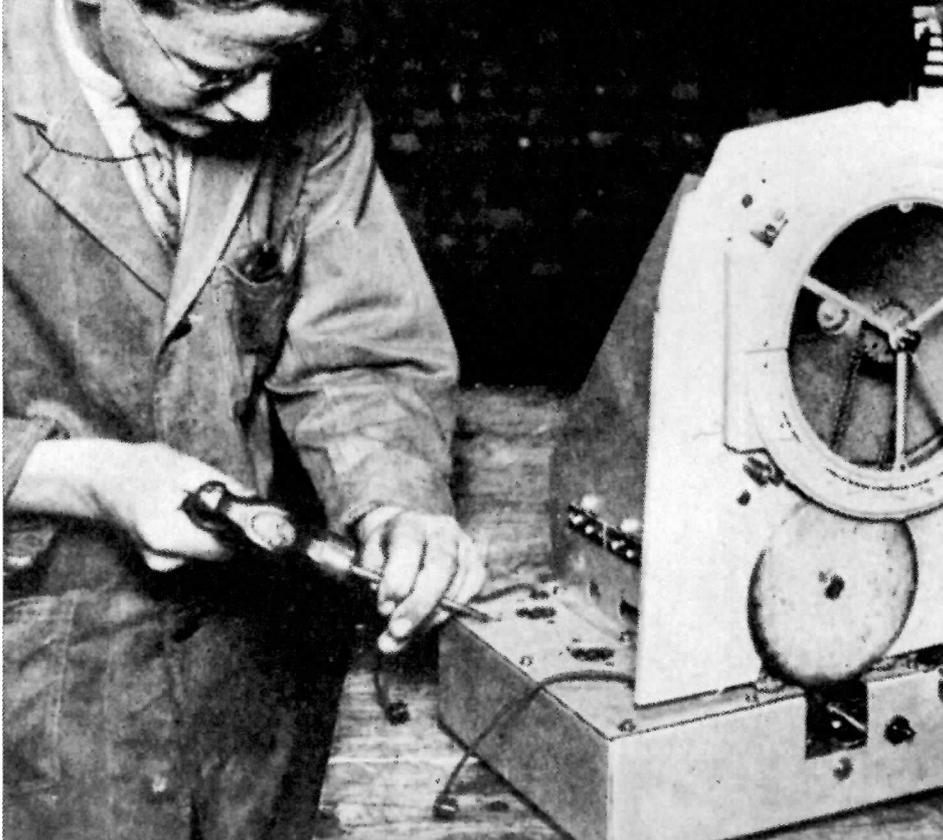
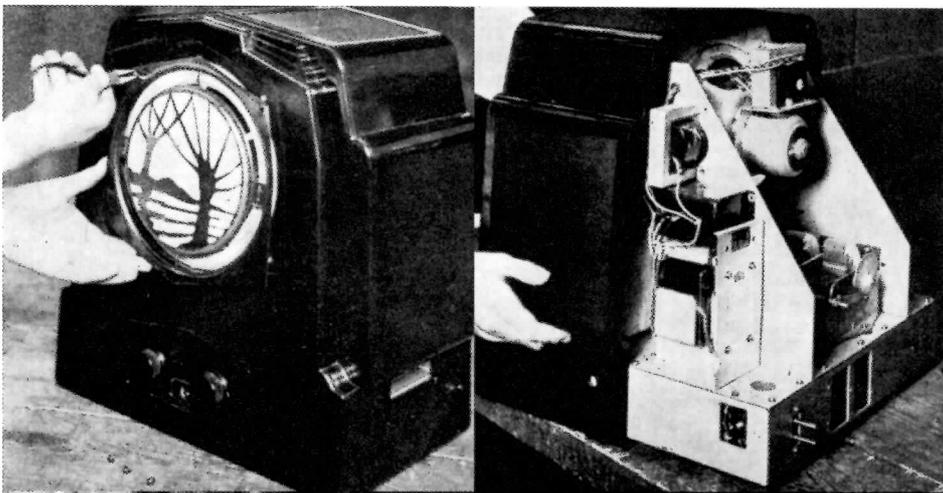
by Geoffrey Dixon-Nuttall, WET sheets kindly supplied by Malcolm J. Bulcock, photography by Mark Groep



Ekco are well known for their round sets, but before these they produced another landmark, in the form of the RS3. This is the well-known 'willows by a stream' design, and it is interesting for a number of reasons.

It was the first set to have a dial calibrated in stations rather than wavelengths, and used an ingenious form of bandswitching in which the pointer

rotated through 360°, changing from long to medium as it went. In theory there is a 'gram' position in between, but it is somewhat dodgy. This mechanical arrangement is very delicate, and they seem to have had trouble, as the design of the cam and its follower was changed in production. This was also one of the earliest bakelite sets to have a built-in speaker.



Cabinet:

The cabinet design is somewhat odd, as it is a sort of half-baked Art Deco (but see previous article—Editor). It looks as though it ought to have a geometric fret rather than those trees, and I think they lost their nerve at the last moment. The same shape of cabinet was used for the smaller RS2, but with a different front. The sides of the RS3 are formed into handles, but they are below the centre of gravity, which gives a somewhat insecure feeling if you try to use them as such. The design is such that the cabinet does not carry the weight of the chassis, which sits directly on its rubber feet. (The earlier model 313 has the chassis screwed into the cabinet, which may have led to damage.)

It may not be apparent from the photos, but this is actually quite a big set for a table model. Ekco called it a 'console' which shows that they were aware of this.

This set, it must be admitted, is far from user-friendly. To start with, the pointer is barely visible, and revolves in the opposite direction to the knob, which I always find disconcerting. The graphics of the dial are pretty horrible, with station names at all sorts of odd angles, and the wavelength markings are so small as to be illegible. (Presumably they thought that they would not be needed). The fret is made from very thin brass sheet, and is very easy to damage. (It is **meant** to be oxidised- please don't polish it!) As is usual with TRF sets, the volume control is rather 'sudden', and the tone control is almost without effect.

The circuit uses two RF stages and a grid detector, followed by a pentode connected as an 'ultra-linear' output stage, with the screen tapped at 20% down from the HT end of the output transformer. This is the first recorded use of this circuit, although the later produc-

Don't try this at home folks! Illustrations from the book 'Newnes Complete Wireless' showing how to demolish an Ekco RS3 in 4 easy stages. Somehow, one cannot imagine this act being performed by any BVWS members.

"TRADER" SERVICE SHEET
735

EKCO RS3

AC RECEIVER

AN ingenious device which permits combined tuning and switching in a single control is a feature of the Ekco RS3, a 4-valve, 2-band TRF receiver designed for AC mains of 200-250 V. The chassis is divided into six screened compartments, three above the deck and three below.

Release date and original price: 1931; £25 4s.

CIRCUIT DESCRIPTION

Aerial input from socket A1 or A2 is via coupling coils L1, L2 to single-tuned circuit L3 (MW), plus L4 (LW) and C24 which precedes tetrode RF amplifying valve (V1, Mullard S4VA).

Second valve (V2, Mullard S4VB) is a second tetrode RF amplifier with tuned-secondary RF transformer couplings L5, L6, L7, L8, C27 and L9, L10, L11, L12, C30.

Gain is controlled by potentiometer R1, whose slider is connected to chassis. The cathodes of V1 and V2 are connected to one end of R1, and the A1 aerial socket is connected to the other end. As the bias potential to V1 and V2 is increased, the aerial circuit is thus increasingly heavily damped.

Third valve (V3, Mullard 354V) is a triode operating on the grid leak system with C9 and R7. Provision is made for the connection of a gramophone pick-up in the control grid circuit, and a second potentiometer R6, ganged with R1, forms the input volume control. GB on gram is automatically applied from R8 by returning R6 slider to chassis, R7 being returned to cathode. RF filtering in anode circuit by C10, L13 and C11.

Reaction coupling is provided on MW by C31; C4 between V1 and V3 anodes, C31 being pre-set. On LW, S5 closes and connects C5 to the earthy end of the circuit, shunting Q4, C5 across L5, L6 and reducing the effect of reaction.

Transformer AF coupling by T1 between V3 and pentode output valve (V4, Mullard PM24B). Fixed tone correction by C16 in anode circuit, and two-position tone control by C15, S9. V4 screen derives its current from a tapping on the speaker input transformer T2 primary. Provision is made for connecting a high impedance speaker across T2 primary.

HT current is supplied by full-wave rectifying valve (V5, Mullard DW3). Smoothing by iron-cored choke L16 (in positive lead), speaker field L15 (in negative lead), and capacitors C17, C18, C19, the first being electrolytic. Power circuit RF filtering by C20, C21 and C22, each consisting of two capacitors in series to secure safe high-voltage operation. GB for V4 is obtained from the junction of R14 R15 which form a potential divider across L15.

VALVE ANALYSIS

Valve voltages and currents given in the table below are approximate values only for an average chassis, but they serve as a reliable guide to the readings to be expected in an average chassis.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 S4VA	175	4.0	85	} Very low
V2 S4VB	175	4.0	85	
V3 354V	90	2.0	—	
V4 PM24B	240	38.0	245	7.0
V5 DW3	270†	—	—	—

† Each anode, A.C.

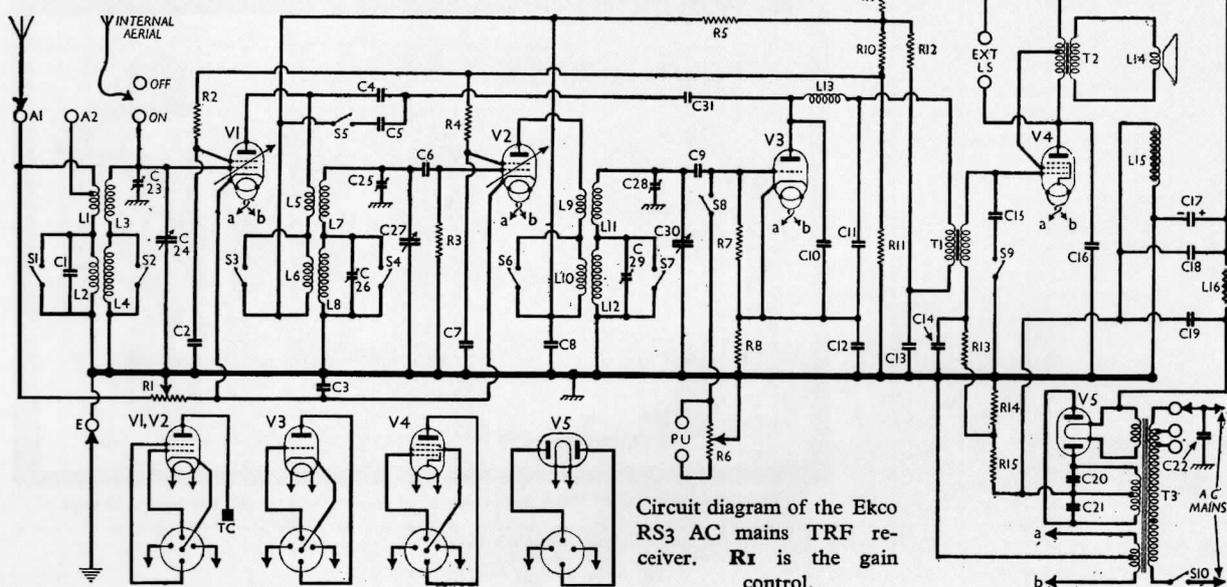


Voltages should be measured with a high-resistance meter whose negative lead is connected to chassis.

COMPONENTS AND VALUES

RESISTORS		Values (ohms) ↓
R1	Gain control ...	5,000.
R2	V1 SG HT feed ...	2,800
R3	V2 CG resistor ...	2,000,000
R4	V2 SG HT feed ...	2,800
R5	V1, V2 anodes HT feed ...	1,000
R6	PU input control ...	10,000
R7	V3 CG resistor ...	1,000,000
R8	V3 gram GB resistor ...	250
R9	} HT circuit potential divider ...	2,000
R10		5,000
R11	} V3 anode HT feed ...	5,000
R12		9,000
R13	V4 CG decoupling ...	100,000
R14	} V4 GB potential divider ...	40,000*
R15		60,000*

* Parts of a single 100,000 Ω tapped resistor.



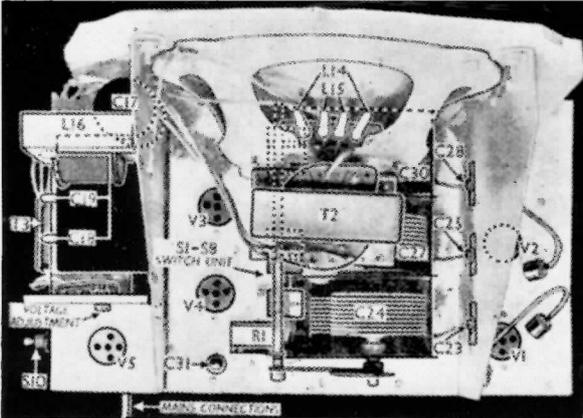
Circuit diagram of the Ekco RS3 AC mains TRF receiver. R1 is the gain control.

tion of the model 313 used it. It is not clear why they did this, as they give no reason, but it may have been in the vague hope of getting higher output; it is very unlikely that they were interested in hi-fi at that date. Pre-set reaction

is used, although it is sabotaged on long wave. This is a retrograde step; the Philips 2511, for example, works very well without it.

As is well known, Ekco suffered a major fire on February 5th 1932, and this prevented

them tooling new cabinets for late 1932, so the old one was used for their new superhet, the SH25. (Similarly, the RS2 cabinet was used for the M23). The SH25 used the same metalwork and the same cabinet, but it was a



Plan view of the chassis. The switch spindle and contact plates are indicated in the centre compartment. On the left is the power compartment, and on the right is a compartment for V1 and V2.

CAPACITORS		Values (μF)
C1	Aerial LW shunt ...	0.001
C2	V1 SG decoupling ...	0.1
C3	V1, V2 cathodes decoupling ...	0.1
C4	Reaction coupling ...	0.0001
C5	Reaction LW muter ...	0.0001
C6	V2 CG capacitor ...	0.0001
C7	V2 SG decoupling ...	0.1
C8	V1, V2 anodes decoupling ...	0.1
C9	V3 CG capacitor ...	0.0003
C10	RF by-pass capacitors ...	0.0005
C11		0.0005
C12	V3 cathode by-pass ...	0.1
C13	V3 anode decoupling ...	1.0
C14	V4 CG decoupling ...	1.0
C15	Tone control capacitor ...	0.0003
C16	Fixed tone corrector ...	0.004
C17*	HT smoothing capacitors ...	8.0
C18		1.0
C19	3.0	
C20	RF by-pass capacitors ...	0.05‡
C21		0.05‡
C22	0.001‡	
C23†	Aerial MW trimmer ...	—
C24†	Aerial circuit tuning ...	—
C25†	1st RF trans. MW trimmer ...	—
C26†	1st RF trans. LW trimmer ...	—
C27†	1st RF trans. tuning ...	—
C28†	2nd RF trans. MW trimmer ...	—
C29†	2nd RF trans. LW trimmer ...	—
C30†	2nd RF trans. tuning ...	—
C31†	Reaction control ...	—

* Electrolytic. † Variable. ‡ Pre-set. § Two in series: see "General Notes."

DISMANTLING THE SET

Removing Chassis.—Remove the detachable fibre bottom cover (four 2BA screws through rubber feet with metal cups), when access can be gained to all compartments beneath the chassis; remove the two control knobs (recessed grub screws); remove fixing ring from mains switch on side of cabinet, and push in the switch; lay the set face-down on bench and remove the four 4 BA screws (with washers), round the speaker, holding sub-baffle to the front of the cabinet; remove the six 4 BA screws holding the chassis to the bottom flanges of the cabinet, when the chassis, complete with speaker, may be lifted out.

GENERAL NOTES

Switches.—S1-S7 are the waveband switches, and S8 the pick-up switch, all ganged in a spring-leaf assembly mounted on the tuning gang on the chassis deck. The springy blades are fixed to the gang frame, their tops being wiped by the contact plates on the control spindle. Connections to the switches are made to the blades beneath the chassis, and directly to metal tips on the plates above it. The control spindle is operated by a cam disc on the gang spindle, a spring-loaded lever lying on the cam operating the control spindle as the gang is rotated. The gang can be rotated continuously, and as it passes through maximum and minimum capacitance positions, the switches change over from one band to the other. In doing this, they pass through the gram position, so that the entire waveband

and gram switching operation is carried out by turning the tuning control knob, which operates normally at positions other than minimum or maximum on the gang.

The switch assembly is indicated in our plan view of the chassis, but the switch numbers are shown only against the connecting tags of the spring blades beneath the chassis. S1-S4 and S6, S7 close on MW and open on LW; S5 closes on LW and opens on MW; S8 closes only in the gram position, midway between LW and MW or vice versa.

S9 is the QMB tone control switch, fitted to the front member of the chassis, and S10 is the QMB mains switch, fitted to the side of the cabinet.

Coils.—All the tuning coils are enclosed in three screening cans beneath the chassis. L13 is an RF choke fitted beneath the chassis between V3 and V4 holders. L16 is mounted in the power supply compartment on the chassis deck.

External Speaker.—Two sockets are provided at the rear of the chassis for a high impedance (about 8,000Ω) external speaker. A low impedance type (about 1Ω) could be connected to the speech coil tags, which are easily accessible.

Capacitors C17, C18, C19.—C18, C19 are two paper insulated types in a single container mounted on the mains transformer. Both are isolated from the container. C17 is a tubular wet electrolytic mounted in a clip in the front corner of the power compartment. It is rated at 450 V DC working max.

Capacitors C20, C21, C22.—These are all tubular types beneath the chassis near the mains switch, and each consists of two capacitors in series. C20, C21 consist of two 0.1 μF each, and C22 consists of two 0.002 μF capacitors.

Replacement Valves.—The original valves are now mostly out of date, and the following modern types are suitable for replacements: V1, V2, SP4 (5-pin); V4, PM24M; V5, DW4/350.

When changing over to PM24M, R14 and R15 should be changed to 18,000Ω and 82,000Ω respectively, using wartime standard values.

CIRCUIT ALIGNMENT

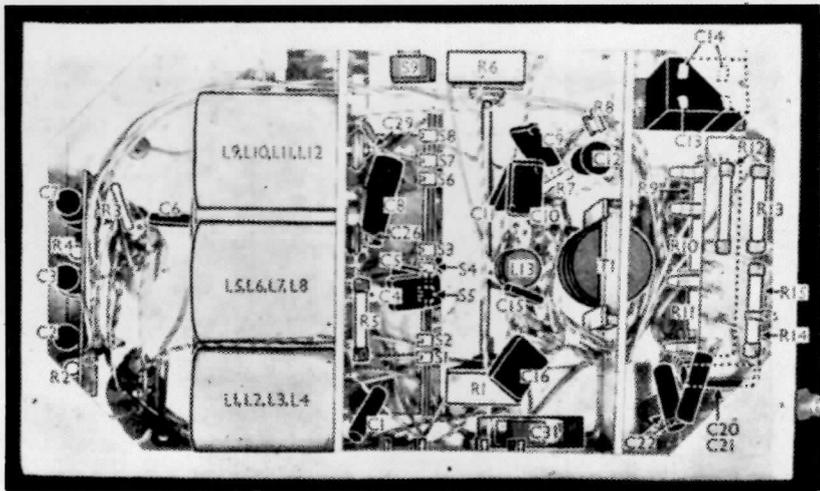
With the gang at maximum, the pointer should coincide with the division, at the LW ends, between the two scale plates. At this position, the receiver is switched to gram.

MW.—Connect signal generator leads to A and E sockets via a dummy aerial, tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust C25, C28 and C23 for maximum output. Turn the volume control to maximum, reducing input as required, and adjust C31 to a point short of oscillation. Check that oscillation occurs nowhere over the MW band, then return to 200 m and readjust C25 and C28.

Finally, check again for oscillation. **LW.**—Tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C26 and C29 for maximum output; then check that oscillation does not occur anywhere in the band with the gang at maximum.

If modern valves are fitted it may be necessary to disconnect C31 to secure stability with the volume control advanced.

