

BVWS bulletin

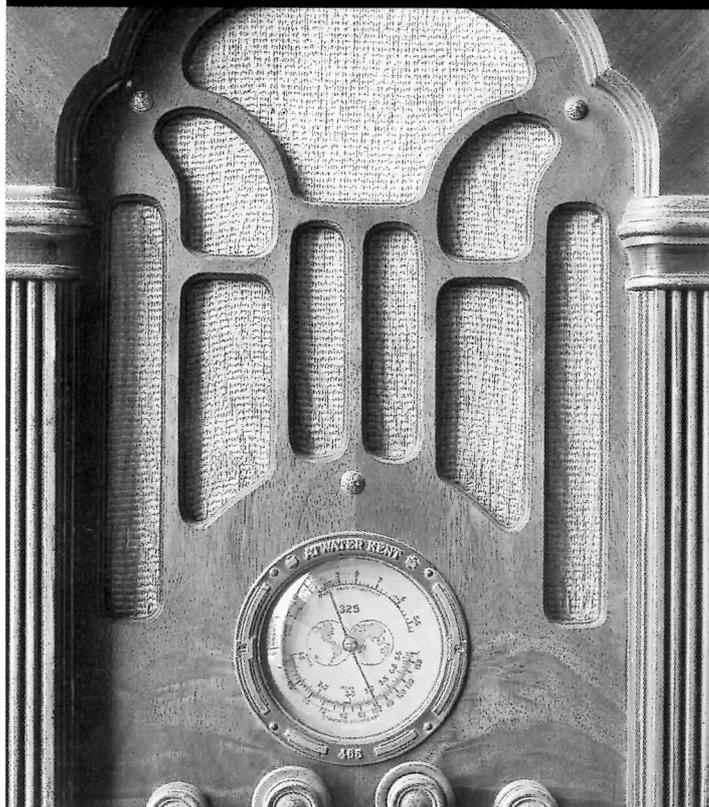
volume 23 number 3 Autumn 1978 www.bvws.org.uk



The Vintage Wireless Museum

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Proprietor: Gerald Wells. Please make appointments beforehand

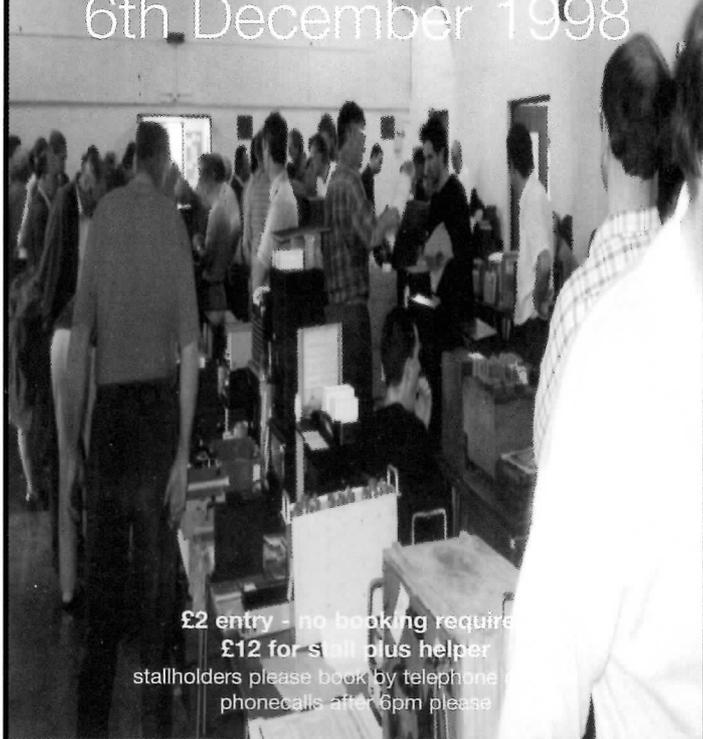


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From the chair

Bulletin of the British Vintage
Wireless Society
Volume 23 No.2 Summer 1998

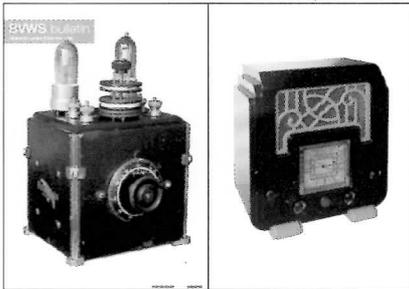
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Separations by Cutting Edge
Printed by Apollo

Honorary Members:

Gordon Bussey | Dr A.R. Constable
Keith Geddes OBE | Ray Herbert
David Read | Gerald Wells



Front cover: Polar Twin.
Rear cover: AWA Radiolette in black and green.

Cover photography by Mark Groep.
Graphic Design by Carl Glover

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BVWS members will notice in this issue of the Bulletin that the composition of the Committee (top of page 3) has changed once again.

The background to this is that Pam Zimmer with great personal regret has found it necessary to resign all her extra-curricular activities and committee positions owing to a job and house change. Pat Leggatt has offered to do the Membership Secretary job, including maintenance of the data base, until a permanent solution is worked out and the post formally elected/appointed. The Committee has agreed that Pat's offer should be gratefully accepted and that he should be co-opted onto the Committee so that the job is formally done from 'within'.

At the same time Andrew Zimmer has decided to step down as Events Co-ordinator for Harpenden and the Society's regional meetings as a concomitant of Pam's resignation, his own health, and their house move. This change adds to the situation following Ian Gurton's retirement as Harpenden Organiser. Steve Sidaway has agreed to take up the appointment of Events Co-ordinator and will also directly organise the next Harpenden. In summary, and through no fault of those who have stepped forward to do jobs on the Committee, there have nevertheless been far too many changes in too short a space of time, and the need for me to step in as temporary Chairman is no more than an example to illustrate this point.