OTHER COMPONENTS*		Approx. Values (ohms)
L1	Aerial coupling coils ...	3.0
L2		5.0
L3		4.5
L4	Aerial tuning coils ...	16.0
L5		5.5
L6	1st RF trans. pri. coils ...	8.5
L7	1st RF trans. sec. tuning coils ...	16.0
L8	2nd RF trans. pri. coils ...	5.5
L9		8.5
L10	2nd RF trans. sec. tuning coils ...	4.5
L11	RF filter choke ...	100.0
L12	Speaker speech coil ...	0.5
L13	Speaker field coil ...	2,000.0
L14	HT smoothing choke ...	500.0
L15	Intervalve trans. ...	650.0
L16		10,000.0
T1	Speaker input Pri., total trans. ...	800.0
T2	Sec. ...	0.1
T3	Pri., total Heater sec. ...	40.0
	Rect. heat ...	0.1
	HT sec., total ...	1,000.0
S1-S7	Waveband switches ...	—
S8	Pick-up switch ...	—
S9	Tone control switch ...	—
S10	Mains switch ...	—



Under-chassis view. Switch numbers are shown against the spring blade tags.

Printed in Great Britain by The Cornwall Press Ltd., Paris Garden, London, S.E.1

completely new set. As it had a proper wavechange switch as well as the local-distant switch it needed four knobs, so they were double decked to avoid any more holes in the cabinet. The price was the same as the TRF-

24 guineas; these were not cheap sets. It is a pity that no dial light was fitted to either model.

Circuit:

A separate oscillator was used, as they rightly

mistrusted single-valve screen grid frequency changers. This meant that there was no room for a rectifier valve, so they used one of the then common voltage-doubler metal rectifiers. The troublesome clever switching was

abandoned and the dial drive was re-designed to use two cords rather than the chain and sprockets of the RS3. (If you think Philips drives are nasty, try re-cording an SH25!). Advantage was taken of the re-design to improve the printing on the dial, and as there were now two pointers, one for each band, the LW one was made adjustable, which meant that it could actually be made to read correctly.

The output stage was also conventional. Ekco say 'The auxiliary grid of the pentode is fed direct from the main HT. This gives a stronger high note response compensating for the high note loss sustained in the earlier stages of the receiver.' Make what you like of this! It sounds a bit like the Stenode heresy.

Various well-intentioned frills appeared, such as an IF trap, a whistle filter, and an image suppressor. The first detector is just that, being operated as an anode bend detector (6 volts on the cathode). There is no AVC, but a local-distant switch is fitted, which damped the aerial coil. (In some versions of this set it damped the first IF transformer instead). The gramophone volume control also disappeared-presumably the radiogram version mounted it on the outside of the cabinet, as was the custom. The not very useful tone control was improved.

The Wireless World review of this set is not one of their best, as it is full of errors. The dial drive is no longer chain driven, and the first valve is not vari-mu, for a start. Also they state that a smoothing choke is used in addition to the speaker field; it isn't.

The speaker of the RS3 was rubber-mounted on the baffle which was made of

plywood, and then this was screwed to the chassis, but the baffle of the SH25 was made from a sort of insulation board, which is very soft and fluffy. It was not really up to the job of supporting the weight of the speaker. Perhaps they had trouble with microphony and tried to insulate the speaker from the chassis.

The RS3 used an early electrolytic capacitor (with a copper can!), but the SH25 had no electrolytics. Perhaps the copper oddity had proved unreliable.

Valves:

Both these sets have odd valve line-ups. They both have a PM24B as output, but the RS3 uses S4VA, S4VB, 354V, plus rectifier DW3. The SH25 has Cossor MSG/LA, 354V as oscillator, VM4V or MVSG, and another 354V as detector. This was before Ekco got fed up and decided to make their own valves. The difference between S4VB and VA is so slight one wonders why they bothered. Neither of them is vari-mu, in spite of the Trader sheet!

An improvement?:

In October 1935 the Wireless World published an article suggesting that the SH25 would benefit from AVC, and describing a way of doing this. The idea was to remove the capacitor from the anode of the detector to earth (this is .001 but they say .01) and replace it with two capacitors in series, a .001 from anode to another of .0003, which goes to cathode. Across this latter capacitor is a Westector, and this supplies AVC to the first two stages. This they claim gives amplified AVC. This is the same circuit as used by the Lissen Skyscraper Seven (Bulletin 22/1),

which also claimed amplified AVC, but I'm not too sure. In any case it is a horrible idea.

Why? In the first place the AVC diode is returned to cathode, so the AVC line will be positive with no signal. Then the mixer is, as we have discovered, run with high bias, and altering this will upset its detection. It's not even vari-mu.

Adding AVC is probably a good idea in principle, but nowadays it would be regarded as almost sacrilege!

In use:

Both these sets give a good account of themselves. The hum is low, and the tone quality as good as can be expected. The reaction on the TRF set is, as I have said, a pity. I think they didn't take sufficient trouble with isolating the three tuned circuits, which all share a common earth return from the switch. This means that the stage gain cannot be too high, as the set would be unstable. This is only a theory, but the long wave performance is so good without the reaction that MW should really be much better than it is. As the reaction is applied over two stages the volume control reduces it, which is helpful. It goes over the top with a gentle 'plop' at the high frequency end of the band.

The gimmicky bandswitch on the RS3 takes some getting used to. The wavelengths on the LW band go the wrong way, for a start.

What gives these sets their high value, though, is the styling. It may not be very good Art Deco, but it is unlike anything else! It would be interesting to find the original drawings for the cabinets that should have been used if it wasn't for the fire.

Storage Space

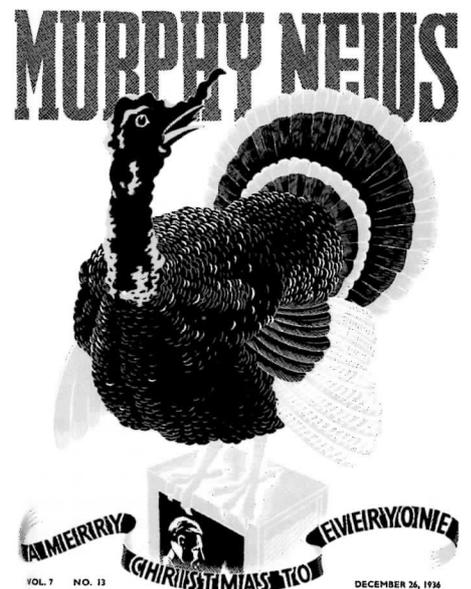
by Harold Page

My collection comprises well over 100 models. Storage on shelves at home plus another area loaned by a friend, and a Roberts in every room (yes every room!) causes my wife from time to time to react "why couldn't you have collected stamps, or even butterflies?" A few weeks ago I discovered from a model making friend a man who makes radios to the scale of 1:12 as you can see from the pair resting on my hand. So perhaps I can now have more models on display in a cabinet or shelves in my study, rather than being hidden away.

Being a woodyard specialist in making models of timber framed houses, complete with all the furnishings and contents and once a radio engineer, he has a particular interest and sympathy regarding radio receivers.

His collection in stock include the Pye MM and Ekco AD65, also a 1920's gramophone, G/RG 1932, HMV 521, Marconi 286, Marconi 42, Philips 63A, Pye K, Murphy TV 1939 plus pianos, refrigerators, office and domestic equipment, all to the same scale.

The two pictured are £12 each, as are the other table radios. Radiograms vary from £25 to £45. The person to contact is Doug Woodyard, Miniatures, 35 Madeira Road, Palmers Green, London N13 5SR. Telephone 0181 882 0654. Don't get too carried away, he might miniaturise your bank account as well!



Merry Christmas!

It's hard to believe how quickly the years go by sometimes, but it's always a pleasure to see Christmas around the corner. Illustrated above is the cover of *Murphy News* from 1936, where it was a case of more than just Christmas around the corner...

The turkey was used in the illustration because at the time, the great Frank Murphy was on holiday in the USA and reporting back regularly to *Murphy News*.

Merry Christmas everybody!

Jolly Good Fellows!

A review of the Fellows Magneto Company

by Pat Leggatt, photography by Mark Groep



Fig. 1



Fig. 2

I have always liked the wireless products of the Fellows Magneto Company of Park Royal in west London - well designed, pleasant-looking and typical of the 1920's - and I have managed to collect a fair number. The company is no longer in existence as far as I am aware, so in writing this review I have relied on the hardware that I have and various advertisements in old wireless magazines. I must surely be guilty of omissions and probably some errors, so if anyone knows better please write to the Editor and denounce me!

Headphones

As their title implies, the company were primarily in the magneto manufacturing business. Mr DVL Fellows of Ealing, the managing director, was evidently interested in wireless as an amateur, with the call sign listed in Harmsworth's Wireless Encyclopedia as 5CP, and the company diversified into wireless for some years in the 1920's. Their first products seem to have been headphones for which the earliest advertisement I have found comes from Popular Wireless of August 19th 1922, quoting a price of £1-10-0 and carrying their slogan "For they are jolly good - FELLOWS".

Crystal Sets

The headphone advertisement also invited contact with Fellows "For all radio apparatus and components", and in Popular Wireless of October 14th 1922 there was an advertisement for the 'Fellocryst Super Receiving Cabinet'. This is a crystal set (GPO No.177)

with coil tapping stud switch and variable condenser tuning; socket for loading coil; catwhisker detector and costing £4-7-6 including headphones, aerial wire and insulators. The same set was advertised in August 1923 by the British Central Electrical Co. as the 'Briticent Super Crystal Set' in kit form for home-assembly at £1-12-6, or assembled for £3-10-0 "including B.B.Co surcharge", the detector said to be silicon.

At about the same time in 1922 Fellows advertised the plain 'Fellocryst', a simpler crystal set without cabinet and with tuning only by coil slider. It had no provision for loading coils, but the tuning range was said to be 300-1500 metres. Again the detector was silicon, although it was stated that 'No batteries are required'. The price was £3-7-6 including headphones, aerial wire and insulators.

1922 Valve Receiver

In late 1922 appeared the 'Fellophone Two Valve Broadcasting Cabinet', said in Radio!

Radio! to be the first receiver produced by Fellows. The model I have is dated 23/11/22 in pencil at the bottom of the cabinet, but I wonder whether or not this set really came before the two crystal sets described above.

The set, GPO No.0136, comprises a leaky-grid detector and transformer-coupled LF stage, without reaction and with tuning by coil tapping stud switch and variable condenser: the transformer is marked as made by Fellows. The two valves, Cossor P1 and P2, are sunk through holes in the horizontal top panel. There is no provision for grid bias, other than the LF valve grid being returned to the 6 volt LT-line.

The receiver appears in a March 1923 advertisement in Modern Wireless at £13-10-0 including batteries, headphones, aerial wire and royalties, a substantial sum equivalent to perhaps £650 today. It appears also in the Briticent catalogue mentioned above as the 'Briticent 2 Valve Set'.



Fig. 1: Fellocryst Super Receiving Cabinet

Fig. 2: 1925 Little Giant Two

Fig. 3: Super Two and amplifier

Fig. 4: Pelmerset Three Valve (Fellophone Super Three), sold through hire-purchase co. (Peronet Ltd.)

Fig. 5: 1926 Little Giant Two

Fig. 3

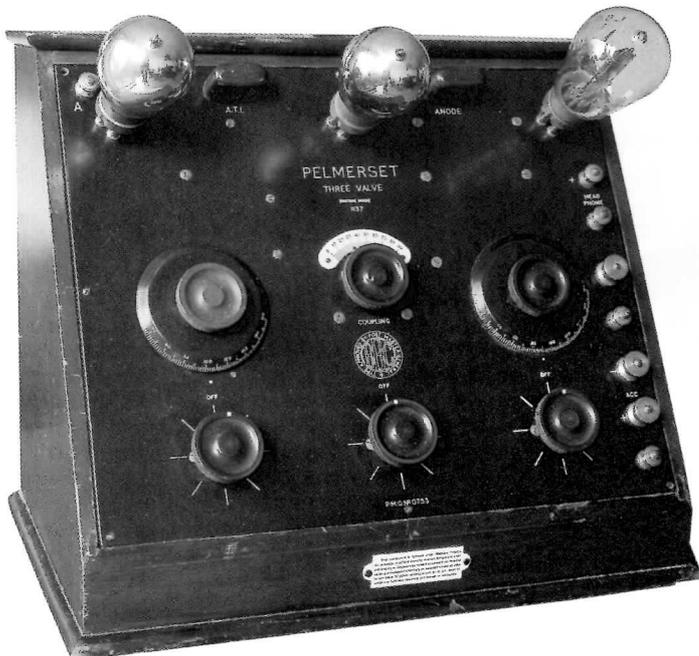


Fig. 4



Fig. 5

1923 LF Amplifier

In early 1923 Fellows brought out a matching amplifier (GPO No.3026) to enable loudspeaker operation with the above receiver. This is a 2-valve job with a transformer input and transformer coupling to the output valve. Provision is made for grid bias. This unit also appears in the Briticent catalogue of August 1923.

Fellophone 'Super' Receivers

A little later in 1923 came the Fellophone Super One, Two, Three, Four and Five receivers. The Super One was a single-valve set with reaction; while the Super Two and all the others had an HF and detector configuration, with up to three LF stages according to the model.

The Super Two (GPO No.2126) comprises a tuned-grid/tuned-anode HF stage with stability controlled by filament rheostat. Reaction from the leaky-grid detector is fed back to the HF stage anode circuit. Links are provided for

insertion of loading coils in both input tuned circuit and that in the HF stage anode.

The LF stage in the Super Three is transformer-coupled, with some RC coupling in the Super Four and Five, and grid bias as appropriate.

The Super One had a cabinet with vertical panel, while the Super Two and Three have sloping panels. The Super Four and Five cabinets were more elaborate with folding doors, and some very up-market versions were entitled 'Grand'.

The Super Two was also marketed by British Engineering Products Ltd as the Tonyphone. Furthermore the Super Three (and some other 'Super' models) was marketed by Messrs. Peronet as the 'Pelmerset Three Valve' with same GPO No.0753: the Pelmerset version is in fact the model I have.

Fellophone 'Super' Amplifiers

Fellows produced a series of LF amplifiers matching the size and style of the Super One,

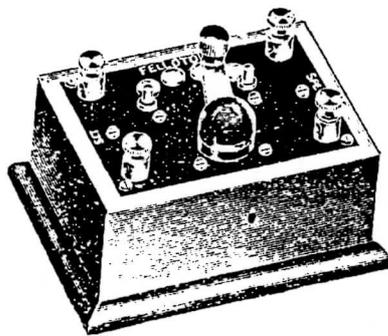
Two and Three receivers. The One Valve Amplifier matched the Super One receiver, while the Super Two and Super Three amplifiers were both 2-valve with different cabinet and panel styling. All amplifiers had transformer input, with transformer interstage coupling for the Two and Three, but no provision for grid bias other than the 6 volt LT-supply.

Rather surprisingly the Super Two amplifier has the same GPO No.3026 as the earlier amplifier matching the Two Valve Broadcasting Cabinet: the number is clearly engraved on both panels, so there is no mistake. Admittedly the circuitry is very similar, apart from the Super Two amplifier having switching to cut out the second stage when required.

Portable Receiver

In late-1923 Fellows took advantage of the new Marconi-Osram DE3 valves (2.8 volt filament at 0.06 amp) to bring out the

Fig. 6: Fellotone unit and box



THE "FELLOPHONE" LOUD SPEAKER FILTER.

For improving the tone of high resistance Loud Speakers.

Made up of a series of fixed condensers and controlled by a switch inserted in leads to Loud Speaker. Softens any harshness, thus improving the tonal quality.

No. R1.50/1 each 15/-

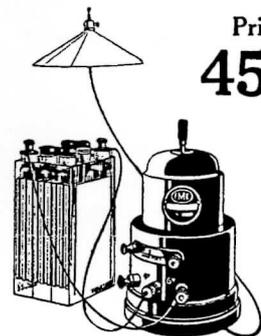
Fig. 7: Fellows AC Rectifier seen with and without cover



FELLOWS WIRELESS

A.C. only

Price 45/-



CHARGE YOUR ACCUMULATOR AT HOME.

If you have A.C. send at once for a Fellows Rectifier and charge your accumulator at home under your own supervision.

You need only have one battery, because it can be on charge when your set is not in use.

The Fellows Rectifier is completely RELIABLE, SIMPLE and SAFE. It operates on the rotating commutator principle, and there are no costly valves to renew, no contact points to burn and stick, no chemicals, no mess, and no trouble.

Simply plug-in to a lamp holder, switch on, spin the armature into phase, connect your 4 or 6 volt accumulator and leave it.

The charging rate (3 amps. normal) falls off as the accumulator voltage rises, thus giving an ideal charging curve and preventing over-charging.

The Rectifier is extremely economical and will pay for itself in a very short while—a 10 hours' charge for a 6 V. 30 actual with lighting at 5d. will cost about ONE PENNY.

Get this Charger on 7 days' trial against cash. Money returned in full if you are not more than satisfied.

Please state carefully voltage and frequency of your mains and mention "Wireless World" when writing.

FELLOWS, PARK ROYAL, N.W.10

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 BIRMINGHAM: 248, Corporation Street (Central 435).
 BRIGHTON: 31, Queens Road (Brighton 899).
 BRISTOL: 36, Narrow Wine Street (Bristol 7972).
 CARDIFF: Dominions Arcade, Queen St. (Cardiff 7685).
 LEEDS: 65, Park Lane (Leeds 21479).
 MANCHESTER: 33, John Dalton Street (Central 1164).
 NEWCASTLE: 36, Grey Street (City 980).
 NOTTINGHAM: 30, Bridlemob Cuts (Nottingham 5551).
 TONBRIDGE: 34, Quarry Hill (Tonbridge 172).

BUY DIRECT AND SAVE MONEY

E.P.S.267

Fellophone Portable Three, a 3-valve receiver with frame aerial using circuitry similar to the Super Three and having the same GPO No.0753. Compartments were provided in the case for headphones, and for HT and LT dry batteries. The set cost £14-0-0 excluding "Marconi tax, B.B.C tax and 3 valves".

Loudspeakers

Fellows produced two horn loudspeakers in 1924, the 'Junior' at £1-10-0 and the 'Volutone' at £4-10-0. The drive units of these two were available separately at much

reduced prices for use with gramophone horns, with special ferrules for attachment to the tone arms.

In the same year they made the 'Fellotone' tone control unit, a small box with ebonite panel for switching various condensers across loudspeaker terminals.

Fellophone 'Little Giants' 1924 model

In 1924 the Fellophone Little Giant appeared, a 2-valve receiver with a slightly sloping panel, exposed valves and Rexine-covered box, just

early enough to acquire GPO No.3482. This has a leaky-grid detector with swinging-coil reaction control, a folding book-type tuning condenser and socket for loading coil: the loading coil itself is made by Fellows. The detector is transformer-coupled to the output stage. The set is illustrated on Page 56 of the Brown Bros. catalogue.

I have the user's operating manual to go with this set, and it mentions that there were also 3 and 4-valve Little Giants with additional LF stages.



Fig. 8

Fig. 8: Two valve broadcasting cabinet seen with early 1923 amplifier.

Fig. 9: Portable Three, similar circuit to Super-Three but dull emitter valves lit by dry cells (1923).



American Broadcasting

received with a standard
Fellophone Super 2.

Extract from letter.

*Long Melford,
Suffolk, September 22, 1923.*

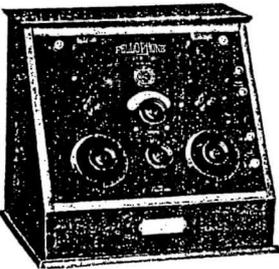
"This morning from 1 a.m. I received the whole programme transmitted from W.G.V. General Electric Co., New York, with the addition of your 2-Valve amplifier. One or two of the items were coming through so loudly that I removed the amplifier, and received one or two songs, etc., on the 2-Valve Fellophone only, one song item transmitted. "Asleep in the Deep" being perfectly audible. I have received American telephony on several occasions, and can always get them when I get up for the purpose, so that it is not a freak of reception."

(Signed) ALFRED WOOD

The original of this letter may be seen at

FELLOWS

Advt. The Fellows Magneto Co., Ltd.



The Fellophone "Super 2."