Running a Society of about 1200 members with an international membership, quarterly Bulletins, Harpenden Meetings, auctions and members' advertisements is not a trivial task; and it must of course pay its bills, bank its money, and keep proper audited accounts as well. It is obvious that for all this to run smoothly, commitment, continuity and competence on the

Committee is absolutely essential. I believe that the present members of the Committee fulfil the requirements for commitment and competence but continuity in the longer term has always been difficult to achieve. For this difficulty to be solved we need members who believe that they have the qualities needed to offer themselves for election. A Call for Nominations which lists and explains the the jobs on the Committee is included with this issue. Members who feel that they would like to help but are understandably hesitant about jumping into the deep end, should approach any Committee Member with a view to working with the Committee in a specific area for a period, and then run for office if they feel able. In order to ensure sufficient inflow of articles for the Bulletin and continuing balance of content, the job of Editorial Co-ordinator is to be created to work alongside the Editor and carry out the 'upstream' role of getting articles in and getting them sub edited if necessary. The role of Committee Secretary (currently done by Guy Peskett) to look after the Society's timetable, AGM and election process, Committee work in progress and minutes, is to be formalised. These two jobs will be included in the Call for Nominations and it will be noticed in the nomination papers that all roles on the Committee now have specific tasks for which they are responsible.

Lastly, the Committee has decided that in view of the fact that a prime requirement of any management team is to make sure that succession takes place democratically, but also in a way that satisfies the criteria of commitment and competence outlined above, the Committee's recommended candidates will be made clear in the voting papers.

David Read

BVWS Web site

At last the official BVWS web site is here, if you want to have a look the address is:
www.bvws.org.uk

Gerry Wells' Garden party

Fair weather made June 6th a memorable event with Gerald Wells' garden party. The usual offbeat atmosphere pervaded the garden with *Lo-Fi* music, quizzes and prizes for nearly everybody participating.

The photograph on the right shows Andrew Emmerson of *405 Alive* and *Old Television* fame, receiving a fabulous prize.



The Radio Communication Company

By David Read, photography by Mark Groep

Below: 'Polar' Radiophone 7 Valve Receiver: This receiver is the single cabinet version of the three units shown in the accompanying illustrations. It consists of a double-circuit tuner (R.A.33), a 3 stage high frequency amplifier (R.A. 34), and a 4 valve detector and low frequency amplifier (R.A. 35). Coil blocks with ivoryine scales plug into the tuner and amplifier units, and drive cords connected to the tuning condenser spindles allow the required wavelength to be read by pointers. This is thought to be the earliest example of pointers driven by drive cord. The set allows for considerable flexibility in operation, reflecting its marine heritage: Series or parallel tuning can be selected and the high frequency amplifiers need only be switched in when searching for signals, or when signals are very weak. Headphone reception at the detector stage is available via jackplug and a further jackplug enables two stages of amplification to be connected to phones or speaker. A third stage for loudspeaker operation only is engaged by a controlling knob on the panel marked 3rd valve. R.C.C. literature recommended Amplion speakers and an AR. 19 is shown with the set.

Right: Basil Binyon, Managing Director, Radio Communication Company, Director, British Broadcasting Company, Director, Mullard and C.F. Elwell Ltd.

Far right: advertisement for Amplion AR19 loudspeaker.



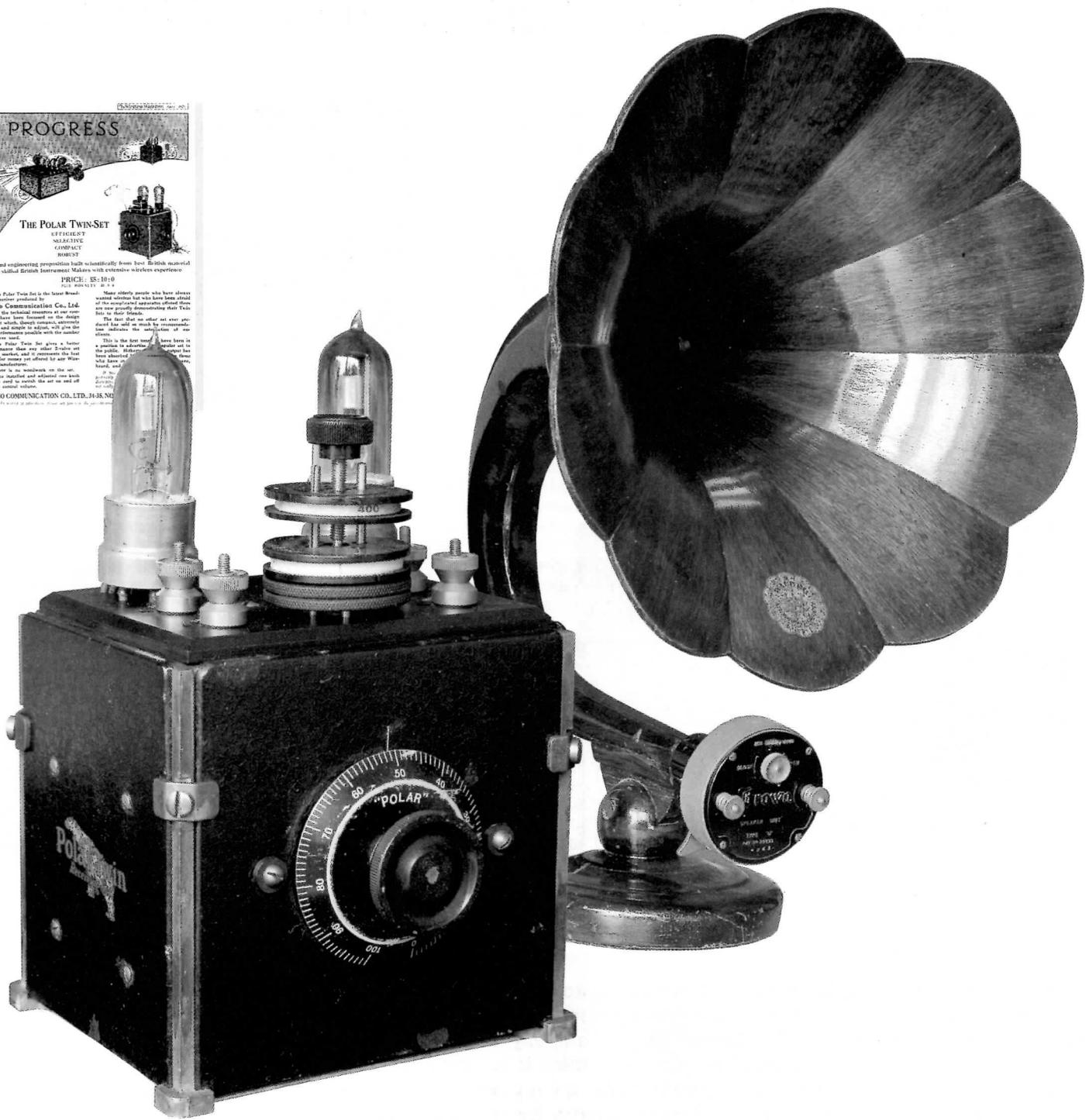
In the Spring issue of the *Bulletin*, I covered the history of Metropolitan Vickers and its associations with Westinghouse in the USA and the Radio Communication Company in the United Kingdom. Of the 'Big Six' companies that formed the British Broadcasting Company, the Radio Communication Company (R.C.C.) remains the least well known. Like Met-Vick with which it formed a pooling agreement for the manufacture and sale of its domestic radio interests, it was in reality a big player in the professional market. Unlike Met-Vick, however, its interests were exclusively in radio telegraphy and telephony and with a strong emphasis on opportunities in the colonies.