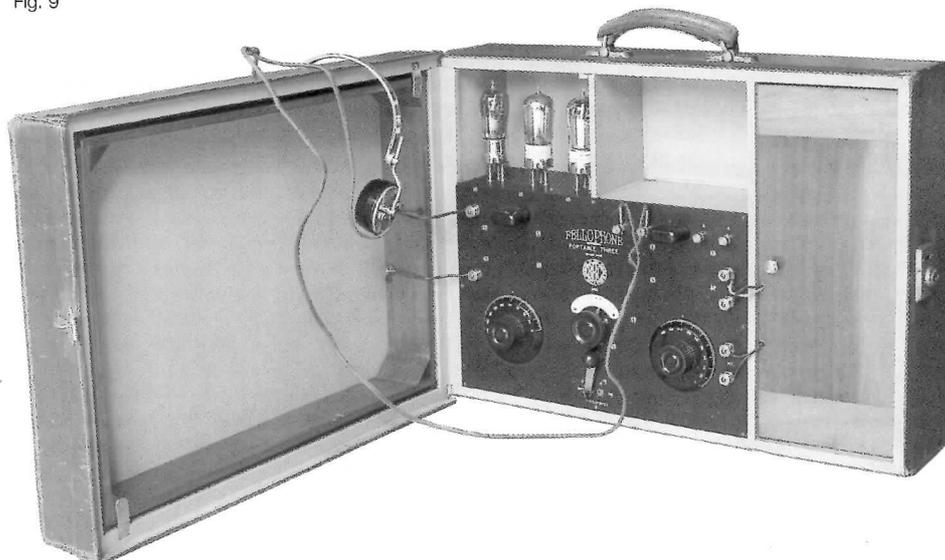
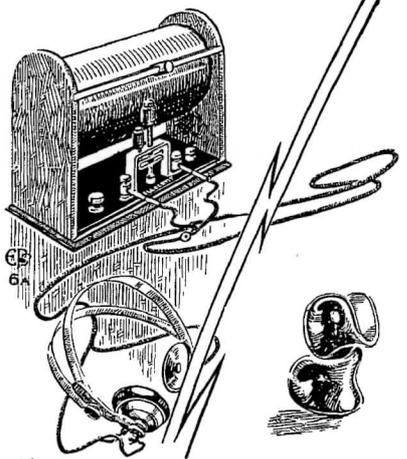
Complete with H.T. Battery, Accumulator, 100 ft. 7/22 stranded copper aerial, 2 insulators, 1 pair "Light weight" Headphones.
Valves, B.D.C. and Marconi Tax Extra.

Price £9.0.0

The "Super 2" Amplifier, specially designed for Loud Speaker Work with this set.
Valves, B.D.C. and Marconi Tax Extra.

Price £5.10.0

Fig. 9

The FELLOCRYST

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

The adjustments are simple and easily made, and the silicon crystal detector well maintains its sensitive state.

No batteries are required.

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

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

The "FELLOCRYST" is British Made throughout.

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

Extra 4,000 ohms double headphones 21/-
(Postage 1/-)

FELLOWS MAGNETO Co., Ltd.
LONDON, N.W.10.

Telephone: WILLESDEN 1560-1. Telegrams: "QUIKMAG." PHONE, LONDON

For they are jolly good Fellows

Fig. 10: Little Giant Four



Fig. 9: Fellotone box

1926 model

Later designs of Little Giant appeared in 1926, with anode bend detector, conventional tuning condenser, variable condenser reaction control of which one 'plate' of the condenser is the metal front panel, and RC coupling to the LF stages. Interchangeable 5-pin plug-in coils are used for the broadcast and long-wave bands, so no loading coil links are needed. These sets have vertical panels in a Rexine-covered cabinet with lifting lid. I have the 2-valve model 'Little Giant Two', but there was also a 'Little Giant Three' as well described by Basil van der Syde in Bulletin 5/2.

Louden Valves

For a couple of years from 1924, Fellows made valves under the name of Louden: Mr Louden was a glass technologist in nearby Southall. They offered three 5 volt/0.4 amp bright emitters in 1924, coded F1 (Plain) for detector/LF, F2 (Blue) for HF, & F3 for detector.

Later they produced three similar types with 0.1 amp dull emitter filaments, FER1 for detector/LF, FER2 for HF, and FER3 for detector, together with PER1 and PER2 (0.2 amp filaments) for power output and R/C coupling respectively: all of these could be had with either 4 volt or 6 volt filaments. The

operating instructions for the earlier Little Giant, mentioned above, specify FER3 and FER1 valves.

To avoid infringing Marconi valve patents, Louden valves were made with spiral wire anodes in place of conventional cylinders. It is entertaining to read Fellows' presentation of this as a technical improvement rather than a dodge round the patent. In a *Wireless World* advertisement of September 1924 they tell the dramatic story of how they eliminated background 'mush':-

"It was found that 'mush' was due to

a: Deluxe cabinet version of Super Five (c.1924). b: Fellocryst: 1922/3. c: Louden Bright Emitter with spiral anode. d: Series connector for up to 4 pairs of headphones.

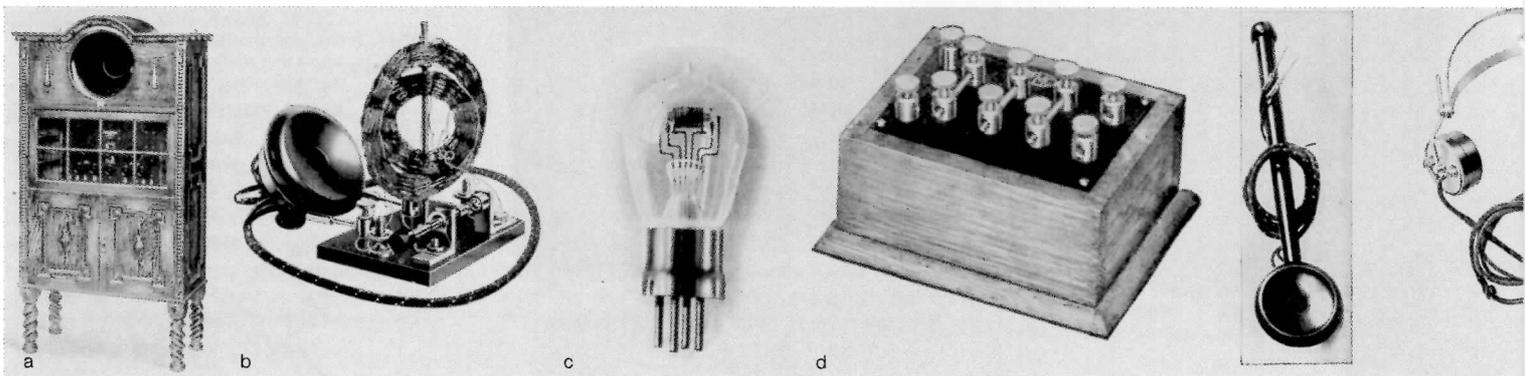
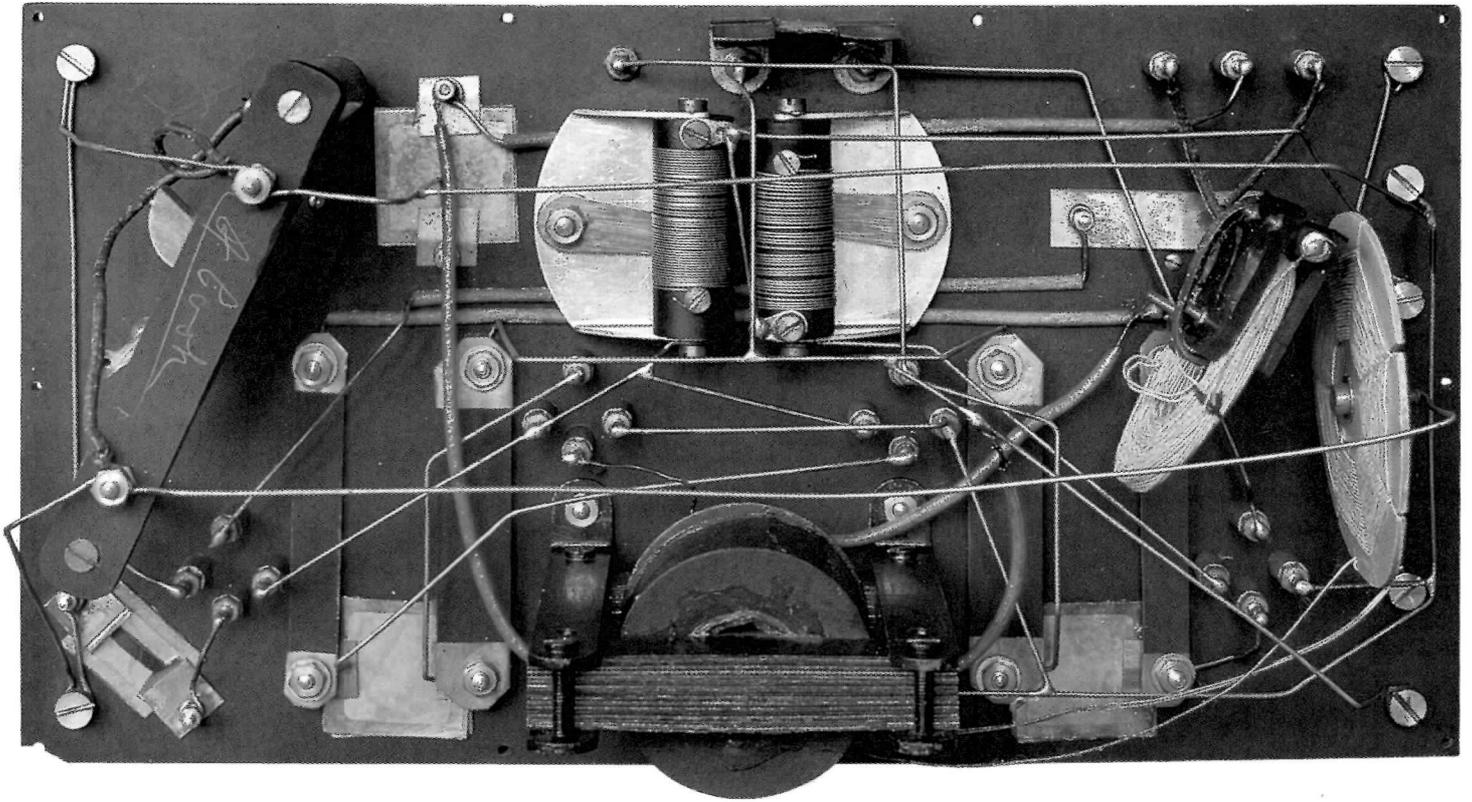


Fig. 11: Underside of Little Giant Four panel showing Fellows' practice of building up small components in situ and (far left) the operating cam of their distinctive 'book' style tuning capacitor.



objectionable charges of electricity congregating near the anode and interfering with the electron stream.

All sorts of experiments were tried. Some increased the volume but at the expense of purity; others were free from distortion but still had 'mush', and so on; and we seemed as far off as ever from our ideal valve, giving ample volume, no distortion and no 'mush'.

Then suddenly came the obvious solution. We simply made a way of escape for these objectionable charges - we made the anode like a spiral and immediately we got silver clear reproduction with plenty of volume."

The Last Wireless Product from Fellows

It seems that Fellows' wireless products faded from sight towards the end of 1926. The Wireless World Buyer's Guide of February 1926 included some Fellows sets, but none appeared in the November Guide later that year.

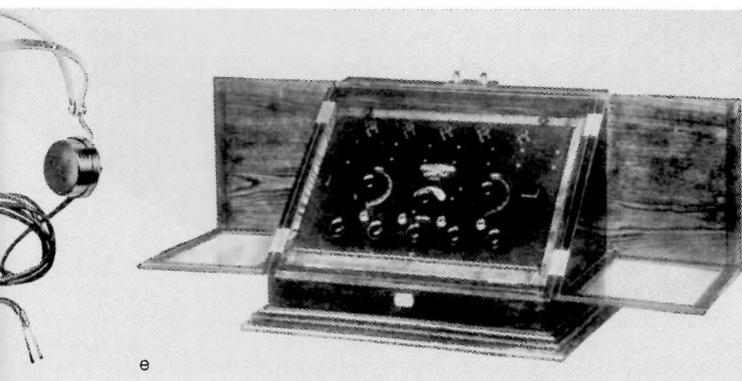
The only Fellows item I have found after 1926 is the Fellows Wireless AC Rectifier advertised in Wireless World of January 5th 1927. This was for charging accumulators and consisted of a synchronous motor driving a commutator cutting off every other half-cycle of the alternating supply from an integral

transformer, thus producing pulsating DC suitable for charging. The extended motor shaft at the top had to be spun initially with the fingers to get it up to synchronous speed.

This device, although wireless-related, represented a reversion to Fellows' original business in small rotary machines; and perhaps they happily concentrated on this area from then on.

Acknowledgements: I am grateful to Ian Higginbottom and David Read for advice and provision of additional items for illustration.

e: Standard version of Super Five (c.1924)



Louden

"Five knacks for ladies"

10/-

FELLOWS WIRELESS

Louden Valves - Silver Clear

For they are jolly good - **FELLOWS**

FELLOWS HEAD TELEPHONES, 4,000 ohms.

Two earpieces in light die cast non-ringing metal.

PRICE - 2/- per pair.

DELIVERIES - Immediate against cash with order.

MANUFACTURE. The same high grade workmanship as the Fellows Magneto.

SEND YOUR ORDER TODAY.

(Cheques, P.O. O.D. or R.D. to be crossed London, City and Midland Bank, Ltd.)

FELLOWS MAGNETO Co. Ltd.

LONDON, N.W.11.

Telephone - 4711 (lines 1200-1)

Telegrams - F. Phon. London.

For all radio apparatus and components.

And so say all of us

BROADCASTING

The FELLOCRYST SUPER

THIS is a high grade, powerful, sensitive, and reliable receiver, built by the same high grade workmanship as the Fellows Magneto.

SEND YOUR ORDER TODAY.

(Cheques, P.O. O.D. or R.D. to be crossed London, City and Midland Bank, Ltd.)

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LONDON, N.W.11.

Telephone - 4711 (lines 1200-1)

Telegrams - F. Phon. London.

For all radio apparatus and components.

For they are jolly good - Fellows

Fig. 11



Fig. 12



Fig. 15



Fig. 14





Fig. 11: Little Giant Three, c.1925/6. This seems to be one of Fellows' last wireless products.

Fig. 12: Pelmerset version of Super Two and 2-valve audio amplifier, sold by hire-purchase through a finance Co.

Fig. 13: 2 valve broadcasting cabinet.

Fig. 14: Fellocryst 'Receiving Cabinet' 1922

Fig. 15: Fellows 1 valve receiver (1923).

Fig. 16: Little Giant Two (1924) with long-wave coil.



Fig. 13



Fig. 16



The 'Mystery Object' unmasked

by David Read

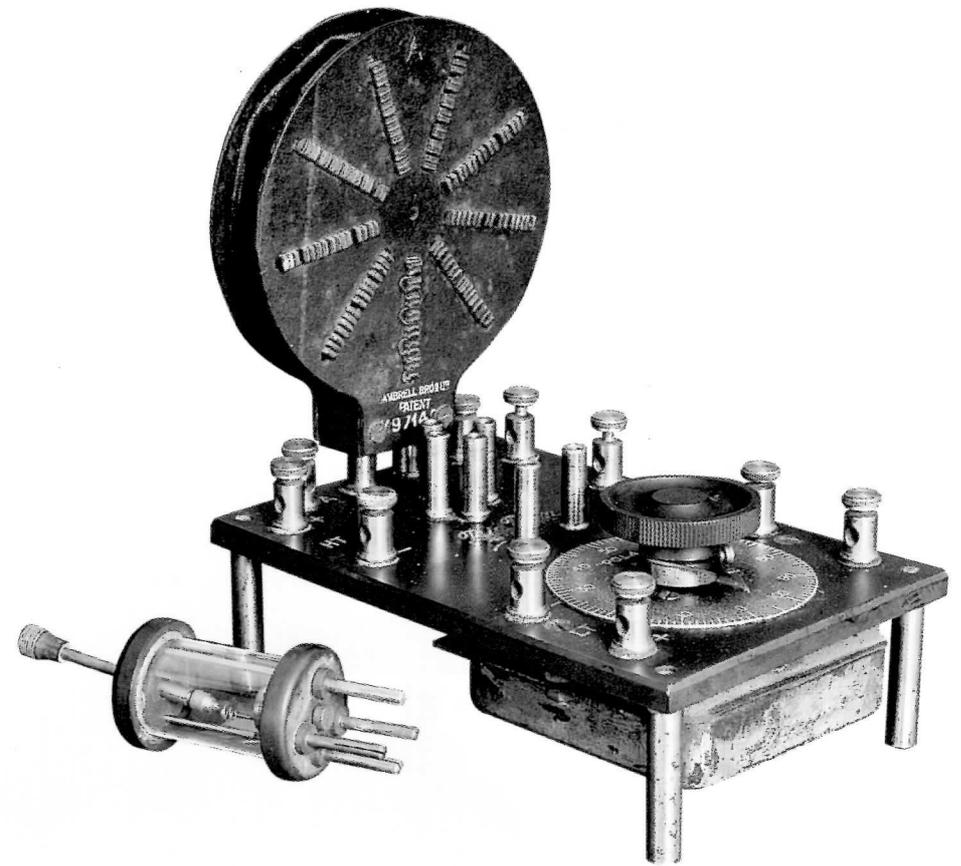
The mystery object (now shown again) has the trade mark Big Ben engraved on the panel and also on the top of the plug-in crystal detector. When this interesting object first surfaced it was thought possible because of its name to be a time signal receiver; and because of my known interest in this subject (see the article on the Tempus and Horophone in Bulletin Vol. 21 number 2) I was approached to see if I would like to acquire it. Although I did not think it was time signal related, I did buy it because it was an original and early object with some very strange - and indeed initially inexplicable - features.

The puzzle may be summarised as follows:

- 1 The crystal detector has four legs in 'triode valve' layout, and was indeed plugged into the valve socket when found. However, the crystal connection is made between grid and anode of the valve holder and has no chance of working in the panel as wired.
- 2 All four legs of the valve holder are wired, yet if a valve is plugged in, the connections again make no sense and the panel cannot be used as a one valve receiver.
- 3 At this stage I approached three BVWS members expert in early receivers and with a wealth of professional technical experience behind them. Some ingenious conjectures were thus added to my own, including the suggestion that the panel had been incorrectly wired by the manufacturer. Clearly we had a mystery object on our hands, so it went into the bulletin, for surely among 1200 members someone must have seen this thing before.

This resulted in some further constructive conjecture including a good effort complete with circuit diagram from Mr. E. Heaton-Jones which would have worked as a crystal or valve receiver had the wiring actually under the panel agreed with his solution.