The relatively few domestic receiver designs produced by R.C.C. were unusual in being of modular design and based on a successful high quality component business under the 'Polar' name. The business arose to serve an international business in land stations and marine communications and its fascinating story is inextricably linked to Basil Binyon, its Managing Director throughout its short history. The company was incorporated in March 1919 under the aegis of the Indo-European Telegraph Company and immediately stated its aim as 'The manufacture, sale and operation of radio apparatus, including 'Polar' radio equipment for ships and land stations, together with every description of broadcasting supplies'. The corporate strategy was clearly to create an independent company with a specifically

international — albeit Empire — focus, free from the Indian constraints of its founding organisation. Sir William Brooke, formerly Director General of Telegraphs, India, was a member of the Board with Basil Binyon the Managing Director.

As we shall see, Binyon's experience was crucial to the philosophy and international aims of the new company. Born in 1885 he took a Natural Science, Tripos with distinction at Trinity College Cambridge, followed by a year of post-graduate engineering study. Binyon then joined the Cambridge Scientific Instrument Company as a 'workman', where he learned practical factory techniques and processes at first hand, working from six a.m. to six p.m. for next to nothing. The pay for even the most skilled and senior grade of Instrument Maker at that time was 11d. an hour. In 1909 at the

age of 24, Binyon joined the Lepel Wireless Syndicate as Engineer with the responsibility to construct a wireless station in Jamaica. The Lepel transmitter system was described by Rupert Stanley in *Text Book on Wireless Telegraphy Vol.II* published by Longman, Green and Co. in 1919. It was invented by Baron Von Lepel of Berlin in 1908 and achieved considerable success in stations in France, Belgium and the West Indies. It consisted of a form of quenched spark gap which like the Duddell arc was capable of giving out a musical note. In the Lepel Transmitter the inductance of the auxiliary circuit is fitted with a switch keyboard so that by manipulating these keys the spark note can be changed; indeed a tune could be played in the transmitter and heard in the receiver. The Jamaican station was a success but Lepel had over-reached itself and was



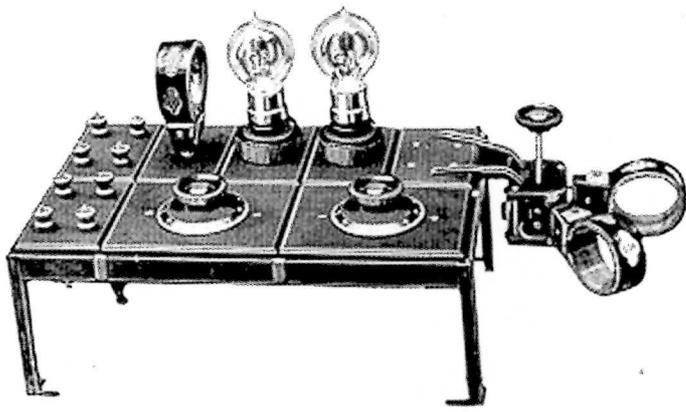
acquired by Compagnie Générale de Radiotélégraphique, a company specialising in marine radio, and Binyon was appointed Research Engineer in Paris where he worked on the wireless installation for the yacht of the Prince of Monaco. The installation was sufficiently elaborate to be capable of reproducing the notes of the French national anthem when played on a piano, and was the first to transmit music by ship's radio. A sensation was created when the Prince sailed into New York Harbour playing the *Marseillaise*. With its business expanding, C.G.R. set up an English Subsidiary, the Anglo-French Wireless Co. in 1911 with Basil Binyon in charge. The Year Book of Wireless Telegraphy & Telephony for 1918 shows that C.G.R. was operating wireless apparatus on more than 120 mercantile ships and had provided 500 stations to the French Marine and over 100 land stations around the world.

By then, however, Binyon had resigned his job in order to take charge of wireless for the Royal Naval Air Service in the 1914-18 war, and later the RNAS wireless experimental work at Cranwell. It seems certain that he would have got to know Stanley Mullard who was working with the Admiralty at the Royal Naval Signal School to develop high power transmitting valves using fused silica instead of glass, and this was to influence R.C.C. policy for its choice of valves as will be seen later. As soon as the war was over Binyon resigned his Commission and in 1919 was appointed Managing Director of the newly formed Radio Communication Company. He was only 34 yet had an unrivalled blend of academic, practical and international managerial experience.