For anyone with curiosity to spare, a visit to the Patent Office is a potentially rewarding experience, and as the panel has 'Pat. Applied For' engraved under the trade mark, I decided to visit Southampton Buildings near Chancery Lane where the Patent Office and Science Reference Library are located. So how to start? The world of patents is generally searched by numbers and names of patentees, but I had neither. As one might

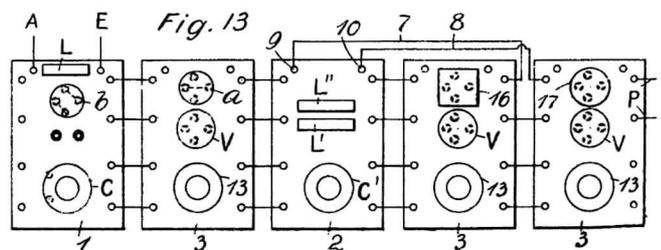
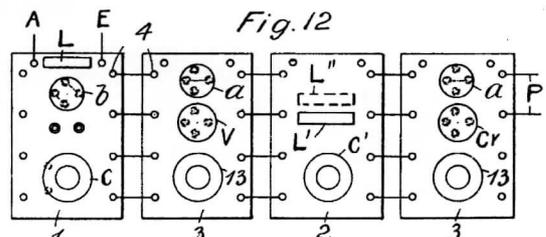
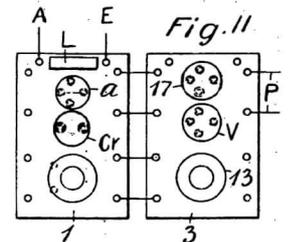
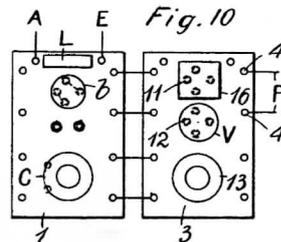
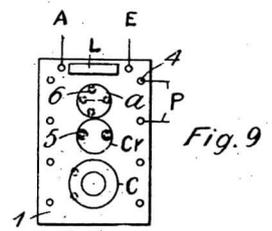
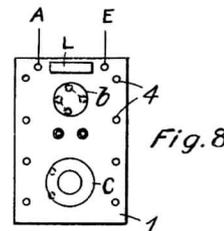
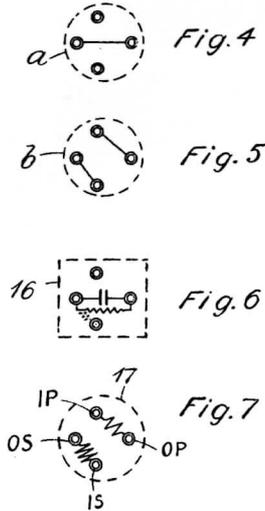
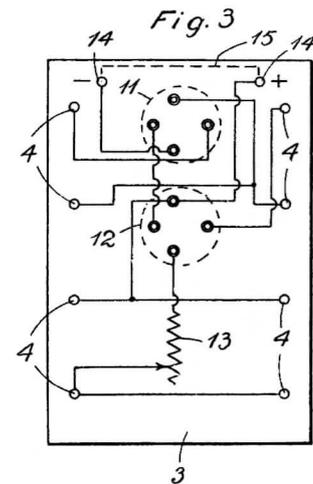
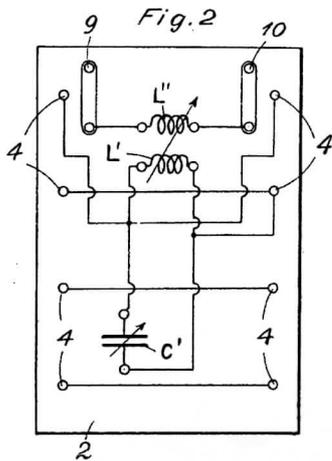
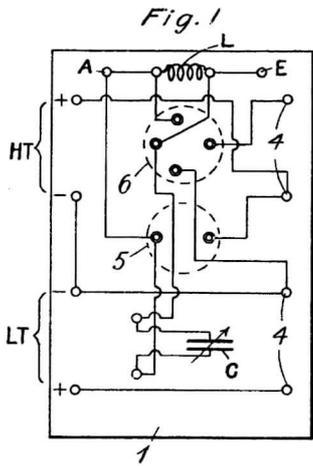


expect, *Big Ben* being a trade mark rather than a name drew a blank; so it was going to be a laborious search on the basis of looking through likely years for a patent which might not even have been granted. It looked like a 1922 or 1923 sort of object, and I also reckoned that the panel was part of something bigger and would only make sense in association with other panels - a variation on the unit construction theme also made by Marconi Scientific, The Radio Communication Co. (Polar Blok system), and Metro-Vic. (Cosmos Radio Brix system).

Patents can also be searched by subject,

and as far as Wireless is concerned there are three major sub divisions: Class 40 (V) Wireless Signalling &c, Class 37 Coils and Inductances, and Class 40 (IV) Telephone Instruments. These classes are further divided into many subject areas or sub-classes.

I started in 1922 with 40 (V) and chose the sub-class 'Improvements relating to wireless receivers', on the basis that if *Big Ben* was indeed part of a system, then this sub-class might hold the patent. Perhaps an hour later I had reached August 1923 and patent 220161, when the picture shown below jumped out at me. Fig. 1 was instantly recognisable as the



PATENT SPECIFICATION



Application Date: Aug. 2, 1923. No. 19,821/23. **220,161**
 Complete Left: May 2, 1924.
 Complete Accepted: Aug. 14, 1924.

PROVISIONAL SPECIFICATION.

Improvements relating to Wireless Receivers.

We, STOCKALL, MARPLES AND COMPANY (1912) LIMITED, a British company, and JAMES JOHN STOCKALL, a British subject, both of 6, 8 and 10, Clerkenwell Road, London, E.C. 1, do hereby declare the nature of this invention to be as follows:—
 This invention relates to a wireless receiving set of the kind built up of interchangeable panels, and consists in the provision of a horizontal panel carrying two connectors and an adjustable resistance and having terminals allowing any desired number of panels to be readily connected in juxtaposition as units of a complete set. The connectors may consist of sockets adapted to receive four-pin plugs, one of the connectors being reserved for a valve and the other for such parts as transformers, amplifiers, tuned anodes or the like, which can be

interchanged at will so as to produce any desired effect.
 The set has a foundation panel which may be fitted up as a crystal set and used by itself, and to this the other panels are added as required for amplifying the sound or for receiving from various distances.
 A very cheap, serviceable and easily controllable set will be obtained in this manner. A set can be started with the foundation panel and gradually developed to any desired extent, without discarding previously acquired parts, by the addition of fresh panels which can be modified for various purposes.
 Dated this 2nd day of August, 1923.
 HANS & DANIELSSON,
 321, St. John Street, London, E.C. 1, 40
 Registered Patent Agents.

COMPLETE SPECIFICATION.

Improvements relating to Wireless Receivers.

We, STOCKALL, MARPLES AND COMPANY (1912) LIMITED, a British company, and JAMES JOHN STOCKALL, a British subject, both of 6, 8 and 10, Clerkenwell Road, London, E.C. 1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—
 This invention relates to a wireless receiving set of the kind built up of interchangeable panels, and consists in the provision of a panel having two connectors and an adjustable filament resistance and being wired so that any number of such panels can, by a mere interchange of plug-in units, be adapted for addition to a foundation panel, so as to produce

receiving sets of different nature and amplification power, the foundation panel being adapted to be used by itself as a crystal set and fitted with all the battery wires necessary for the addition of valves. For tuned anode amplification and for reaction, a separate amplification panel may be added in which case most combinations of straight circuits can be produced by a mere interchange of parts and without interfering with the wiring of the panels.
 The arrangement has the particular advantage that a set can be started with a foundation panel and gradually developed in any desired manner and to any required extent, without discarding previously acquired parts, by the addition

[Price 1/-]

Mystery Object and proved to be the foundation panel for a unit construction system patented and manufactured by Stockall, Marples and Company of 6 - 10 Clerkenwell Road, London, E.C.1.

The abridgement to the specification reads 'The invention consists in a (foundation) panel, which may be employed as a tuning unit or as a complete crystal receiver, and one or more additional panels, fitted with filament rheostats and connector sockets into which interchangeable plugs may be placed for making appropriate connections.' The complete specification is too lengthy to be included here but essentially covered the possibility of arranging panels to make any sort of receiver of the sort found in 1923, i.e. crystal set; crystal set with HF stage and amplifier; valve set as HF-Detector; and so on. As explained in the specification it has the advantage of enabling a dealer to fit up immediately and without having to stock more than three kinds of panels together with the necessary plug-in accessories, any kind of receiving set he may be asked to supply.

So the mystery was solved. The 'valve' holder (on the foundation panel) was not for holding a valve or the four legged crystal detector but a variety of connectors as shown in Figs 4, 5, 6, and 7, which controlled the use intended for the foundation panel in conjunction with two other panels if desired. For example, the arrangement shown in Fig.12 is for a tuned anode circuit with high frequency amplification and crystal detection. For this receiver, one of panel 1, one of panel 2, and two of panel 3 are used. However, when panel 1 was to be used on its own as a simple crystal set, the detector was to be plugged into the two pin socket (annotation 5 in Fig. 1) and this is what I had acquired. As it was found complete as a crystal receiver, perhaps that's all the original buyer purchased, intending to add to it later as funds allowed.

Losing Our Marbles At Elgin?

The Antique Radio Club of Illinois' 16th Annual Radiofest, Elgin, August 1997. by Jonathan Hill

At the beginning of August this year, I, along with fellow BVWS members John Howes and Phil Taylor, flew off from Heathrow for a two-week break in America. While we planned to include a sightseeing tour of the north eastern states around Lake Michigan, our primary purpose was to sample the Antique Radio Club of Illinois' 5-day Radiofest—a giant radio swap meeting held at the Holiday Inn at Elgin, Illinois, a quiet but friendly little town an hour's drive west from Chicago.

Having been a veteran of countless one-day Harpendens over the years, my main worry was whether we would be able to sustain such a marathon event without recourse to psychiatric help. One day of

glaze' which Americans put on the same plate as the bacon etc!), John, Phil and I ventured out into the strong morning sun at around 8.30am and dived into the bustling flea market already crowded with around 500 visitors.

I had come to America with a list of pocket transistors I wanted for my collection and I was immediately overwhelmed at the sheer number of tables with just these types of sets for sale. There must have been over twenty transistor dealers and collectors selling on that first day, something we have yet to see in England. I quickly found a 1961 Hitachi TH660 for \$25 [£15], a 1960 Toshiba 6TP-354 for \$60 [£36.50], and a 1960 Sony TR620 for \$50 [£30.50], all those companies first exports to the UK, (rare in England, but fairly common in

reach the ludicrous asking price of over a thousand pounds is yet to be discovered.

Each of us found something at the flea-market of interest; me sifting through transistors, John looking at Scotts and McMurdos and Phil sorting through valves, or "tube-picking" as he liked to call it. In the hotel a succession of interesting talks and displays was arranged all designed to keep our interest from waning. Included too during the week were illustrated lectures on Philco and Zenith, a display of RCA radios and tvs, a giant auction, equipment contests, a banquet, plus a visit to surely one of the best collections of early wireless ever assembled—the Muchow Collection at Elgin. Started in 1967 by dentist Dr. Ralph Muchow (see illustration), the museum boasts over 3,500 working sets mostly from before the 1930s and is beautifully laid out in rooms occupying 3 floors of Dr. Muchow's dental practice. Unusually, his own family expresses an involved interest in the



wireless activities I could cope with, but how would we feel after nearly a week? However, a glance at the Radiofest's plan showed a promising and interesting program of activities going on each day within the hotel, and, of course, there was the giant open-air flea market to look forward to. This was laid out in the parking lot which encircled the hotel in wagon-train fashion, with an overspill in an adjacent dusty field belonging to the local oil company. Unlike in England, it is much easier to predict fine weather in the US, and the guaranteed sunshine coupled with unseasonably 'cool' temperatures (in the early 80s) made strolling around the market a very pleasant and bearable experience.

Although scheduled to begin on Wednesday August 6th, such is the human nature of radio collectors that several people in assorted trucks and mobile homes bearing number plates from as far away as California, Texas and Alaska, had already rolled up and unloaded the day before—the first wave among nearly 300 stallholders to eventually arrive. So on the first official day, having fortified ourselves in the hotel's breakfast bar with tea* and a plate of bacon, eggs, and hash browns (leaving out pancakes and 'strawberry

the States). I also found Sony's first pocket transistor radio and their first significant export, the 1957 TR63 which set me back \$500 [£303]—see the cover of this Bulletin. Within about 30 minutes therefore, I had made a significant contribution to my collection!

Looking around to get an overall picture of what people had brought along to sell, it was evident that apart from transistors, there was an abundance of good quality early 1920s battery valve receivers and horn loudspeakers and a great many 1930s mains receivers, from 'tombstones' to Catalins. There were also large and impressive pre-war floor-standing consoles from manufacturers such as Zenith, Scott and McMurdo, and bizarre creations including a double bed radio (see illustration). In evidence too was a surprising number of English-made receivers including a Marconiphone Crystal 'A' at \$2,700 [£1,640], one of those circular early 1960s Decca kitchen radios at \$250 [£150], and a pink Emerson Model 888 transistor radio at an astonishing \$2,000 [£1,200]. This actual model was bought at Harpenden less than two years ago for just £10, and subsequently found its way over to the States when swapped for a Regency TR-1. What route it then took to

collection and around ten of them including his wife, sons, and grandchildren were on hand to guide us around and point things out.

We met many other generous and interesting people too during our visit and Antique Radio Classified had even lined up a "Meet the Brits." reception for us on the first day, so the three of us could explain and talk about the radio collecting scene in the UK. Contacts we made at Elgin produced some unexpected treats—on our last evening at the Radiofest, John went out to dinner with a former Scott employee who had designed radios for them in the 1930s, and Phil and I were taken for an 'exciting' ride in a battered old convertible through Chicago to see and handle the unique valve collection assembled by Gerald Tyne, now in private (and safe) hands (I asked to see a De Forest Audion and was shown 34 different examples!). All in all, an incredible and most memorable visit and highly recommended.

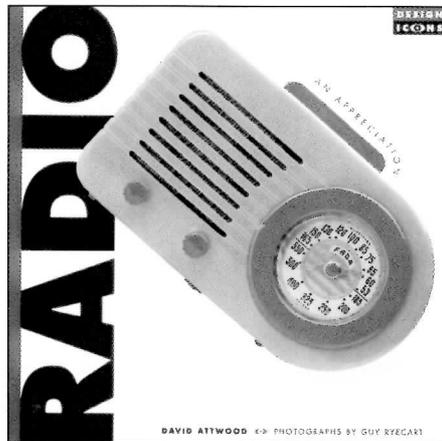
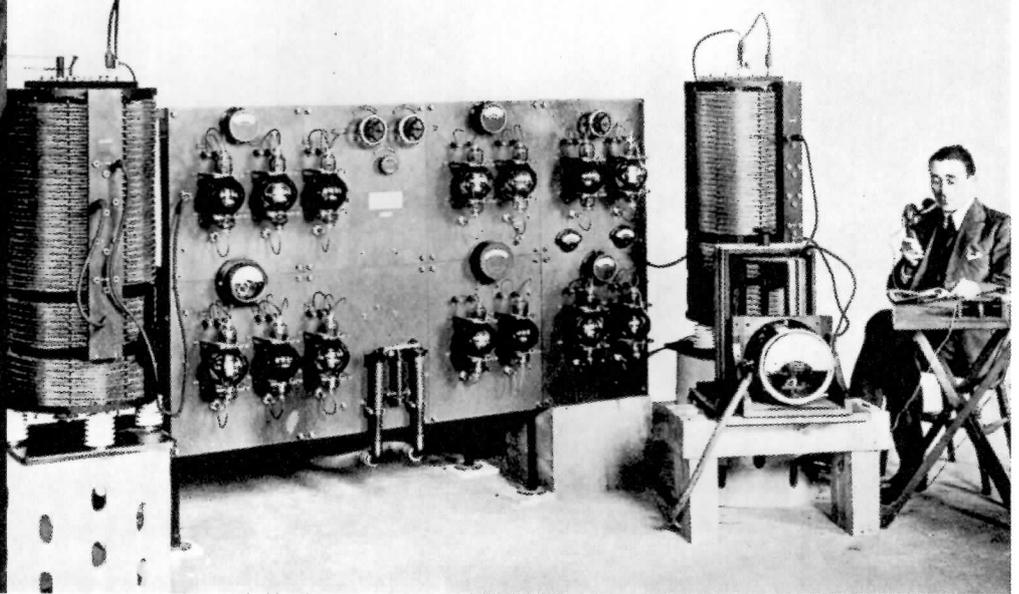
* Here is a valuable tip if you want a good cup of tea in America. If you simply order "tea", then you will get a glass of horrid iced tea. Specify "hot tea with two teabags", although also ask for "a jug of cold milk"? otherwise you will get a plastic pot of non-dairy cream. It took us two weeks of trying before we eventually worked out the correct combination of words.



These pictures come from the book 'The story of 25 eventful years in pictures, published in 1935. The book is a fascinating journey through the major events which shaped the world and, more specifically Great Britain from 1910 to 1925.

The top picture, taken in Chelmsford in 1920 is of a 'news bulletin' being read from an evening newspaper, whilst sitting next to an impressive transmitter. The picture on the right is of a boy tuning in to '2LO'. The picture below is of two artistes performing a duet at Savoy Hill for the celebrations of the first anniversary of 2LO.

book kindly lent by Pam and Andrew Zimmer



Radio - an appreciation

It's been a while since a new book on wireless has reached the high street bookshop but this is one them. It is written by BVWS member David Attwood, who graduated with an M.Phil from the Royal College of Art, for his thesis examining the influences of technological modernity and socio-cultural change on the post-war British radio set.

This book, however, follows a much simpler brief, mainly that of how designers have tackled the appearance of our friend the radio through the ages. The overall appearance of the book is clean and uncluttered, allowing the radios to shine through. The book deals

chronologically with the radios, starting at 1922, and finishing in 1996, though mainly dealing with 30's, 40's and 50's sets.

Costing a mere £5.99 this book won't make a major difference to the state of one's wallet, but will make a welcome addition to the bookshelf. The photography is second to none and really does the radios justice. 'Radio - an appreciation' is the type of book that will probably increase the numbers of wireless enthusiasts and collectors in the country due to its high content of attractive and collectable radios. A fine, small book.

Radio - an appreciation by David Attwood
£5.99 from most bookshops
ISBN 1-85410-528-0

Gordon's Royal Reception

On Friday the 24th October the BBC gave a press launch for its 'BBC Experience' (see Autumn issue). BVWS Honorary member Gordon Bussey, who was instrumental in the setting up of the Marconi collection was present at the festivities.

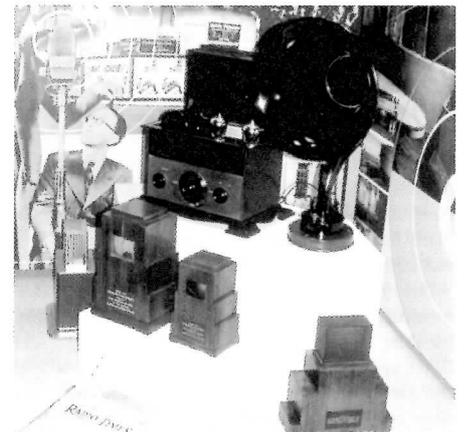
Wednesday the 29th October had a far more regal feel, as Gordon had the honour of escorting Her Majesty The Queen around the historic exhibits on display in the Marconi Collection.

The Marconi Collection is the part of the BBC Experience which will probably appeal to BVWS members. This is the first time the Marconi collection has been on public view and has been generously lent to the BBC by

GEC-Marconi. Among the rare artefacts will be Marconi's earliest radio equipment, diaries, telegrams from The Titanic, a selection of historic photographs and the microphone used by Dame Nellie Melba for a song recital in June 1920 - Britain's first advertised public broadcast programme.

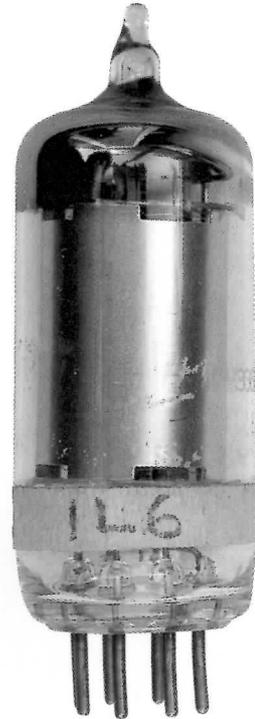
The 'BBC Experience' will be open 7 days a week, from 9.30 to 5.30pm. The bookings line is 0870 603304 and tickets cost £5.75 for adults and £4.00 for children. It will be worth it for the Marconi section of the exhibition alone.

Right: Display featuring an AJS Receiver and several Royal microphones at the 'BBC Experience' 24th October 1997.



Transoceanic 1L6 Replacement... the ultimate solution.

by James Duckworth



Introduction

At the end of world war two Zenith took the quickest way back into the new radio market with the launch of the 8G005, a no-expense-spared update of the first Transoceanic model 7G006, but still using loctal valves. This included frequency changer type 1LA6, which worked well up to and including the 16m band. By 1950 it was redesigned as the G500 achieving substantial cost savings, with five miniature seven pin valves in place of 8 loctals! Most of these were standard types in post war portable superhets i.e. 1S5 detector, 3V4 output, 1U4 RF and IF. But the 1L6 frequency changer was a new arrival.