A major problem for the R.C.C. and indeed for every wireless company in the world, particularly one with international business in

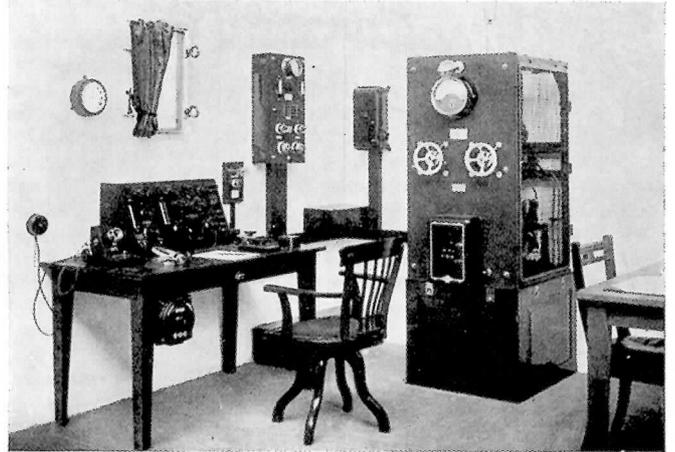
Above: The Polar Twin was advertised in catalogues as a set of exceptional performance, capable of operating a loud speaker from the main broadcasting stations when connected to a good indoor aerial. With an outdoor aerial and careful tuning, American stations could be received on headphones. The circuit embodies both high and low frequency amplification, and an interchangeable rheostat for bright or dull emitter valves was fitted. The coil unit supplied covered all normal BBC wavelengths and an interchangeable coil was used for Daventry. The tuning condenser is the standard sealed marine unit. The structure of the set is a framework on which is mounted an ebonite panel and the four sides are fitted with crystalline finish metal panels. The whole is essentially a single unit of the Polar Blok system. The example in the photograph is fitted with Mullard ORA valves and shown with a loudspeaker made by Walbro Allwood Products, fitted with an S. G. Brown drive unit.

Top: Advertisement for 'Polar Twin'

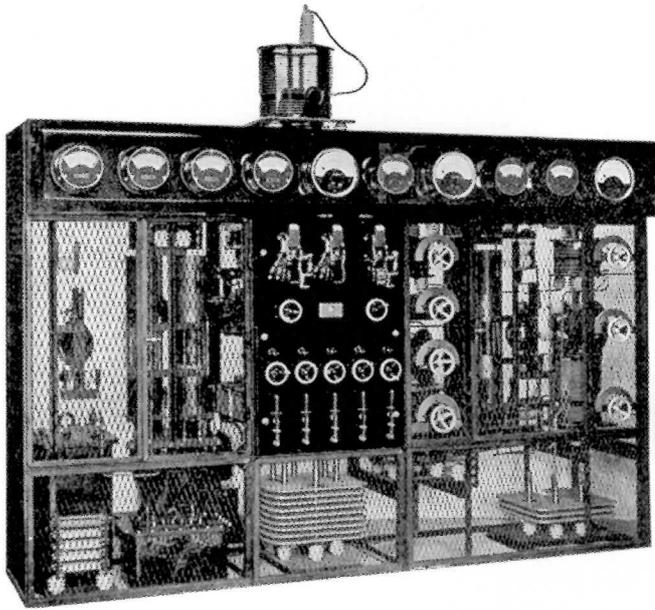


A Wireless Cabin on Board Ship

Showing 14 KW Spark Transmitter and Receiving Apparatus



By courtesy of Radio Communication Company, Ltd.



Triumph of Polar Blok System of Set Building

The following telegram is from Capt. Binney, of S.S. Polar Bjorn, at present in the Arctic with the Oxford University Polar Expedition:—
To Radio Communication Co., Ltd., London.

"Oxford Expedition sends heartiest congratulations from North East-land. Broadcast received perfectly over 2,000 miles. Your Polar Set Transmitter working admirably—proving utmost value and safeguarding all our interests."

BINNEY.

NOTE.—Broadcast referred to was 2 I.O. received over 2,000 miles on a POLAR BLOK 4-valve receiver (2 H.F., 1 Det. and 1 I.F.).

You can learn how to build this identical set at home from the POLAR BLOK BOOK. Write for it to-day.



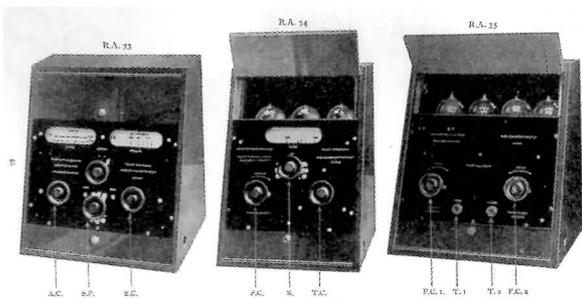
ship's communications, was the argumen-
tative presence of Marconi's Wireless
Telegraph Company, formed to exploit
Guglielmo Marconi's own and acquired
patents through its Subsidiaries. The
problem had existed from the earliest days
and is exemplified in the Secretary of the US
Navy's annual report in 1902, which
commented on difficulties in arranging
competitive trials of equipment: 'It appears
that the Marconi company which the Bureau
is reliably informed is controlled in London
objects to the (Navy) Department acquiring
other wireless telegraph appliances than its
own, and yet refuses to supply the latter
except under terms which are illegal and of
great disadvantage to the Government'. In
other examples the Marconi company
refused to allow communication between
stations in which one employed Marconi
equipment and the other the equipment of a
rival manufacturer. Yet over the following
decade Marconi equipment underwent little
basic improvement in design or circuitry and
was considered by most engineers to be
obsolescent. This seems to have been a
direct consequence of the Company's
combative energy going into the protection
of its two most important existing (ancient)
patents - those of Sir Oliver Lodge for
tuning and Dr. John Ambrose Fleming for

the vacuum tube diode - at the expense of
moving forward. The position was succinctly
put by Professor Maclaurin at the
Massachusetts Institute of Technology, in
his book 'Invention and Innovation in the
Radio Industry': 'Marconi's principal
weakness as a director of research was that
he emphasised the perfecting of existing
methods instead of reaching out for radically
new discoveries in wireless'.

By the end of the Great War, at the time of
the incorporation of the Radio
Communication Company, and largely
because of difficulties with the Marconi
Company, the log-jam in patents meant that
no single company could manufacture a
modern wireless station or receiver without
infringing patents and risking litigation, and
the industry overall was forced to come to its
senses. The shares and assets, including
patents, of the American Subsidiary of
Marconi's were acquired by General Electric
to form the RCA (with support of the U.S.
Government who wanted to end Marconi's
obsolete monopoly position) then pooled
their vacuum tube patents with those of
Western Electric who owned the De forest
patents. Westinghouse with ownership of the
Armstrong regenerative and superheterodyne
patents then joined the group. As a result of
these agreements, RCA obtained rights to

practically all the important patents in radio
at that time. To control the situation interna-
tionally, RCA in 1919 entered into
agreements with Marconi's Wireless
Telegraph Co. Ltd, the Compagnie Générale
de Télégraphie sans Fil, and the Telefunken
Corporation, and these arrangements were
to run until 1945 by which time most patents
would have expired. Each of these
companies was to have exclusive rights to
the use of its patents within its respective
territories, as well as for mutual traffic
arrangements. Thus was organised the first
international radio cartel, and whilst other
companies would have to pay royalties
where appropriate, the way was at last clear
for the latest technology and designs to be
used, and competition to take place from
companies such as R.C.C.