The Frequency Changer problem

This arose since the commonly used 1R5 miniature type was a poor SW performer compared to the 1LA6 and different enough to make a redesign of the expensive coil tower necessary. Sylvania solved the problem for Zenith by doing a 'special', the miniature seven pin 1L6 with near-identical characteristics to the loctal 1LA6, though it only just appeared in time. The chassis of the new G500 was punched with a loctal size aperture for the frequency changer and miniature for the other valves, showing they were prepared to run with a 'hybrid' rather than compromise performance or change the coil tower. In the event a 7 pin holder with a large paxolin flange filled the gap! I own a very early H500 which still has this arrangement.

So the 1L6 ran for the last three valve models, G500, H500 and the 600 series, but for little else as there were few high end multi SW band portables on the market. This made the valve difficult to get even within the life time of the sets, but thirty-four years later it is completely unobtainable. The 25mA filament

1U6 was initially recommended as a replacement (along with a 56ohm filament bypass resistor), but this also is well high unobtainable. So enter the DK92 family... the pin-compatible available low cost alternative but not, unfortunately, on a 'Plug and Play' basis.

What happens when you plug in the DK92?

The Mullard application notes to the DK92 data sheet show its use up to 29MHz, making it ideal for 1L6 replacement, and the introductory blurb draws attention to its 'high conversion conductance and low oscillator drive' requirements. However these inherently desirable characteristics, combined with existing circuit constants, will tend to cause severe instability or 'squegging' on one or more bands if the DK92 is simply plugged into the 1L6 socket in the H500 and 600 series. The G500 with its shorter oscillator grid leak time constant and different waveband arrangement (It has 49m Band-spread rather than the 2-4, and 4-8MHz continuous SW bands wound on 1/2" higher Q formers), may work more or less satisfactorily depending on the DK92 'type' being used.

But as a practical operating point it should NOT simply be plugged in, as the maximum oscillator anode voltage of the DK92 is only 60 compared with 90 for the 1L6, and the Transoceanics do have around 85v on this pin. (For the record, simply correcting this does not fix the other problems. Operation around 30v may stop squegging on some bands but 16m conversion gain dies almost completely).

Another issue arises from the higher oscillator grid capacitance of the DK92, 4pf compared with 2.2pf for the 1L6 As well as exacerbating the instability, it tends to cause significant frequency shift on the 16m band that cannot be corrected with existing oscilla-

tor core adjustment (though this effect varies greatly between family members, qv). So we have three problems to solve. Correct oscillator anode maximum operating conditions, instability and 16m frequency shift.

The solutions to all three will be discussed with reference to fig1, First of all the various DK92 types need to be considered.

DK92 family variants...

Large and small anodes

The following valves are generally listed as equivalent. DK92, X18, 1C2, 1AC6, CV5172. I obtained several samples of each during my lengthy evaluation program. X18, the 'Marconi' variant, was made by Mullard and is physically and electrically identical to the DK92. The 1C2 Mazda brand is similar but not identical to the first two. Now comes the surprise, my German made 1AC6 and Italian 'Scoba' brand CV5172 were identical valves but quite different physically from the others. The anode structure and surface area being much smaller, to the extent you could hardly credit it as being the same valve type!. Electrically they were superior with higher conversion gain and lower inter-electrode capacitances, causing significantly less frequency shift at 16m. Regarding CV5172 spec, I was not able to establish whether this was a special selection on the DK92, or not. (The Scoba valve has both CV and DK numbers stamped on it). The conclusions from my experiments were however, to enable satisfactory operation from all above types but with a natural preference for the 'small anode' CV5172 and 1AC6.

Solving the problems

Turning to fig 1, the 1L6 converter circuit is shown with a summary of the modifications

Circuit changes needed to replace 1 L6 with DK92

Converter

Oscillator Anode Voltage Adjustment (Pin 3)

- Add 15KΩ resistor in place of wire link between 'E' and 68KΩ/B+ junction. Main B+ 'long' wire must be rerouted from 'E' to same point.
- Add .047 mfd decoupling capacitor between 'E' and pin 1 of 1L6/DK92.

Grid Leak Adjustment

- Replace R7, 100K with 15KΩ resistor (in G500/early H500, R7 will be 180KΩ)
 - G500. Replace 75pf grid capacitor with 250pf

16m Band-Shift Reduction

- Disconnect C12, 1.2pf neutralising capacitor. This is present in all H500, some 600 models, no G500.

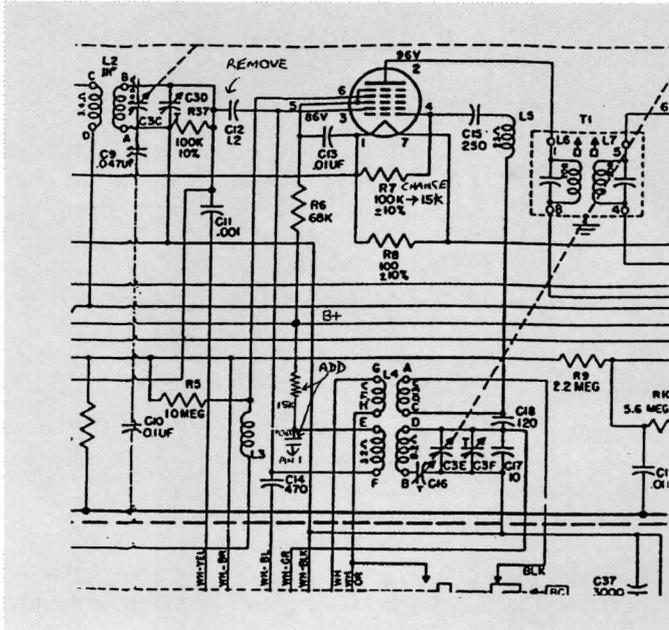


Fig 1

necessary for stable high performance using the DK92.

The 86v on pin 3 is dropped to around 50v using a 15k ohm resistor suitably decoupled between tag 'E' on the common oscillator coil and HT point 'B+'. This replaces a short orange wire link, the longer HT wire link on tag 'E' being rerouted to the same nearby tag strip

For stable performance on the H500 and the 600 series, the grid leak resistor is lowered from 100k to 15k ohm. On the G500 which already has a 2X lower oscillator grid time constant (75pf X 180k), stable performance may be enjoyed simply by plugging in a 'small anode'/low cap DK92 variant (Scoba CV or 1AC6), or being plain lucky with a lower capacitance 'standard' DK92. However, as the chassis must be removed to perform the oscillator anode volts, (60v) mod, it's worth doing the job properly and installing the 250pf/15k winning grid leak combination giving good performance with stability with any of the DK92 family. This was not arrived at lightly! Fig 2 chart shows that optimum conversion gain and most other desirable parameters are only enjoyed for oscillator grid current values over the 100 micro-amp 'hump'. A low value of grid capacitor (i.e. 75-85pf), does not allow this to flow in the Zenith convoluted, multi path converter arrangement i.e. the 16m oscillator coil that you actually adjust, is switched in series with winding 'AD' of the bandspread oscillator transformer and in parallel with winding 'DE' of the BC band coil, which stays in parallel with everything, all the time! So the G500 benefits from the same 250pf/15k treatment, laboriously established with multiple experiments using all of the listed valve types. (Zenith must have thought so as well when they changed the 75pf to 250pf in the later models!).

In fact a 'Quick and Dirty' alternative solution to obtain stability is simply to solder a 4.7k-5.6k damping resistor across common winding 'EF'. I published this in a letter to Padgett Peterson's Transoceanic website*, but again, it only works well with the 'small anode' valves. Lower values of damping resistor are required for the DK92 standard type and this starts to cause unpleasant side effects. The recommended lower grid leak solution is completely free from any such effect with all valves.

The problem of bandshift due to greater inter-electrode capacitances has the effect of pushing the 16m band stations off the right hand end of the scale: completely so with the standard DK92, much less with the small anode/lower cap types. Apart from removing turns from the oscillator coil, which can be done, with great care, (2 turns-but it's fragile and not very accessible). It may be mostly solved in two other ways. The ferrite oscillator coil core can be replaced with a brass one fabricated very simply from a 5/8" length of brass 2BA bolt. This is a loose fit made more secure with a sliver of thin plastic bag down the threads. This has the effect of pushing the stations 400kHz back in the right direction. A further 200kHz can be reclaimed by disconnecting neutralising capacitor C12, 1.2pf in fig 1. Zenith blew hot and cold on this one, not used in G500's, used in all H500's and only some 600's. It was supposed to minimise frequency pulling but I could detect no worsening in this quite marked phenomenon, by removing it.

So the combination of both measures should allow completely accurate 16m alignment using small anode types and within 100 200kHz for the rest. This still allows the stations to be nicely centred up on the scale.

DK92 Miniature Heptode Frequency Changer

Miniature heptode, primarily intended as frequency changer in battery-operated receivers, and suitable for A.V.C. It combines a high conversion conductance for this type of valve with a low oscillator drive voltage.

Electrode currents, conversion conductance, anode impedance, equivalent noise resistance and oscillator voltage plotted against oscillator-grid current

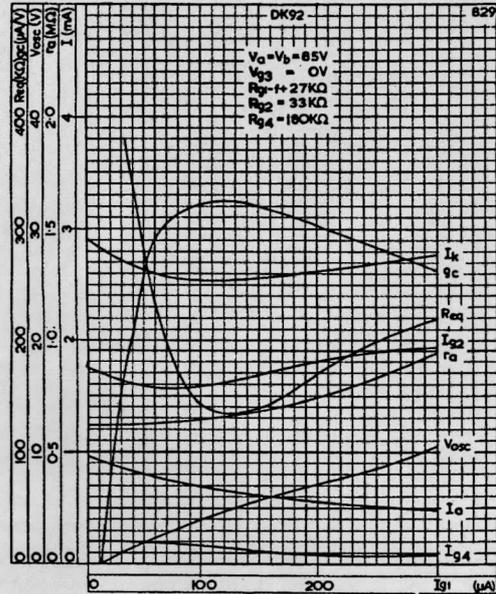


Fig 2

Of course the problem can be completely solved for all valves by removing turns.

Conclusions

The above project has lasted almost one year and the experiments and results tried out on some eight receivers of all three types i.e. G500, H500, 600's. As for getting hold of all the valve types, I would like to thank Langrex of Croydon for their help in providing DK92 data and their quick supply of DK92 standard and 'small anode' (Scoba) types. Also Rod Burman of 'Valve and Tube Supplies' who keeps the full family of different types, offers a first class service and generously provided me with an 1C2 at the height of the experimental period. I also have to pay tribute to Padgett Peterson in the USA, perhaps the leading Transoceanic authority, with whom I have exchanged tens of Emails on the project and swapped valves. I obtained samples of the 1AC6 from him along with 'difficult to get' circuit data.

In conclusion, I strongly share Geoffrey Dixon-Nuttall's view expressed in his article in the Summer BVWS bulletin, that the Zenith Transoceanics are worthy of serious consideration. As a long-time short wave listener, (I actually do it for pleasure!) I have found the sensitivity of this family of 'luggables' to be excellent and the fidelity incomparable. The styling, especially of the round dial types, is also in a class of its own. (A highly personal view!). So if I manage to extend the life of the breed by showing that 1L6 replacement can be relatively easily accomplished, it will all have been very worthwhile.

Langrex Supplies: 0181 684 1166
Valve and Tube Supplies: 01983 811 386

Black Propaganda part 1

By Mark Kenyon, reproduced by kind permission from 'After the Battle' No.75 with permission of the publishers. Back issues available from 'After the Battle', Church House, Church Street, London E15 3JA price £3.88 including post.



Fig 1

I first became aware that a secret operation had taken place in the little Bedfordshire village of Milton Bryan when my father was inducted as rector of the parish in the autumn of 1947.

It was just over two years since the end of the Second World War and in a fenced compound near the church there was a camp for German prisoners-of-war, comprising former U-Boat crews whose homes were in the Eastern Zone of Germany and who could not be repatriated due to the 'Cold War'. Occasionally, the camp warden and his family or one of the Germans came to the rectory for a meal and, in return, we were sometimes invited to a film show in the camp canteen where we enjoyed Charlie Chaplin films surrounded by officers and men who still wore the uniform of the U-Boat arm of the Kriegsmarine.

The warden told us that the camp had been some sort of radio station during the war and he assumed, from recordings of Hitler's speeches that were there, that its purpose had been to monitor broadcasts from Germany. On one occasion the warden took us into the main building and showed us the offices and studios that were still complete with their furniture and equipment. We were among the first unconnected civilians to see the Milton Bryan complex as it was: if only I had known then what I know now!

During the years that followed I often wondered about the clandestine radio station at Milton Bryan and it never occurred to me that the radio masts and buildings in the fields at nearby Potsgrove, also in my father's parish, had been anything more sinister than some sort of Post Office relay station. It was not until 1987 that the name of Milton Bryan appeared in front of my astonished eyes in a page in Janusz Piekalkiewicz's book *The Sea War*, and I first found a direct reference, albeit sketchy, to the real work that was done in the village during the Second World War.

Uncovering the story was not easy. Very

few of the countless books written about the war contain any mention of Milton Bryan or its work, and the few that do limit themselves to a brief line or two. Despite the fact that it holds a considerable amount of material on the subject, the Public Record Office denied any knowledge of the subject but suggested that a man named Sefton Delmer 'may have written a book about his wartime experiences'. A lengthy search ended with a copy of Sefton Delmer's book, *Black Boomerang*, long out of print, and further enquiries to the source that traced it for me produced a copy of a second and more recent book, *The Black Game*, written in 1982 by Ellic Howe, the chief of the associated 'black propaganda' printing operation.

In 1987, Anglia Television produced a 30 minute documentary entitled 'Woburn at War' which gave me a limited visual picture. Two books and a videotape told me the story, but there was a certain amount of conflicting opinion and there were a number of questions that remained unanswered. There also appeared to be a cloak of secrecy at official level and in order to be able to write the story in my own words I needed my own sources of information.

Thanks to Professor M. R. D. Foot and a lady named Jean Howard, I was finally able to contact two men who played leading parts in the operation and I am deeply grateful to Clifton Child, the Chief Intelligence Officer (Political) at Milton Bryan, who engaged in a lengthy and detailed correspondence with me, and to Harold Robin, the Chief Radio Engineer, who lent me two cassette tapes that he recorded for the Imperial War Museum in London and on which, in an interview with Ellic Howe, he related his wartime experiences.

An appraisal prepared in connection with conservation by the Bedfordshire County Council describes Milton Bryan as 'a place of exceptional character and charm, a virtually unspoilt example of a tiny English village'. It has some 50 houses and a population of

around 140 and lies some 3 miles east of the A50 to Northampton, isolated in the heart of the Bedfordshire countryside.

Milton Bryan has but one small shop and a pub. It has no regular bus service and it is a village that has to be 'discovered' by the inquisitive motorist. Those who are fortunate to find the place would be surprised to learn that Milton Bryan played a highly secret role during the Second World War, and it is doubtful if even the villagers themselves know anything of the operation that was carried on in the former War Department buildings near St Peter's Church.

It would be logical to assume that the isolation of the village was the governing factor in the decision to use Milton Bryan, but the reason for its selection was, in fact, quite accidental. In the summer of 1939 it was assumed that when the expected war began, London would be subjected to intensive bombing by the Luftwaffe. Accordingly, plans were made to evacuate all government departments together with a proportion of the population, particularly children. One after another, large country houses and stately homes were requisitioned by the authorities and the Duke of Bedford, horrified at the idea of his country seat being occupied by a horde of evacuee children from London's East End, offered Woburn Abbey to the government. The mansion was to be rent free but the Duke insisted that he did not wish to meet or even see any of the government employees.

Woburn Abbey was allocated to Department EH of the Foreign Office. This was a propaganda section set up not long before the war; its cover name stemmed from its London base in Electra House. With only rare exceptions, cover names for buildings or places were their initial letters. Those people, whose identity it was necessary to hide, were normally given cover names that began with the initial letters of their own names.

The organisation of the British Secret Service is complicated and confusing,

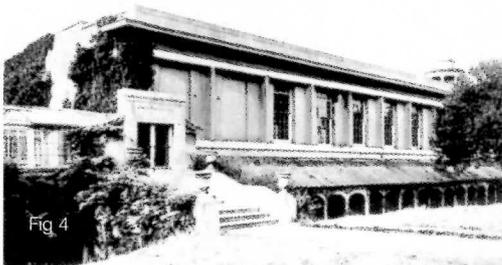


Fig 4

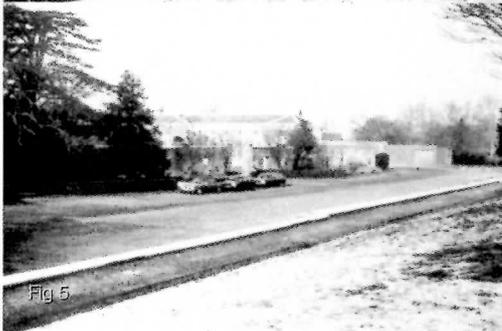


Fig 5

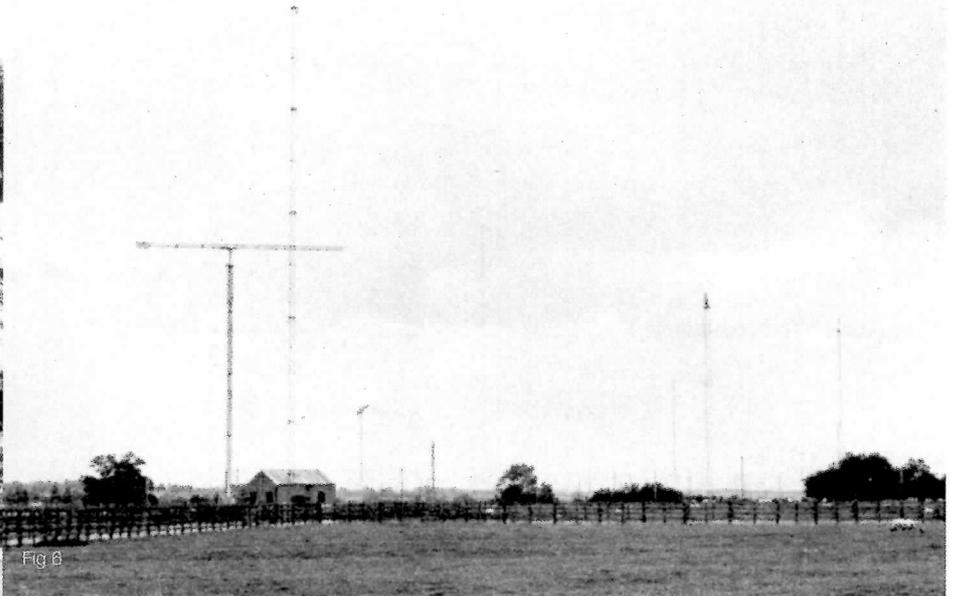


Fig 6

Fig 1: Sefton Delmer (Hulton Picture Company)

Fig 2: The secret of Milton Bryan lies down this insignificant track close by the church. It was from here that 'black' propaganda—what in today's language would be referred to as 'disinformation'—was exploited to the full from 1943 to 1945. The conception, introduction and development of this facet of the Political Warfare Executive was that of one man: Sefton Delmer

Fig 3: On September 27, 1938, at the height of the Munich crisis, the British Cabinet decided to set up a secret Department of Propaganda to Enemy Countries divorced from the existing government mouthpiece, the Ministry of Information. Its initial location was in Electra House illustrated, on London's Victoria Embankment, the initial letters of which served as a convenient cover for what became known as 'Department EH'. (Today it has been renamed Globe House.)

Fig 4: From its small beginnings in Room 207 of Electra House, the department was dispersed on the outbreak of war to Woburn Abbey where it occupied the large indoor riding school.

Fig 5: It suffered from dry rot and was demolished in 1949. (Picture by kind permission of the Marquis of Tavistock and the Trustees of the Bedford Estates)

Fig 6: Before the war, Colonel Gambier-Parry was sales manager at the Philco organisation whose American-made radios sold well in Britain. One of Philco's top technicians was Harold Robin, and in August 1939 he was quickly induced to join the SIS to assist with wireless communications. Early in 1940 Robin was asked to find a location close to Whaddon to build its short wave transmitter. A suitable site was found some ten miles to the west near the little village of Gawcott where two American 7.5kw transmitters were installed. Signal Hill Station remains a government communications centre today.