The product lines developed by Basil
Binyon in this changed competitive
environment were to mirror the international
ship and shore installations business that he
had mastered at the Compagnie Générale de
Radio Télégraphique. As a direct competitor
of the Marconi company in the manufacture
of transmitting stations, and so as to secure
an independent supplier of high power
transmitting (and other) valves, R.C.C. took a
major shareholding in the newly formed
Mullard Radio Valve Co. and Binyon joined



Sale of 'Polar' components to other manufacturers
 R.C.C. components were widely used by other manufacturers, the best known being Metropolitan Vickers who incorporated the 'Polar' Precision Condenser in the VR4 (Cruet) set and the C4 crystal set. (See Bulletin 23 No.2)
 The earlier 1922 Marine Condenser used in the Radiophone and 'Polar' Twin photographed in this issue was extensively used along with other 'Polar' components in the home constructors market, and by the end of 1924 over a quarter of a million were in use. Here it is shown used by Stockall, Marples & Co. in their 'Big Ben' unit construction system patented in 1923. It is the foundation panel, set up in this case as a crystal set.

its Board. Further equity in Mullard was acquired by C.F. Elwell, (the erstwhile Australian Chief Engineer of the Poulsen Wireless Telegraph Company) whose English Company C.F. Elwell Ltd also had Binyon on the Board. As an independent contractor to H.M. Government for wireless valves Mullard had the support of the Admiralty, and Binyon's judgement in supporting Stanley Mullard was vindicated when patent litigation against the Mullard Radio Valve Co. brought by Marconi's was not successful. A full account of the development of high power silica valves by H.M. Signal School and Mullard can be found in the August 1923 issue of Modern Wireless.

For R.C.C. to succeed in its chosen field it needed to attract innovative engineers and a Board member with first hand international experience of the marine environment. From the Air Ministry Binyon brought in his two

best radio engineers, and he appointed James Herbert Scrutton onto the Board. Scrutton was apprenticed in his father's shipping business in 1876, and became a Partner in 1884. At the outbreak of war he organised British shipping to meet the menace of the submarine blockade, and from 1916 to 1918 was Vice-President of the Chamber of Shipping. In 1920 James Scrutton was appointed Chairman of Lloyds Register. On the Board of R.C.C., instinct, training and experience all combined to induce him to take a special interest in minimising risk to ships at sea through the use of radio in navigation and direction finding (RDF), and this led to a successful business for the company in RDF based on the Robinson system. Marconi, who had acquired the patents of the Bellini-Tosi system, nevertheless quoted Scrutton in their own advertising as an advocate of RDF - no

doubt by reference to his position as Chairman of Lloyds Register. Innovative transmitter and receiver designs produced by R.C.C. were unusual in being of modular construction and based on a complementary and successful high quality marine component business under the 'Polar' name. Over the next few years the Radio Communication Co. was to win the business of the Bibby Line, (the first in the world to fit its entire fleet with radio) the Peninsular and Oriental Steam Navigation Co., the principal Cunarders, the Union Castle Line, and more than 100 other shipping companies. In the United Kingdom, land stations were constructed at Parkstone Quay, Seaforth (Liverpool), North Foreland; and in the West Indies in St. Kitts, Antigua, St. Vincent, St. Lucia, Dominica, Grenada and Barbados.

In March 1922, Binyon and Captain Hilton, his co-director at Metropolitan Vickers, were

Wireless in Excelsis! Ursa Major does a little Celestial Broadcasting

By Col. E. Hobday, C.M.G.



Captivity Made Easier

By Colonel E. Hobday, C.M.G.



instrumental in presenting key proposals to the Post Master General that together with those presented by Marconi's and others resulted in Government permits for experimental broadcasting. This was to lead to the formation of the BBC in which R.C.C. became one of the six founding companies, and with the advent of Broadcasting in the UK the R.C.C. secured contracts for masts and transmitters for the BBC to add to their mainly overseas business and marine business. As a Director of the BBC Binyon showed a side to his character than was perhaps unusual for an engineering manager. Not only did he have a sure judgement of people but a deep understanding both of public affairs and the need for the common touch; areas in which Reith although patrician by nature was nevertheless at ease. In December 1924 when a root and branch restructuring was needed in the BBC to overhaul and manage publicity issues, Major Gladstone Murray was brought in from the Radio Communication Co. as Director of Publicity. He was given extensive powers including authority to control the editorial side of all publications such as the Radio Times, as well as responsibility for all public relations. Gladstone Murray was appointed on the recommendation of Basil Binyon who had earlier appointed him to a similar position in the Radio Communication Co. At the R.C.C. he was also the Editor of the magazine 'Radio', published three times a year by Radio Intelligence, a Subsidiary of the R.C.C. and an invaluable source of

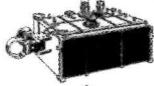
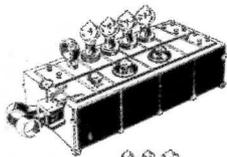
reference for this article. Asa Briggs in volume I of his authoritative *History of Broadcasting in the United Kingdom* pays particular tribute to Binyon for his help and says of Gladstone Murray, 'the confidential memoranda which he submitted to Reith on a large number of subjects were models of acuteness, lucidity, and forceful argument'. On the subject of the BBC's programme content, Binyon, a member of the Programme Board, argued for a larger proportion of purely recreative items as opposed to those items demanding sustained concentration'. This argument was clearly about balance of content in programmes rather than the first seeds of 'dumbing down'!