Fig 7: When PWE's activities blossomed late in 1940, additional facilities were a necessity. Bletchley had already been selected for the code-breakers of the Government Communications Headquarters (GCHQ) and it, too was to spread its tentacles across the surrounding area. Compared with this pre-war map, today this corner of Buckinghamshire is virtually unrecognisable as the same place with the coming of the M1 motorway and the creation of the new town of Milton Keynes. When Whaddon outgrew itself in late 1940, a second secluded mansion was found to the east of the A5: Wavendon Tower (not to be confused with the nearby Wavendon Grange taken over by GCHQ). There four recording studios were built, one in the old billiards room. Code-name for the new location was 'Simpson's'.

Fig 7

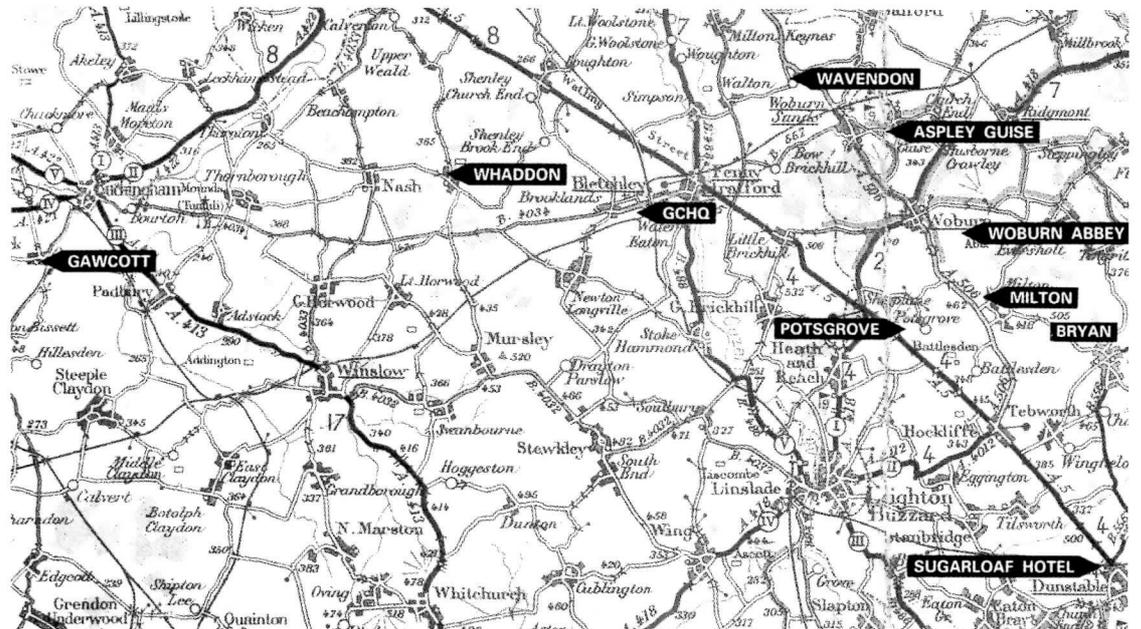


Fig 8



Fig 12



Fig 9



Fig 13



Fig 10



Fig 11



Fig 14



Figs 8 & 9: Additional transmitting facilities were set up by Harold Robin on high ground at Old Farm, just outside the little village of Potsgrove. Two 7.5 kW medium frequency transmitters were installed in the long building with a 50 kW diesel generator in the one behind. The aerials were dismantled in the 1950s and the remaining buildings given over to farm storage.

Fig 10: During the post-war construction of the new town, Wavendon Tower was occupied by the Milton Keynes Development Corporation, but since 1985 it has been the head office of the computer company, SD-Scicon.

Figs 11 & 14: Sefton Delmer could not have had better credentials to master mind Britain's black propaganda campaign against Germany. His fluency with the language; his insight into the German mentality; his intimacy with the top Nazi leadership, all combined to give him the perfect background to wage his own kind of war—through the written and spoken word. These pictures, though uncaptioned, appear to have been taken by him during Hitler's 1932 election campaign.

Figs 12 & 13: Who's Who: 'DELMER, (Denis) Sefton, OBE 1946, writer on foreign affairs; born 24 May 1904; son of late Prof. FS. Delmer, Hobart, Tasmania, English lecturer at Berlin University; m 1935, Isabel (marr. diss., 1946), d of late Capt. P. O. Nicholas; m 1948, Zoë Ursula Black; one son one daughter. Educ: St Paul's Sch.; Lincoln Coll., Oxford. Joined Daily Express, 1927; Berlin Correspondent of Daily Express 1928-33; Paris Correspondent, 1933-36; War Correspondent during Spanish Civil War, July 1936-Sept. 1938; Chief European Reporter of the Daily Express from 1937; War Correspondent, Poland 1939, France, 1939-40, with French Army, Foreign Office, 1941-45; rejoined Daily Express, as Chief Foreign Affairs Reporter 1945-59. Editorial adviser to Der Spiegel, Hamburg, 1963-64. Fig 12: In Spain during the Civil War. Fig 13: Paris 1939—pictures made available by his son Felix.

sometimes deliberately so, and plays no real part in this story. It is sufficient to briefly state that in July 1940, Military Intelligence Research (MIR) and Section 'D' of the Special (or Secret) Intelligence Service (SIS), which specialised in sabotage and subversion, were amalgamated to form the Special Operations Executive (SOE). Department EH was attached to SOE in 1940 but later became a Department in its own right known as the Political Warfare Executive (PWE).

Department EH was evacuated two days before war was declared. On September 1, 1939, the staff members were informed that

they were to move to Country Headquarters (CH or CHQ) but its location was kept secret. They were to make their own way to Dunstable and report to a contact at the Sugarloaf Hotel, from which point transport was to be provided to CH. This, on arrival was found to be Woburn Abbey.

The Duke of Bedford's palatial mansion was ideal. Woburn was far enough from London to be safe from aerial bombardment yet close enough for easy access to the Foreign Office by either car or motor cycle dispatch rider. The initial staff of 20 worked in offices in the riding school and lived in the flats above the

stables that had formerly been occupied by the families of the ducal grooms. The fact that these buildings were separated from the Abbey by a spacious courtyard satisfied the Duke's requirement of no physical or visual contact. The Duke died in 1940 and the growing problem associated with a substantial increase in the number of personnel was resolved when the Abbey itself became available for use.

Clifton Child, who worked in the Abbey, was surprised at the totally unsentimental attitude of the Foreign Office towards the requisitioned houses and their contents. He

Fig 15



Fig 15: The first transmissions to German-occupied Europe were from 'freedom' stations using refugees to broadcast encouragement to the embryo resistance movements. The cover name for these stations was Research Units, and Whaddon Hall (Fig 15) was taken over as a recording base. As co-operation was not forthcoming from the BBC or the Ministry of Information to provide technical support, Sir Campbell Stuart, then in charge of the PWE, spoke directly to Sir Stewart Menzies, chief of the Secret Intelligence Service (SIS) who made available his Controller of Wireless Communications, Colonel Richard Gambier-Parry, to help solve the problem.

worked in a room surrounded by priceless Gainsboroughs and Canalettos and used Adam bureaux as filing cabinets.

The staff of Department EH settled into their new home at Woburn and were mainly engaged in the production of propaganda leaflets. The Department also operated a number of propaganda radio stations that broadcast to Occupied Europe. Two of these were German: one right-wing, run by a German refugee, and the other a left-wing station which was operated by a group of German communists.

Both the leaflets and the broadcasts were of the 'white' propaganda variety, that is to say their message was simply one of encouragement to obstruct the Nazi regime.

Initially, the broadcasts were recorded at Whaddon Hall, near Bletchley in Buckinghamshire, but, as the department's activities began to expand, a headquarters with recording studios was established at Wavendon Tower in the same county. It was given the code-name 'Simpson's', which was the name of a neighbouring village.

A site for the transmitter was chosen at Gawcott, just to the south-west of Buckingham, and it was equipped with two low powered, short-wave transmitter units each of 7.5 kW. They were RCA 4750 models and were built in the United States. Shortly after Gawcott became operational it was found that more power was needed and an identical transmitting station using the same equipment was built at Potsgrove, a small village close to Woburn Abbey.

Programmes were recorded at Wavendon Tower on American-made, 16-inch glass based discs that were played at the then standard speed of 33 1/3 rpm. To begin with the recorded discs were played at Whaddon Hall and sent by Post Office land-line to the Gawcott transmitter. This presented an obvious security risk, and when 'Simpson's' came into being the discs were taken from Wavendon Tower by road to the Potsgrove transmitter.

How the early scriptwriters and broadcasters were recruited and who recruited them is not known. Small groups of them were quartered in several requisitioned houses in the Woburn area, each managed by a resident officer whose wife often acted as 'matron'. The necessary tight security was the responsibility of a popular retired Indian Army officer based at Woburn Abbey, Colonel Chambers, who drafted the security regulations in the summer of 1941.

Many of the staff were foreign nationals with little or no English and this, coupled with the secret nature of their work, made it necessary to isolate them from the outside world.

Enquiries from neighbours were answered with the simple statement that the houses were occupied by people engaged in research work for the government. The early broadcasting stations were in fact cover named 'Research Units' (RUs). The staff were not permitted to make telephone calls, post letters locally or visit the local pub. Outgoing mail was sent to London for posting and there was a London Post Office box for incoming letters.

In November 1941, when the Gawcott and Potsgrove transmitters were completed, there were 20 RUs in operation. Nine more went on air in 1942 and a further 16 in 1943 although some of these were replacement stations. In October 1943, there were 20 active RUs and one more, the final station, opened as late as January 1945, broadcasting under the name of 'Hagedorn' ('Hawthorn').

For the first 14 months of the war, Department EH continued with its work at Woburn, but November 1941 saw the beginning of a large-scale development and a significant change of plan that was marked by the arrival of a man who was, it has been written, 'the nearest thing to a genius which PWE produced. In fact in his particular line he was a genius'.

Denis Sefton Delmer was known to his friends and close associates as 'Tom', a nickname given him by his Jewish barber in Berlin, Moses Muhling, to whom all English men were 'Tommies'. Delmer liked the name as it distinguished him from his well known father, Professor Frederick Sefton Delmer.

Sefton Delmer, as he was known professionally, was born in Berlin on May 24, 1904. On the outbreak of war in August 1914, his father, who was a professor of English at Berlin University, was interned. The family was allowed to remain at home and Sefton Junior continued his education at a local school. In May 1917, Professor Delmer was released and together with his family was repatriated to England where his son was enrolled at St Paul's School, later winning a scholarship to Lincoln College, Oxford. In 1919 his father returned to Germany as a member of the Allied Control Commission and Delmer spent his holidays there.

After finishing at Oxford, Delmer decided to take up journalism as a career and, speaking German like the native that he almost was, became a European correspondent for the *Daily Express*. He soon made a name for himself, not only for his newspaper but also in Germany. He was personally acquainted with Hitler, Goring, Goebbels, Hess, Himmler and the other Nazi leaders and was the only foreign newspaper correspondent permitted to travel in Hitler's entourage during the future Fuhrer's campaign for leadership in 1932.

Delmer left Germany when war was declared and when France fell he was evacuated from Bordeaux in June 1940 in the *Madura*, the last ship to sail for England.

Delmer was keen to take an active part in the war but realised that his weight of seventeen and a half stone rendered him unsuitable as a front line soldier. Instead, he thought that his knowledge of Germany and the German language would make him useful as an interpreter or in some branch of intelligence.

Friends involved with secret work did their best to find Delmer a job but to no avail. The knowledge and experience that Delmer considered to be of value to his country were seen in a different light by the internal security authorities and the reason for their suspicion was, it seemed, the fact that that in 1917, in the midst of war, the Delmer family had been allowed to leave Germany. After his escape from France in 1940, MI5 agents actually attempted to uncover Delmer's 'real' role as a Nazi activist.

In July 1940, Duff Cooper, the Minister of Information in the new coalition government, asked Delmer to assist with improving the BBC's German broadcasts and, while continuing his work with the *Daily Express*, he began a series of programmes that were broadcast every Friday evening.

On the day of the first programme, Friday July 19, 1940, Hitler made his famous 'final appeal to reason' speech. This was during the period of the 'phoney' war when those in positions of authority still went for long weekends in the country. Winston Churchill and the Cabinet had already left London and Delmer took it upon himself, without any authority whatsoever, to give Britain's reply.

Less than an hour after Hitler's last words had faded from the ether, Delmer broadcast live from the BBC. Speaking in fluent, colloquial German, he told Hitler: 'Let me tell you what we here in Britain think of this appeal to what you are pleased to call our reason and commonsense. Herr Führer and Reichkanzler, we hurl it right back at you. Right back into your evil-smelling teeth.'

According to the American radio correspondent in Berlin, William Shirer, and to Mussolini's son-in-law, Count Galeazzo Ciano, the German reaction was a mixture of fury and disappointment. In Britain, Delmer's unauthorised broadcast raised a furore and Richard Stokes, the Labour MP for Ipswich, attacked him publicly in the House of Commons. It was only when the Foreign Secretary Lord Halifax, replied officially two days later, and in much the same vein that the heat was taken off.

part 2 will continue in the Spring 1998 Bulletin

Letters

Dear Editor,

In Bulletin no. 22/, 1997 [1], Berthold Bosch replied to my letter in no. 21/2, 1996 [2], concerning Oliver Lodge's priority claim on the technology of radio telegraphy. Unfortunately, he has made a point of avoiding answering any of the issues raised there, and has concentrated on repeating his claims concerning the reporting of Lodge's British Association lecture at Oxford in 1894. A reader of my original letter will see that my argument has very little to do with what may or may not have happened at that particular meeting (though there is evidence from several witnesses that Lodge did actually demonstrate what he claimed).

Oliver Lodge gave basically the same lecture three times in 1894, to the Royal Institution, the Royal Society and the British Association, the three main public forums for science in Britain at the time. In his published text he made clear that his system could be used for transmitting long and short pulses, and that both electric bells and clockwork mechanisms could be used as decoherers, exactly what he claimed to have done at the British Association lecture. He didn't need a report in the *Electrician*; he published it himself. The fact that his system could be used for telegraphy was obvious to many, as the immediate reactions of Alexander Muirhead, Lord Rayleigh and A. A. Campbell Swinton testify. From the time of Lodge's 1894 lectures, the possibility of a Hertzian system of telegraphy became public knowledge, whatever Lodge may have actually demonstrated at any of the three meetings, and whatever may have caught the eye of the reporter from the *Electrician*. Lodge himself specifically discounted any claim on the idea of a practical application, crediting this specifically to Muirhead. He claimed, with complete justification, that he had developed the necessary technology.

The fact that Lodge had a clear public claim on the method is obvious from the way William Preece handled the publicity claim relating to Marconi. He made a categorical public statement that Marconi's method was new and that it did not use Hertzian waves (and therefore Lodge's coherer) when he knew perfectly well that it did - Campbell Swinton's original letter of introduction had already informed him of this, even before he had seen Marconi's device, and Campbell Swinton knew that Lodge's system could be used for telegraphy before he had even heard of Marconi. The evidence that we have discovered, and that Bosch has totally ignored, is that Preece wrote two private letters to Lodge, in October 1896 and May 1897, admitting his and Marconi's debt to Lodge's work and their willingness to make public acknowledgement. We have also discovered a letter from Augusto Righi which makes clear that Marconi borrowed the Lodge technology from him and was not an 'independent' inventor of the coherer principle as is often made out. The fact that the acknowledgement never came is almost certainly a result of the patent that Marconi took out in March 1896.

We have also shown that Lodge made his claims immediately after Preece's announcement of the Marconi system at the BA meeting there in 1896, and that he already had his apparatus working there because he had prior knowledge of related work to be presented at the meeting by Rutherford and Bose. Immediately Preece made his announcement, Lodge demonstrated telegraphy via his system. There was nothing whatsoever constructed about Lodge's priority claim. The evidence for this is in the published record of the meeting, as well as in private correspondence, and at that time Preece was making no claim for Marconi that his system was Hertzian. So Lodge's is the first public claim for a Hertzian system, accompanied by demonstration.

Lodge was angry at this meeting, and so were his supporters. If he hadn't realised his system was applicable to telegraphy or believed that he had demonstrated it, there would have been nothing for him to get angry about. Nor would there have been if Preece had been willing to reveal the method he was promoting. Note that Preece made his announcement immediately after one of Lodge's demonstrations. Preece said that Marconi's was a 'new' system of wireless telegraphy, implying that it was different from that of Lodge which had just been shown, not that Lodge's wasn't telegraphy. Preece knew (from Campbell Swinton at least, if not from his own direct knowledge) that Marconi had no claim whatever to a system of Hertzian telegraphy as such, and he went out of his way to give the impression that the Marconi system was different. Lodge spent months trying to find out if it was really Hertzian, and was appalled when he saw that Marconi's patent contained technologies that he had already demonstrated and published.

Many recent historians - Garrett and Pocock, for example, as well as Aitken have been inclined to take Lodge's claims seriously. Against this, Bosch can only quote Süsskind, writing in 1969. Süsskind, however, gave Lodge the credit for discovering tuning, which is more than Marconi ever did. (See, for example, Marconi's Nobel lecture of 1909.) Even quite modern works on Marconi imply that tuning was first introduced with the Marconi patent of 1900, despite the fact that the Marconi Company went to a great deal of trouble to buy out Lodge's tuning patent of 1897.

Bosch's final comments seem to imply that the question of priority is academic anyway, as there had been several systems of 'wireless' telegraphy prior to the Hertzian system developed by Lodge and Marconi. We may as well say that it is of no importance who invented the aeroplane as the hot air balloon was already in regular use. It is important to understand all the steps that lead to technologies in a particular area, and the only way to do this is to have respect for original sources, such as manuscript letters. Unfortunately, in the case of radio, the facts are difficult to establish, even when new sources are brought to light, because a particular pattern was established for the history, for purely business reasons, very early on, largely due to the commercial dominance of the Marconi Company. The question we should be asking, however, is whether the fact that the Marconi Company bought out Lodge's patents rights in 1911 meant that they also had the right to determine the way that the early history of radio should be written.

Yours sincerely Peter Rowlands

[1] B.G. Bosch, *The Priority on Wireless Telegraphy: Oliver Lodge in 1894 or Guglielmo Marconi in 1895?* Bull BVWS, vol. 22, no. 1, 1997, pp. 43-44. [2] P. Rowlands, *Oliver Lodge's Wireless Experiments at Oxford in 1894*. Bull BVWS, vol. 21, no. 2, 1996, pp. 36-37.

Dear Editor,

Mr. Boulin (autumn 1997 letters) will find information on the equipment and detailed logs of every voyage made by the 'Graf Zeppelin', in the book 'LZ 130 - "Graf Zeppelin"—und das Ende der Verkehrs-luftschiffahrt'; Bauer/Duggan (published by the Zeppelin Museum, Friedrichshafen). I am not aware of any translation into English but I can give him a few details about its navigation.

The only method of radio navigation in use at the time was direction-finding, usually on transmissions from aircraft by ground stations. The reverse procedure, DF on a ground transmission by airships was impractical because of re-radiation effects from the large mass of metal in its framework. The airship would make a 'long dash' transmission, on a frequency somewhere around 300 kHz, and bearings would be taken on it by two, sometimes three, ground DF stations who would then work out where the bearings coincided and transmit the position back to the airship. This worked tolerably well during daylight over water out to about 500 miles but became inaccurate at night due to skywaves. It is said in the book that that was why the Graf Zeppelin drifted over the Scottish coast during its intelligence-gathering voyage of 2-4 August 1939 although it was claimed by the Germans at the time that she had stayed well out to sea. It was also the reason why the Zeppelins that had set out to bomb London in 1917 arrived over East Anglia and had to map-read their way to London, exposing themselves to attack.

By the mid-1930's a number of chains of linked aviation DF stations had been established in Germany and Britain for use by the embryo civil air traffic between the major cities. Photographs exist showing the Croydon DF station in action with a plotter using strings on a large plotting table to draw in the bearings and measure latitude and longitude.