With R.C.C.'s shareholding in Mullard, all Polar transmitters were sold with Mullard valves, and for broadcast receivers Mullard valves were the recommended standard. An association with Alfred Graham and Co. existed which no doubt also arose through the marine business, where Graham phones, loud speaking telephones and switchboards for ships' telephone communications had been provided to various navies since the turn of the century. R.C.C.'s own advertising supported A. Graham and Co., and Polar equipment was supplied with Graham headphones as the recommended accessory. In 1920 A. Graham and Co. introduced the now famous Amplion range of horn speakers which were supported in R.C.C. literature thereafter.

The company's trade mark was a polar

bear and was the most notable example of brand imaging at the time. The provision of wireless to exploratory ventures perhaps explains the origin of the trade mark which continued to be reinforced by cartoons of polar bears (see the illustrations in which a polar bear can be seen holding a copy of 'Radio' and taken from the same magazine). Images were also used from explorations such as the Oxford University Arctic Expedition in the 'Polar Bjorn' to survey North Eastland, an unexplored island off the North Pole. This was no shoe-string adventure. The party comprised: The ships Polar Bjorn and Oiland, an Avro Lynx seaplane, 'Polar' wireless equipment, three sledging parties with dogs and dog drivers, surveyors and scientists totalling 38 men in all. This expedition, following earlier ventures in 1922 and 1923, was equipped with R.C.C.'s standard 1.5 kw synchronous spark transmitter and a 5 valve (3 H.F., 1 Det. and 1 L.F.) Polar Blok long wave receiver. The following Testimonials for the Polar transmitter and the Polar Blok receiver duly appeared from George Binney, the Expedition Commander, and the following example no doubt served the Radio Communication Company very well. 'On our starboard bow we could dimly see the great ice cliffs of North Eastland. We were fogbound and ice floes lay around us. We had dined: Soup (Maitre d'hotel), Polar Bear steak, Peaches and a glass of port. Then we listened in and the Savoy Orpheans played to us. We were 2,000 miles away. Our ears

Build your Set the Labour-Saving Way

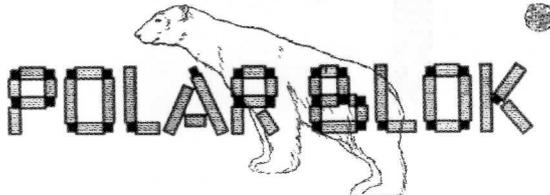


THE Polar Blok System simplifies the building of Wireless Sets in just the same way as the use of steel framework, interlocking parts and standardised sections have simplified the building of works, of houses and of motor-cars.

The Polar Blok Method reduces the labour and time required for assembling, and leaves you more time for actual experimenting—for the testing of a thousand and one circuits, the adjusting of values and the developing of your set to full efficiency.

There is no workshop practice needed with Polar Blok; no sawing, drilling, filing or soldering. An interlocking metal framework is used, on which standard, ready-assembled panels are mounted in any sequence or combination you please. Insulated wire is provided, which readily permits the angular

method of wiring which gives a set the desirable neatness beneath panel, in addition to the excellent appearance of the exterior. You can extend your set at will with the Polar Blok System, making it perfectly practicable to add any number of improvements or further valves without "scrapping" any previous parts.



For real Experimenting—without workshop, litter or labour.

Pliers and Screwdriver the only tools needed.

Write for full details. Polar Blok Parts are sold by all good-class Radio Dealers.

Radio Communication Co. Ltd. 34-35 Norfolk Street, Strand, London, W.C.2

might well have been at the Savoy itself it was so clear. In fact we were transported from our cold, barren surroundings to the very threshold of gaiety. We fancied we could hear the shuffle of the dancers' feet. There was no mistake about their applause. How odd and fantastic it all was. There's no place like home, and there's no wireless receiving set like the Polar Blok'.

The domestic side of R.C.C.'s business was limited as far as variety was concerned when compared to companies whose main focus was the high street; for instance, as far as I am aware no crystal set was made, which immediately disqualified the large but less well off majority of potential customers from buying the cheapest type of receiver from the company. R.C.C. was unusual in that it pioneered the unit system for shipboard receivers in which ready-made stages in sloping panels (Polarphones) could be supplied, as well as the Polar Blok construction system, completing these in the factory to the required specification and taking special care with the quality of components. When public broadcasting

started, its domestic receivers would seem to have come straight off the same production lines, but sold in kit form for home construction as far as the Polar Blok system was concerned. The variable condensers for instance are identical for both markets, and being constructed for a marine environment are sealed and oil filled with the electrodes separated with ruby mica. Advertising for the domestic market stressed the professional side of the business and indeed invited job applications from radio operators and engineers. Cabinet sets such as the one photographed for this article are hard to distinguish from the marine article. It is the only one I have ever seen, and I have never seen a set in Polar Blok.

By the beginning of 1925, however, Polarphone and the Polar Blok system were replaced in the domestic market with something simpler and off the shelf; something that did in fact sell in the high street. It was the Polar Twin which amounted to a single element of the 'Blok' system, but fitted with two Mullard valves and clad with metal panels finished in black crackle paint.

In size, design and price it seems to have been the only exclusively domestic radio ever produced by the R.C.C. Although simple it was extraordinarily efficient, and again the advertising stressed the marine and transmitting station company behind the simple product. The example photographed for the Bulletin was kept by its original owner from 1925 until 1977, and was (he said) 'the first set in the Woking area to receive American stations'.

The Polar Twin continued in production for a few years but proved to be the last as well as the first domestic set made by the Radio Communication Company in any quantity. Waves of rationalisation began sweeping through the electrical industry which were to reduce the number of large companies dramatically. By 1927 negotiations were taking place that would cause Met-Vick, BTH and Edison Swan to combine and form Associated Electrical Industries(AEI); and at much the same time Mullard was acquired by Philips and the R.C.C. was absorbed by Marconi's. R.C.C. continued to operate as an autonomous Subsidiary and Basil Binyon joined the Board of Marconi International Marine Communication Co. But more was to come: In 1928 a merger took place between the Eastern Telegraph Co. and Marconi's in which Eastern Telegraph held the controlling interest. In 1929 two new companies emerged to control the outcome of this merger; Cable and Wireless Ltd which owned all the shares in Marconi and the cable companies, and Imperial and International Communications Ltd which owned and operated the actual radio stations, cable stations, and other assets. In 1934 these two companies were renamed Cable and Wireless (Holding)Ltd 1934, and Cable and Wireless Ltd 1934. Immediately after WWII in 1946, the Marconi element of Cable and Wireless was acquired by English Electric, which together with AEI disappeared during the 1960s into the maw of the GEC to form the present structure of the UK's oldest and largest electrical and electronics companies. The Radio Communications Company is still listed (presumably dormant) as a Subsidiary of GEC.

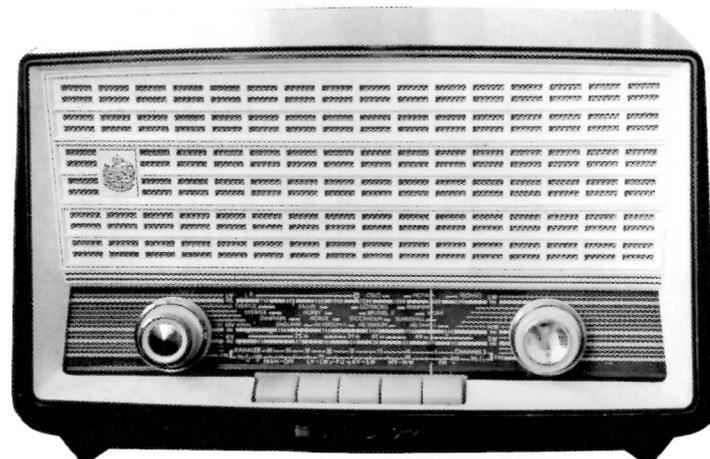
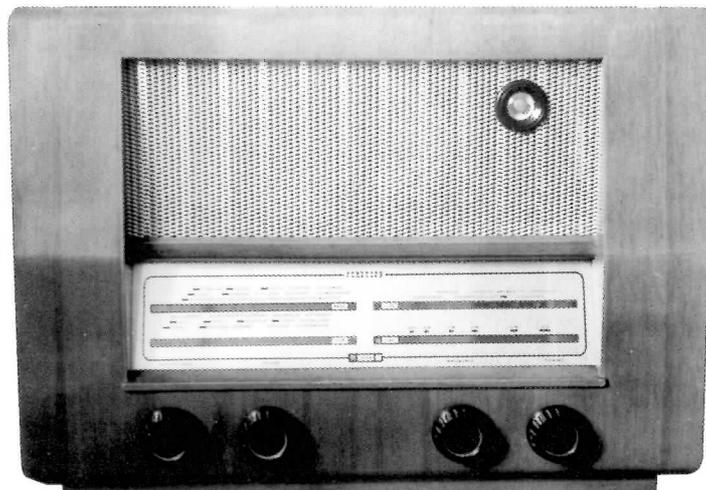
Basil Binyon died on the 4th April, 1977 at the age of 92. In his last entry in Who's Who he chose to make no mention of his achievements in the electronics and communications businesses in which he had made such an outstanding contribution. He chose instead to mention his direction of radio for the Admiralty and the RAF, and his position on the Board of the BBC. Reading between the lines of commercial history I would guess that this remarkable man from a Quaker school, who valued creativity and the development of people, had become disillusioned with the acquisitiveness and cut-throat behaviour of the people in the businesses with which he eventually became involved.

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Early FM Receivers by Peter Nash

Possibly, the early British FM receiver tends to be underrated as a class; they do not generate much attention. This is a shame, for in 1955 with the launch of the BBC FM services, they were the first successful attempt to give the man in the street a taste of high fidelity. 'The BBC shackle crackle with VHF' ran an advertising slogan for the new Bush model VHF61. '...when you hear the clear, crisp reception of the new VHF broadcasts, unmarred by interference or background noises, you will realise what listening pleasure awaits you' promised Ekco in their promotion.



From my own experience with a selection of early FM receivers, some can be said to merely receive FM broadcasts, while others seem to do full justice to the complete depth and range of the broadcast programme. It is my intention in this article to highlight one or two such models. These radios can generally be found easily enough and have the added advantage that the valves employed are still obtainable fairly cheaply. Therefore, these make good 'everyday' radios. However, it is unfortunate that the majority of these receivers rarely tune above about 100MHz.

Service tips

As regards servicing AM/FM sets as opposed to AM only sets, the biggest problem that I've come up against is that of HT leakage across the wavechange switch. Fortunately, though, it does not happen very often. When switching between AM and FM, several stages are affected. HT feeds, AGC lines, even feedback arrangements in the audio stages may be switched. The resulting close proximity of these various potentials and signals can cause chaos if leakage

occurs. The worst scenario is if an HT feed leaks down to a chassis connection, causing a loud 'snap' and lots of sizzle and smoke!

If an affected switch wafer is examined, a small black carbon crack may be seen in the worst case, but sometimes nothing untoward may be seen. One way of dealing with the problem once the affected area has been positively identified is to clean it as thoroughly as possible, then using a precision modellers drill (bit size about 1mm) drill out a 'slot' as necessary to break the conductive path. Sometimes this method works well, at other times it is only a temporary solution. Some manufacturers were very trusting of the insulating capabilities of their switches!

If distortion cannot be 'tuned-out' and bad alignment is suspected, it is worth trying a new valve in the detector position first before becoming involved with re-alignment. It's worth remembering this, it may save a lot of time!

Now let's take a quick look at the Ferguson 329A of the mid-fifties.

Ferguson 329A

This is an attractive, wooden-cased table model that seems to have been produced before the manufacturers became overly cost conscious. This is a four waveband set fitted with a dual sensitivity magic eye and flywheel tuning. In use on FM, this set has a smooth, well-balanced tonal quality without any of the harshness sometimes found in its contemporaries. As with many other models, a glance at the circuit diagram reveals conventional circuit techniques, but the use of negative feedback, together with well chosen de-emphasis components, good quality speaker and output transformer have combined to good effect. It pulls signals in well with its own internal aerial.