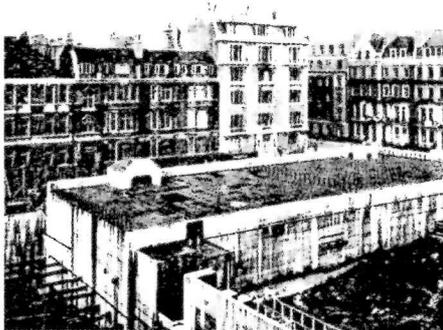
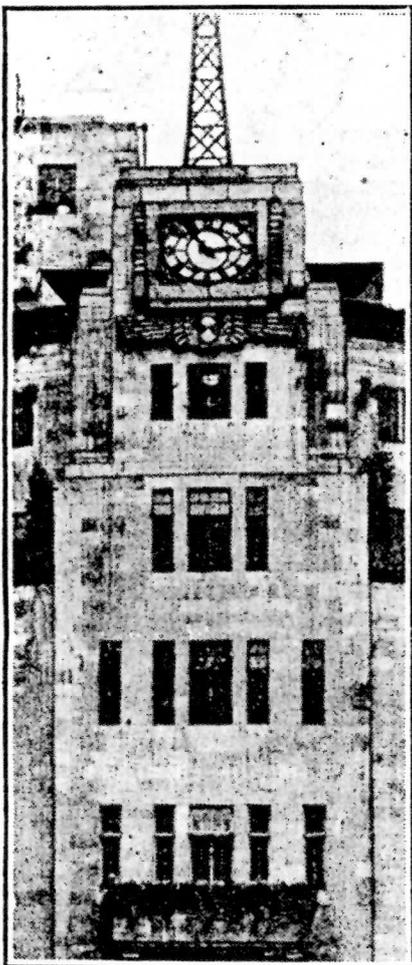
It was a very slow method and only usable by one aircraft at a time; so in the USA, more advanced in these matters because of its greater air traffic, it was already being superseded by 'radio ranges'. In spite of their name they did not measure range but were transmitters in the MF frequency band that put out beamed transmissions arranged so that a pilot heard a single tone when on track but a series of Morse "A's" if off to one side and "N's" if off to the other. This became the standard aviation navaid after the war until in turn it was superseded by the VHF VOR/DME system that is still in use.

In the book a photograph shows the Graf Zeppelin's navigator's station but the only radio apparatus visible is an ordinary MF radio receiver and an intercom unit. I doubt if there was in fact anything on board that could have been specifically labelled 'radio-navigation equipment'. All that was needed for this type of DF work was an ordinary ship's MF transmitter and an MF/HF receiver. Maybe there is something in the Friedrichshafen museum but I have not been there. Navigation over the Atlantic would have been by the traditional marine methods of dead-reckoning backed up by astro sights. Zeppelins were not as critical on accurate navigation as aircraft because of their much greater reserves of fuel

and in those days there were no such things as airways or control zones.

It was often the practice if the weather was clear for airships to go down low and give passengers a good sight of whatever was in view. On other occasions they would climb up above bad weather to wait a day or two until it cleared. Try that in a 747!!

Yours sincerely
Walter Blanchard
(Ex-civil airline navigator)



The BBC's emergency broadcasting centre

Dear Editor,

I have just received the autumn 1997 BVWS Bulletin and I felt that I should drop you a line of congratulations.

Not only does the publication look stunning but it is also packed with interesting and informative material. This is a hard trick for any publication to pull off!

Many congratulations to you, the contributors to the issue and to your colleagues and

helpers on a first-rate effort.

Yours sincerely
Paul Mathews

Dear Editor,

The saga of the loudspeakers atop Broadcasting House continues (Letters: Winter '96 and Summer '97 Bulletins). Whatever it is in Malcolm Addey's picture in the latter copy is not the giant horns referred

BROAD

P.A. SPEAKERS ON B.H.
The loud speakers fitted on either side of the clock on the roof of Broadcasting House, which are used to relay Big Ben, have an output of 150 watts.

B.B.C. and LS Nuisance

THE B.B.C. is "not guilty" where loud speaker nuisances are concerned, but officials have been casting furtive glances at the Corporation's own loud speakers on the roof of Broadcasting House following the latest decision of the Birmingham City Council. What Birmingham does to-day London may do to-morrow.

In Birmingham it has been decreed that a charge of creating a nuisance by private loud speaker can be laid if three householders lodge a complaint. Fines can be levied up to £5.

to. Another reader made contact and called my attention to a reference in *Wireless World* for October 29th 1937. A trip to the attic produced that issue and I enclose a photocopy of the relevant picture and information. It is now apparent that they were in place for considerably longer than at first thought and this later reference ties them in with preparations for the war less than 2 years away. It is known that by this time the BBC were removing the central control room, originally housed at the very top of the building, to a safer spot in the basement. Less well known is the BBC's construction of an emergency broadcasting centre behind Broadcasting House. Picture herewith.

Yours sincerely
Geoffrey Horn

Dear Editor,

I am writing to express my appreciation of the excellent production and content of the BVWS bulletin. For me, it has the almost perfect balance of interesting and fascinating articles regarding wireless history, personalities, technical matters and news. In my experi-

ence, the professional publishers almost always fail to achieve this. It has been said before but I make no apology for repeating it, the BVWS subscription is great value just for the bulletin alone; then of course, there are all the well organised events throughout the year. The effort, enthusiasm and expertise displayed by the society's prime movers and supporters is quite breathtaking. I mention Gerry Wells' Vintage Wireless Museum and the annual garden party held at that venue, to illustrate the point.

It is certainly my intention to remain a BVWS member for as long as I am able, and I will be taking up the three year membership facility from now on. Perhaps one day, I may submit an article of my own to the bulletin, even though it would be very unlikely to be accepted, (I include all the articles sent to the Bulletin except those that are a veiled advertisement for selling apparatus- Editor) as I cannot match the levels of knowledge and expertise demonstrated by your contributors. But stranger things have happened and I am not ready to give up the idea just yet. My congratulations and thanks to all involved, you are doing a grand job and it is most appreciated.

Yours Faithfully
Mr. J.E. Miles

Dear Editor

Reading Mike Barker's Article on Murphy television brought back memories for me. I was an apprentice to the Murphy dealer in Wrexham. In late 1945 we received a German television of an army Captain, who had come home on leave with a large packing case which, he thought, contained a radiogram (the spoils of war).

The television was a Telefunken console with a mirror in the lid, the tube was about 15 inches. We soon had the chassis out; it was built on a metal frame and everything was beautifully made. It was constructed as though money didn't matter.

After the initial excitement it was put on display in the shop window and caused quite a stir. Murphy Radio showed a lot of interest in the set, which they took away. I wonder what happened to it?

We didn't have television in this area until 1949 (remember Teddy Bear's Picnic). The first Murphy television in stock was the model 116A console.

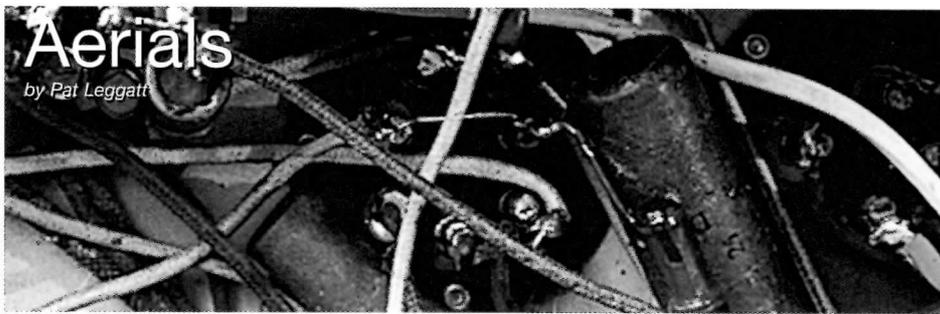
Yours Sincerely
Gordon Crowley

Dear Editor,

Some time ago I bought a Marconi Magnetic Detector which was in a less than pristine state and I am now involved in its restoration. The four magnets were missing and I have contacted the original manufacturers: H. Shaw magnets of Sheffield to find out if there was any possibility of a batch being made. They were extremely helpful and said that it was possible but the cost would depend on the number required.

I was wondering if any members are also in need of these magnets, and if so, to contact me by telephone or writing to the attached address. This way I will be able to get an idea of the total quantity of magnets required, and from that work out a cost per magnet.

Yours Sincerely
R J Henville, 67 Salisbury Road, Blandford
Dorset DT11 7LW
Tel: 01258 453867



A long-wire aerial is not of course an integral part of a receiver, but inclusion in this series is perhaps justified in that the aerial is an essential component of a receiving system.

Long wire aerials

It should be remembered that a radio wave travelling through space contains both electric and magnetic components; the electric component is an oscillating electric field, and the magnetic an oscillating magnetic field. The energy in the combined 'electromagnetic wave' constantly changes at the frequency of the wave from electric to magnetic component and back again to electric.

When a radio wave comes up against a long-wire aerial, the electric component induces a voltage in the wire which generates the signal that is passed to the radio receiver.

An aerial wire will have some inductance, and some capacitance to earth, which together form a tuned circuit so that the aerial has its own resonant frequency. In the early days of wireless, it was the practice to tune the aerial itself to the frequency of the wanted transmission by including inductance or capacitance in the aerial-earth path through the receiver. But this meant that manufacturers could not calibrate receiver tuning dials in wavelengths, since the dial settings would depend on the characteristics of the particular aerial in use at the customer's home.

So it soon became usual to ignore whatever resonant frequency the aerial might possess, couple the aerial rather loosely to the receiver, and tune the receiver circuits themselves as required.

Signals in a receiver from a long-wire aerial arise from the currents in the path from the aerial through the receiver tuned circuit and down to earth. It was therefore important with

sets operated from batteries to provide a good earth connection to a water pipe or buried metal plate, although such a receiver would work to some extent without an earth connection, because the capacitance of the receiver and batteries formed some sort of earth path for the signals. For mains sets, and battery sets operated from mains battery eliminators, adequate earthing would be provided by the mains wiring, and no separate earth connection was necessary.

Having said that the mains could provide an effective earth, I now have to note that many mains sets of the 1930's used a 'mains aerial' by connecting one side of the mains supply to the receiver aerial terminal via a small isolating capacitor: so can the mains be used as both aerial and earth? This is in fact possible since there will be sufficient signal pick up on one side of the mains to provide a usable signal for a reasonably sensitive receiver, the appreciable radio frequency impedance between the two sides of the mains preventing the signal being shorted out to earth.

Frame aerials

An alternative to a long wire is the frame aerial. This consists of a large coil, supported on a wooden frame about 18 inches square in early days, or wound round the inside of the cabinet when receivers began to be enclosed in wooden cases. The large coil is connected between the input terminals of the receiver (valve grid and chassis) with a variable capacitor in parallel to tune it to the wanted station.

A frame aerial coil would respond to the magnetic component of an incoming radio wave, the oscillating magnetic field inducing a voltage in the coil and providing the receiver input signal. The signal strength obtainable with a frame aerial is not as great as could be

had from a well-raised long wire, but was generally sufficient for a receiver with one or two RF amplifying stages before the detector. A frame aerial has directional properties, a disadvantage because a receiver may have to be rotated to get a good signal; but sometimes an advantage when the directivity could be used to cut down an interfering signal coming from a direction different from that of the wanted transmission.

The big advantage of frame aerials lay in avoiding the need for a long aerial wire. This was convenient in the home, but particularly valuable for the portable set which people liked to take out on a picnic.

Ferrite rod aerials

When ferrite (iron dust) cores became available for radio frequency applications, advantage was taken to produce very much smaller coil aerials. The large 18 inch coil was replaced by a coil perhaps 1/2 inch in diameter wound on a ferrite rod: the term 'frame aerial' was no longer appropriate although the operating principle was exactly the same. The ferrite rod is typically 9 inches long and concentrates the magnetic field component of the radio wave so that reasonably large signal voltage is induced in the small coil.

The ferrite rod aerial has directional properties similar to those of the frame aerial, with the same advantages and disadvantages. The small size is of course a major benefit in developing really handy portable sets, particularly now that transistor sets require only small batteries.

As a last point we may note that since coil aerials (frame or ferrite rod) develop signal voltage directly across the receiver input, no earth connection is required.



Southborough Swapmeet Sunday 12th October

There was a chilly start to the day down in darkest Southborough, but things soon started warming up when the doors opened and the (highly civilised) queue strolled inside to see the goodies on display. As usual, John Howes had organised a very good event - one would be tempted by the term 'sedate' - no whiff of adrenalin in the air here.

People like to take their time looking around and indulging in conversation before making the odd purchase whilst in Southborough. Was Harpenden like this in the early days of the BVWS? If so it is pleasant to see that the atmosphere has continued in a different location.

If you like your meetings calm, relaxed and friendly then Southborough is the one

for you.

John Howes will be holding three swapmeets in 1998: they are on the **25th January, 12th July and 11th October**. For further information John Howes can be contacted at: 11 Crendon Park, Southborough, Tunbridge Wells, Kent TN4 0BE

BVWS photographs... Can You Help???

The history of the BVWS and the Commemorative BVWS Anniversary Weekend book that I have been commissioned to write is nearing completion but I still feel I need to include a few more photographs of early meetings, such as those held at Chelmsford (1977), the two subsequent St. Albans meets and any early Harpendens. If you have any photographs you would like me to include in the book, then I would be delighted to borrow them for copying. Please send them as soon as possible to Jonathan Hill, Spice House, 13 Belmont Road, Exeter, Devon EX1 2HF. Telephone (01392) 411565.

A 'Cut and Try' Receiver

by Pat Leggatt

Some years ago I acquired a very unusual American set. It carries no maker's name, nor do any of the components; and there is no labelling of the numerous controls on the panel. Clearly it was not intended for domestic use.

I got it from Rupert, but even he didn't know what it was. We tentatively ascribed it to de Forest on the basis of the double-slider stud switches and the heavily knurled knobs which seem typical of early de Forest products. From the appearance of internal components such as the wooden variometers I would guess the date to be 1920 or 1921.

The set is basically a simple triode leaky-grid detector with reaction, followed by two triode LF stages, but there are features which are not so simple. For a start there are six jack sockets giving access to key points in the chain; and there is some quite elaborate switching to select tapplings on the tuning coil for both aerial and earth, and to include or exclude the tuning condensers. It looks as if the set was a development laboratory test bed for experimenting with different circuit arrangements and components.

As it stands, the set tunes from 180kHz to 1250kHz covering Long Wave and most of the Medium Wave band. Except briefly to begin

with, U.S. broadcasting was on Medium Wave (on just the one wavelength of 360 metres until 1923) which points again to an early date for this set.

My circuit diagram was kindly redrawn for me when I submitted a similar article to the American AWA Bulletin, which accounts for the transatlantic style. Referring to the diagram, the three-position switch S1 when in the anticlockwise position removes the tuning condenser C1 from circuit; while the centre and clockwise positions connect C1 either in series or in parallel with the tuning coil. Switch S2 selects the tapping point of the earth connection to the coil; while switch S3 selects the aerial tapping. Switch S4 brings in an extra lower section of the coil. Switch S5 inserts or removes the detector grid tuning condenser C2.

Turning to the jack sockets, J1 gives access to the aerial/earth signal and disconnects all the following circuits. J2 gives access to the detector input and disconnects the preceding tuned circuits. It would thus be possible to feed the aerial/earth input signal to an external tuning circuit via J1, and back into the detector via J2, with or without the tuning condenser C2 according to the setting of switch S5.

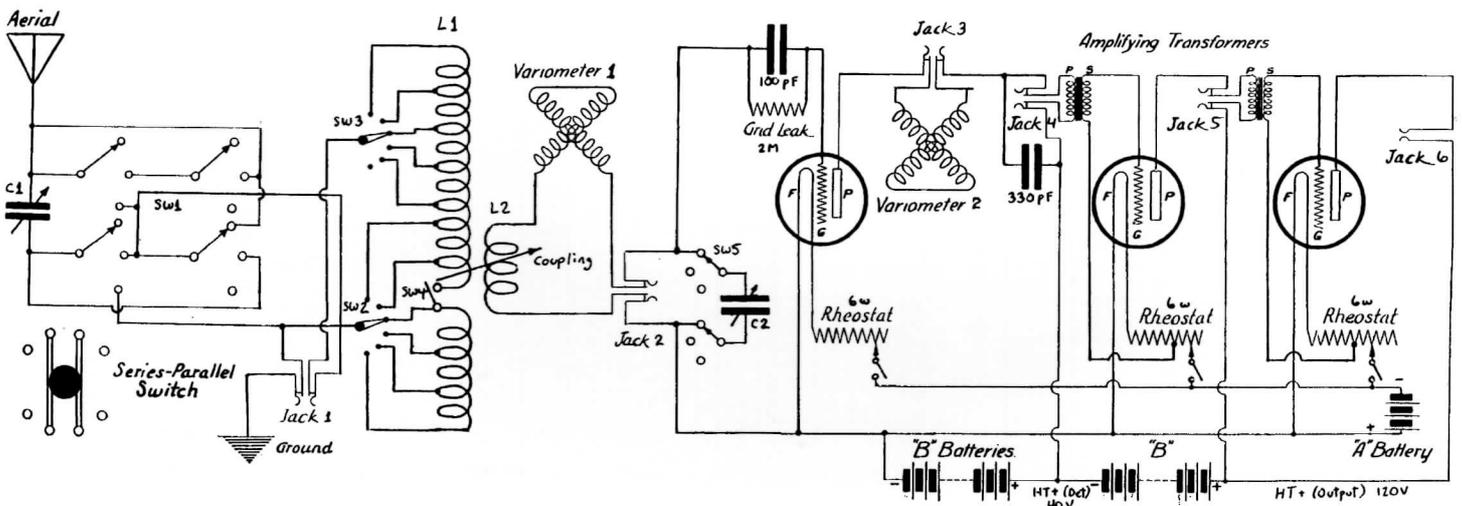
There is no reaction coupling from the

detector anode back to the grid, except through the valve anode/grid internal capacitance: reaction is controlled by the variometer in the anode circuit. Jack J3 enables a different reaction impedance component to be substituted for the variometer, or a reaction feedback winding on a substitute tuning coil inserted via J1 and J2 as above.

Jacks J4, J5 and J6 give access to the audio output of the detector or first and second LF stages.

The receiver is not for the faint-hearted. In addition to the three filament rheostats there are ten controls on the front panel, all of which affect tuning and all of which are interdependent to some extent. Driving the set is a nightmare, made even worse by the fact that switches S2 and S3 work in opposite senses; turning them clockwise reduces the frequency in the case of S2, but increases frequency in the case of S3!

When one is lucky enough to find the station one wants, all dial readings and switch positions must be immediately noted down if the station is to be found again without another ten minute struggle.



Code of conduct for auctions and swapmeets

- 1 A standard time of 20 minutes to be allowed for the setting up of stallholders tables before the start time of the event.
- 2 Stewards on every door, to refuse unauthorised entry, proof of membership required, ie membership card to be shown to steward.
- 3 Stallholders found to be trading before the start time of the meeting will be banned for the next two Harpenden meetings along with the purchaser.
- 4 No smoking rules to be obeyed where applicable.
- 5 Only 'Bona Fide' members will be allowed stalls, lapsed members and non members will have their applications refused.
- 6 stallholders 'must be genuine' ie have a

stall suitably stocked (it has been found in the past a minority of stallholders have taken a stall for the sole purpose of 'in trading').

7 Transactions made previous to the meeting, and being collected at a meeting, should be made after the start time of the meeting.

8 It is the responsibility of the events organiser to provide the necessary stewards, and to ensure that the rules are upheld. (Full backing will be given by Committee members present).

9 At auctions events only one exit to be allowed open and all persons taking out goods must show an official receipt marked 'paid'.

Death of Bruce Kelley

It is sad to have to report the death of Bruce Kelley, founder of our sister organisation the Antique Wireless Association in America.

The young Bruce started collecting old wireless equipment in 1936. In 1952 he and a couple of friends founded the Antique Wireless Association (AWA), with a museum based on his personal collection and a regular publication, the Old Timer's Bulletin (OTB), of which he was the Editor for more than thirty years. The AWA, the OTB and the museum have gone from strength to strength and are greatly respected in the wireless community.

Bruce was a complimentary member of the BVWS and often expressed admiration for our Bulletin. Our sympathy goes to his wife, Helen, and also to members of the AWA including a number from our Society. We have lost a leading expert and a genial friend who was always ready to help and advise fellow enthusiasts

Pat Leggatt

BVWS Minutes

Minutes of the Committee meeting on July 29th 1997 at 5 Templewood, Ealing

1 Those Present

Willem Hackmann (Chairman), Carl Glover, Ian Higginbottom, Pam Zimmer, Mike Barker, Guy Peskett, David Read, Pat Leggett.

2 Apologies for Absence

There were none.

3 Minutes of the Meeting on June 10th 1997

The Minutes were agreed as a true record.

Matters Arising

Minute 4. The Chairman has written to the two rejected applicants.

Minute 11. The Chairman has written to the two members willing to undertake creation of a BVWS Web page, one earlier one having withdrawn. A report from these two is expected for the next meeting. It is now understood that this internet involvement could be achieved at little or no cost to the Society.

4 Prospective New members

Mike Barker tabled twelve new applications. Of these the following were accepted and warmly welcomed by the Committee:- Opsteyn Etienne, John Ford, Richard Grimwade, Lambrich Hanspeter, Jeremy Lane, Edward Maddox, Steve Macnally, Peter Preston, Brian Stanfield, Christopher Stanton, Douglas Ward.

A twelfth application was held over pending enquiries.

Mike Barker announced total membership now stood at 1166, including the new members listed above.

5 Preparation of Published Membership List

Pat Leggett has completed this, subject to confirmation of a few points of doubt on the overall BVWS membership records. He tabled a sample page which was agreed to be acceptable subject to deletion of the honorifics 'Mr' etc, and to inclusion of explanatory heading text.

Pat Leggett also tabled statistics showing that 97% of members had declared their choice of option, of which 35% did not wish to be included, 26% opted for full address and telephone number, 29% for town and telephone number only, and 10% for full address without telephone number.

6 Editor's Report on Next Bulletin

Carl Glover reported progress towards publication by September 1st. He noted also that he was chasing up payments from advertisers, which should amount to a useful offsetting of the costs of a larger Bulletin to the tune of some £345.

There was some discussion regarding the current series of articles on wireless-related postcards. It was generally agreed that this was a legitimate subject for inclusion in the Bulletin, although some queried whether the quantity represented quite the right balance. It was noted that the postcards could be popular with wives and children, thus stimulating interest in vintage wireless in the coming generation.

On the subject of Bulletins, it was agreed that Carl Glover would circulate other societies' publications to members of the Committee.

7 Events Co-ordinator's Report

Pam Zimmer said that Harpenden bookings for 1998 had been made, and she was liaising with other meetings organisers to avoid clashes. Ian Gurton has arrangements for the September Harpenden well in hand.

A member has suggested that he mount a small exhibition at Harpenden, with a brief accompanying talk. It was agreed that this would be welcome, with the talk in the vicinity of the exhibition rather than from the stage. The Chairman will mention in his editorial that this idea is favoured as a general principle.

8 Further Constitutional Amendments

Guy Peskett had circulated a suggested amendment of his earlier proposals. The following points arose in discussion of the main changes.

An 'Associate' category of membership would be satisfactory for those such as Editors of other societies' publications, who are at present designated 'Complimentary'. But it was suggested that the Complimentary category should be retained for individuals to whom the BVWS wished to register appreciation for significant contributions although not quite justifying 'Honorary' membership.

Reversion to a 1-year term for election to the Committee was resisted in favour of retaining the earlier 3-year proposal on the grounds of ensuring continuity of experience.

The proposal to seek members' approval at the AGM of subscriptions set for the coming year was rejected.

The concept of charging new applicants an initial data processing fee was questioned and will be considered further.

9 Rules for BVWS Swapmeets

Pam Zimmer had circulated a draft paper on this. She had received written comments from Guy Peskett and Pat Leggett which she had found useful. She will produce a further draft taking these into account, together with other comments made during discussion.

10 Redefining Committee Members' Functions

The Chairman announced that pressure of work had forced Terry Martini to resign from the Committee. He had written to Terry expressing the Committee's thanks for his past work.

Mike Barker made a statement to the effect that, also due to pressure of work, he must resign as Membership Secretary although willing to remain an ordinary Committee member. This was noted by the Committee with general regret and appreciation of all he had done.

Pam Zimmer offered to take over as Membership Secretary with immediate effect, and this was gratefully accepted. Her husband Andrew Zimmer, present as an observer of the meeting, was invited to join the Committee and undertake the Events Co-ordinator duties hitherto fulfilled by Pam. To everyone's pleasure he accepted this offer.

Nomination forms for Committee elections must be included in the September Bulletin, and Mike Barker will see to this.

The Membership List for publication will be completed by Pat Leggett as already arranged.

The Chairman had circulated a suggestion for revised duties with a Committee of twelve members. A main item was creation of a 'Secretary' post - perhaps 'General Secretary' - which would absorb the existing Minutes Secretary duties and conduct general correspondence and document drafting. This idea was welcomed, and consideration of other Committee duties will follow at a later date.

11 Date of Next Meeting

7.30 p.m. on Tuesday October 14th.

Minutes of the Committee meeting on October 14th 1997 at 5 Templewood, Ealing

1 Those Present

Willem Hackmann (Chairman), Carl Glover, Ian Higginbottom, Pam Zimmer, Andrew Zimmer, Mike Barker, Guy Peskett, Pat Leggett.

2 Apologies for Absence

David Read, unwell.

3 Minutes of the Meeting on July 29th 1997

The Minutes were agreed as a true record.

Matters Arising

The Chairman will mention support for individual members' small exhibitions at Harpenden in his editorial for the December Bulletin.

Action: Chairman

4 Prospective New members

Pam Zimmer tabled 29 new applications as follows. Oliver Rogers, Tudor Rees, Ian Joyes, Gary Herbert, Christopher Lawes, Colin Mansfield, Christopher Meakin, John Bowditch, George Walker, Martin Lewes, Martin Campbell-Kelly, Royston Humphrey, Robert Pether, Kenneth Frigg, Don Bishop, Phillip Judkins, Peter Baxter, Luis Munoz, John Ciappison, David Nicholls, Geoffrey Parr, David Burr, Brian Papps, Ken Cuming, Kenneth White, Jon Edmondson, Jeff Haas, Clinton Grimmer, Jerry Dennemy.

These were accepted and welcomed by the Committee. The total membership of the Society is now 1207, including the new members listed above.

5 Editor's Report

Carl Glover is in difficulty at the moment since his computer hard drive has failed. But he hopes this will be soon righted and that the December 1st target date for publication of the next Bulletin can be maintained.

6 Commemorative Brochure

Jonathan Hill is still searching for pictures, and the Brochure cannot be expected before next year. The Chairman will telephone him for latest information.

Action: Chairman

7 Committee Election Nominations

No nominations have been received. Pat Leggett suggested this might be due in part to the unsatisfactory 'Call for Nominations' form, which did not cater for anyone wishing to put themselves forward for 'Ordinary' membership of the Committee. He suggested also that members might hesitate to put up for Information Officer since, in the absence of any indication of the duties to be expected of this post, they would not know what they might be letting themselves in for.

It was agreed that the form would need rephrasing for the future and that the Information Officer post should perhaps be abandoned.

Action: Mike Barker

8 Membership Renewal and Constitution Ballot Form

The following modifications were agreed. Change (b) to 'Other name in group membership', since there should be only two people named in Family Group membership. It was further agreed that both Family Group members will be entitled to vote in elections, etc.

In (h) leave more space for 'Country'. Change items (k) and (l) to read 'FAX (home)' and 'Email (home)' respectively, to avoid possible difficulties with unauthorised use of work Fax and email addresses.

Add 'Subscription' information.

Regarding the concluding paragraph of Part 1 of the form, it was agreed - after a 7:1 vote - that all members will receive the Membership Contact List whether or not they have chosen to be included in it.

Concerning Part 4 of the form, it was agreed that the £15 subscription rate should not include Eire but that implementation of this must await a general review of postage costs

and their effect on subscriptions, to be undertaken for the 1999 membership year.

Action: Mike Barker

9 Members Contact List

Carl Glover has laid out the list based on information prepared by Pat Leggett for publication with the December Bulletin. Mike Barker will consider the mechanism for production of the list for mid-1998, in liaison with Pam Zimmer and Carl Glover.

Action: Mike Barker

10 BVWS Constitution

Guy Peskett tabled a revised draft of his proposed Constitution document. The Committee went through this section by section.

3.1.2: Agreed delete third line starting 'and the Group', to allow both Group members to have a vote.

3.5: Agreed re-phrase on the lines of 'A Members Contact List will be distributed annually to all members. Only information specifically authorised on a member's renewal or application form will be published.'

4.1: There was discussion relating to the proposed Secretary who, the Chairman has suggested, will organise the Society's secretariat (that is the main paperwork of the Society) and liaise with the other Officers, in particular the Chairman, Membership Secretary and Treasurer, and replace the Minutes Secretary.

It was noted in discussion that these suggested duties were really part of the Chairman's job, and that the proposed Secretary would effectively be Chairman in all but name. Nevertheless it was agreed that the Society's paperwork did need more detailed attention, and that the Secretary post should be instituted in due course, for a trial period at least.

There was also discussion regarding the Bulletin Editor post. Carl Glover stressed the importance of appointing something like a 'shadow editor' who could take over if circumstances ever made this necessary. There could perhaps, he continued, be a Sub-editor and a separate Layout Editor/Designer. It was agreed that these ideas should be pursued before too long.

4.5: Agreed delete words in fourth line after 'Society'.

7.2: Noted that the third line should read '--- the Treasurer, the Chairman and any other officer approved by the Committee.'

8: Noted that members' advertisements should be five times a year.

Action: Guy Peskett

11 Bulletin

It was reported that there had been difficulty regarding a cash float for stamps, etc. for Bulletin postage. The Chairman will take this up with David Read and Eileen (the Bulletin distributor).

Action: Chairman

It was noted that a suggested Events List for the Bulletin included a mini-auction at the next Harpenden swapmeet, although the Committee in October 1995 had decided that such mini-auctions should be abandoned on the grounds that they brought the swap meeting to a premature close. It was said, however, that this Committee ruling had been countermanded in view of members' requests, although this change did not seem to have been minuted.

It was agreed that Guy Peskett will supply Carl Glover with information on forthcoming events for prominent display in the Bulletin.

Action: Guy Peskett

12 Rules for Society Meetings

Andrew Zimmer tabled a preliminary list of events for 1998. He also tabled a set of rules for Society meetings, revised from that previously prepared by Pam Zimmer. This was generally welcomed, given a change in item 1) to '20 minutes before opening time' rather than '9.40 a.m.', to allow for possible variations in regional meeting hall access.

Action: Andrew Zimmer

13 Key Documents in December Bulletin

Documents for insertion will be needed by the last week in November. Mike Barker will supply Membership Renewal and Constitution Ballot forms: Guy Peskett will supply copies of the Constitution Document. Carl Glover will supply Members Contact Lists. The Chairman will ensure that all these get to Eileen in good time.

Action: Barker, Peskett, Glover, Chairman

14 BVWS Web Page

Nothing further to report.

15 Any Other Business

Pat Leggett raised the question of the earlier proposed commemorative collection of Norman Jackson's drawings. It was agreed that he and the Chairman will pursue this.

Action: Leggett & Chairman

Since Pat Leggett may not be remaining in the Society after the end of 1997, he handed computer discs containing the Bulletin Index and GPO Numbers Lists to the Chairman for him to continue these projects.

Finally, Ian Higginbottom was thanked for his generous hospitality.

16 Next Meeting

7.30 p.m. on Thursday November 20th at 5 Templewood.

Back issues

Vol 10 Number 2 Inc. The KB Masterpiece, Extinct Species "A Monster Defiant".

Vol 11 Number 2, 3, 4 Inc. BTH VR3 (1924) receiver, Marconi's 1897 tests, Origin of the term 'Radio', Baird or Jenkins first with TV?



Vol 12 Number 2, 3, 4 Inc. the Emor Globe, The Fultograph, Ekco Coloured Cabinets.

Vol 13 Number 1, 2, 3 Inc. Direct action tuning, The Philips 2514, Noctovision.

Vol 14 Number 1, 2, 3 Inc. Cable broadcasting in the 1930's, The story of the Screen Grid.

Vol 15 Number 1, 2, 3, 4 Inc. The wartime Civilian Receiver, Cohers in action, Vintage Vision.

Vol 16 Number 1, 2, 3, 4 Inc. The Stenode, The Philips 2511, Inside



the Round Ekco's.

Vol 17 Number 3, 4, 5 Inc. Wattless Mains Droppers, The First Philips set, Receiver Techniques.

Vol 18 Number 3, 4, 5 Inc. The First Transistor radio, The AVO Valve tester, The way it was.

Vol 19 Number 1, 2, 3, 4, 5, 6 Inc. The Birth of the Transistor, Super Inductance and all that, reflex circuits, A Murphy Radio display, restoration.

Vol 20 Numbers 3, 4, 5, 6 Inc. Radio Instruments Ltd., Japanese shirt pocket radios, Philco 'peoples set', notes on piano-keys, the story of Pilot Radio, the Ever Ready company from the inside, the Cambridge international, the AWA Radiolette, this Murphy tunes itself!

Vol 21 Numbers 1, 2, 3, 4 Inc. Marconi in postcards, the Defiant M900, GPO registration No.s, Personal portables, the transmission of time signals by wireless, the Ekco A23, historic equipment from the early marine era, the birth pains of radio, inside the BM20, plastics, Ferdinand Braun, pioneer of wireless telegraphy, that was the weekend that was, the first bakelite radios, BVWS - the first five years,

the world of cathedrals, Pam 710.

Vol 22 Numbers 1, 2, 3, 4 inc. Another AD65 story, the Marconiphone P20B & P17B, listening in, communication with wires, the story of Sudbury radio supply, the French collection, Zenith Trans-oceanics, Farnham show, Alba's baby, the first Murphy television receiver, AJS receivers

Supplements:

1 "Just a Few Lines" The Birth and Infant years of BBC Television.

2 "Metro-Vick 1922-1928", "Early Television in the UK", "Industrial aspects of the Valve before 1925"

3 'Seeing by wireless' the story of Baird Television

4 reproduction Marconi catalogue

Earlier Bulletins and supplements are priced at £2:00 each + postage. Bulletins from volume 21 onwards are priced at £2.50 each. + postage.

Postage: for individual bulletins add 50p, for 2-5 bulletins add £1, for 6 or more add an extra 20p each.

All requests for back numbers, should be sent to the Chairman (Willem Hackmann) whose address can be found in page 3 of this Bulletin.

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| Consoles | Battery | North America |
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| Novelty | Advertising | Granny's Attic! |

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News and Meetings

Auction at Christies

Christies South Kensington will be holding a mechanical music auction on **December 5th** for catalogue details tel: 0171 321 321

Wootton Bassett 1997 and 1998

Mike Barker will be organising a swapmeet on **Sunday 7th December**. Meetings for **1998** are **July 5th** and **December 6th**.

1998 Harpenden meetings

1998 begins (for the BVWS) with a swapmeet on Sunday **1st of March**. Sunday the **7th June** hosts an auction, a restoration contest and the AGM. Autumn is heralded with a swapmeet on **6th September**, and the year finishes with a swapmeet on the **29th of November**.

1998 NEC Meeting

Jonathan Hill's 'National Vintage Communication Fair' meetings will occur on **May the 10th** and **11th October**. For further details on the NVCF please refer to the advertisement on page 2.

1998 Southborough Meetings

John Howes will be holding three swapmeets in 1998: they are on the **25th January**, **12th July** and **11th October**.

1998 Portishead Meetings

On **Sunday Jan 11th** there will be a swapmeet at the Clarence house, High Street Portishead. Doors open 9.40 am to stallholders an 10 am to members and guests. There is a bring and buy stall all day and an auction at 1pm. Tables are £10 plus £2 each for members and guest tickets. Excellent parking and catering is provided. Ring Alex Woolliams for bookings on 0117 9721973

Other Portishead dates for 1998 are **Sunday April 19th** and **Sunday October 4th**.

American meetings 1998

2nd - 5th September: Antique Wireless Association '36th Historical Radio Conference' (information: AWA, Box E, Breesport, NY 14816. Secretary's telephone: 001 607 739 5443)

The Elgin (ARCI Radiofest XVII) meeting (similar to Rochester) will run from **5th - 8th August**.

Gerald Wells' garden party 1998

Gerry Wells will be having a garden party on **Saturday 6th June** at the Vintage Wireless Museum, 23 Rosendale Road, West Dulwich, London SE21 8DS. Telephone 0181 670 3667

Bulletin Index

The Bulletin Index is currently available up to issue 22/4 and is a complete cross reference of authors, subject matter and main articles back to the beginning of the Society. Please send a large SAE (31p stamp) with a cheque for £2 payable to Pat Leggatt at 28 High Park Road, Farnham, Surrey, GU9 7JL. Telephone 01252 719081.

History of the British Radio Valve to 1940

Copies of Keith Thrower's book, *History of the British Radio Valve to 1940*, is available from Kalma Ltd., 12 Wychcotes, Caversham, Reading, RG4 7DA (Tel: 0118-947 1813) A special discounted price of £14.40 (£15.15 Eur/surface) is offered to BVWS members.

Apart from outlining valve progress and constructional details, the book provides data on 1300 valve types from those used in the First World War and through the classical years of radio and television.

New Articles

If you have anything interesting to say concerning Wireless, Television, Broadcasting, Collecting etc. please send it to the Editor for future publication in the BVWS Bulletin, as the Bulletin is only as interesting as the articles that comprise it. We welcome all suggestions and comments regarding the new appearance of the Bulletin and hope that it is catering to your needs as a collector / enthusiast / historian. Your article can be just a few paragraphs long as long as you think it conveys its message across to your fellow members.

Also if you have any photographic material that would look good in the Bulletin, don't hesitate to post it to the Editor. The chances are that I will definitely use it!

Please send all articles to: Carl Glover, c/o Runciter Corporation, 33 Rangers Square, London SE10 8HR.

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The Vintage Wireless Listing

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New Books

IF Alignment Manual 1930 - 1950 An alphabetically arranged compilation of the alignment frequencies for more than 4700 superhets, including British and American sets and those specially imported during the war. Some notes on alignment. Approx 35 pages. **£8.75** including postage.

Early Wireless by Anthony Constable. This excellent book retraces the paths of history which culminated in the final appearance of the wireless set. Much information for the collector. 167 pages. Hardback. **£8.50** p&p £2.50

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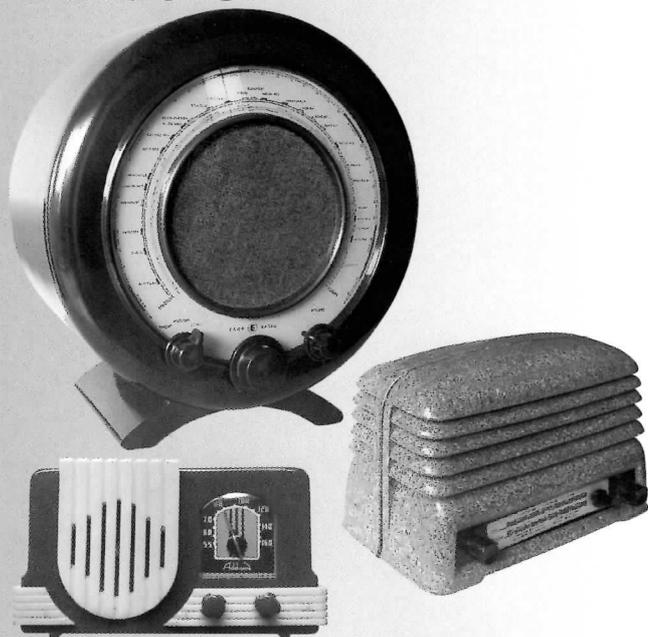
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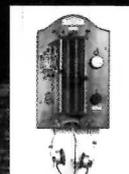
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