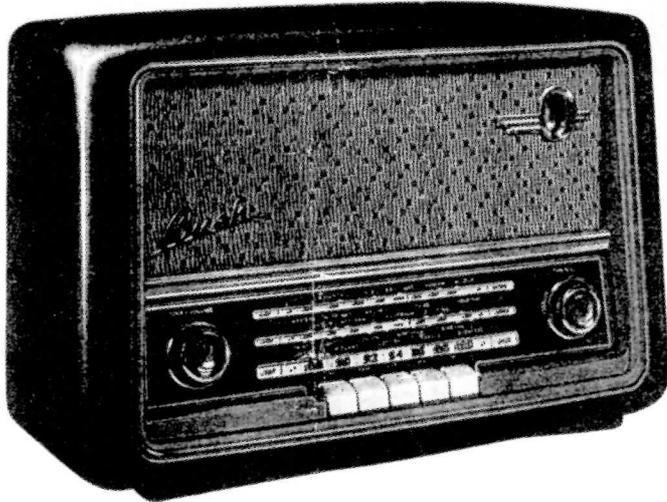
It uses the standard E80 valve line-up apart from the magic-eye which is an EM34. It also uses those tiny brown Hunts capacitors, most of which by now will be in a very fragile state. These capacitors should be replaced, especially the AF coupler to the output valve and the de-couplers in the IF stages.

Cossor 524

This is a neat four waveband bakelite radio



B.B.C. shackle crackle with VHF



28 GUINEAS
TAX PAID



Thousands of listeners in Great Britain had forgotten how good radio reception used to be—thousands more never knew until the BBC augmented their normal sound programmes with their Very High Frequency service, for in many areas intense interference had killed all the joy of listening.

Now the BBC V.H.F. programmes will high cover the whole country, and once again it is possible to listen to radio and appreciate, with an entire absence of background noise as never before, the full beauty of music.

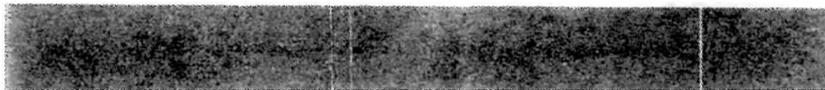
Illustrated in this folder is the Bush VHF.61, one of the latest radios designed to receive on the V.H.F. Medium and Long wavebands. It is for use on A.C. only.

Five piano keys switch to the desired waverange or gramophone pick-up, and turn the radio on or off.

The VHF.61 has two internal aerials—a modern ferrite rod type for Medium and Long wave, and a balanced di-pole for V.H.F.

Sockets are also provided for connecting an external aerial in either case, if this is preferred.

The moulded cabinet is in dark brown with a gilded escutcheon, giving the set an extremely smart and modern appearance.



rich indeed. Megabass would be the word used by present day manufacturers to promote this set. Let's delve into the circuit to see what makes it sound so good.

The volume control is one of those types where the resistive track is tapped at about 40% up from the bottom end. The tap plays a crucial part in maintaining tonal quality. There is a very clever capacitor/resistor network connected to this tap. It works like this: two resistors in series with a capacitor is connected from the tap down down to chassis. This has the effect of attenuating middle to high registers with respect to much lower ones. This is the same as giving the impression of a bass lift. The two resistors in series form a potential divider, at their junction a measure of negative feedback from the output transformer secondary is applied. This aids a wide frequency response and low distortion. Lastly, a small value capacitor is connected from the tap to the top end of the volume control track. This provides a lower impedance path for the very highest registers, in other words it will sound crisper. The net result is that at normal listening levels (ie the volume control set to 40% or less) there is a lift of bass and treble. This form of loudness control works very well in the Philips.

Philips 543A

As noted already I'm biased towards Philips receivers but this is one of my favourites. The chassis that forms the basis of this set (and

the 643A) is, I believe, the first British AM/FM offering from Philips. The 543A is a black bakelite cased set, larger than the B3G63A with gold painted detailing, green and gold dial and six white piano keys. In appearance it is striking and has a performance to match. It has four wavebands, variable treble, switched bass response and a ferrite rod aerial for MW and LW which is rotatable from a control on the front of the set, to give the best reception wherever the set is placed.

Examination of the audio stages reveals the favourite Philips trick of placing a resistor capacitor network across the tapped volume control, but there is much more to it than that. The circuit designer must have had a field day here and has produced quite a complex amplifier considering it only uses the EABC80 and EL84 valves. It's actually quite difficult to follow exactly what's going on as there are feedback loops everywhere. What is clear though, is that both negative and positive feedback are used. This is derived from the output transformer secondary which is tapped. Be very careful here if there is a problem with the output transformer and replacement is being considered. The feedback connections are very important. If you do not believe me, I suggest that firstly you close all windows and doors of your house to avoid complaints from your neighbours! You'll get several volts of pure squawk!

Philips made a variant of the 543A which

was the 643A mentioned earlier. It was fitted inside an elegant wooden cabinet, had a magic-eye, extra dial lamp and an illuminated indicator to show the status of the tone control.

Dux SA2016U

All of the radios we have looked at until now have been AC mains only types, but there have been some excellent AC/DC models produced too. One of these is the DUX SA2016U which is a very compact receiver. Are you unfamiliar with the name? It actually seems to be a Philips (sorry!) derivative, perhaps Dux is a Danish or Swedish brand name. It bears close resemblance to the Philips Philette. It has piano-key wavechange, 4 wavebands, concentric controls for volume and tone, two separate dial drive systems for AM and FM again on a dual concentric control plus a most brilliantly edge-lit dial. All of these features are packed into a bakelite cabinet measuring only 8 inches high by 13 inches long!

Utilising the U80 valve series, this diminutive receiver is lively on all bands and has a surprisingly good bass response given its restricted dimensions.

There it is. I've attempted to show that some early FM receivers had interesting design points and that they are worthy of attention. For anyone hearing one of these sets for the first time back in the fifties, it must have been a revelation.

The New Classics: Roberts R200

by Geoffrey Dixon-Nuttall

The articles on "Classics" at one time were a fairly regular feature of the "Bulletin", and it was suggested that they be revived. As transistor sets are now regarded as respectable, here is, I think, a classic 1960 one. I was involved in making this set, and it makes me feel very old that it is now regarded as collectible.

Roberts Radio have, of course, reproduced the design as the "Revival", which shows its attraction. They seem to be still quite plentiful and therefore inexpensive; this is understandable as they are quite tough and we made about a quarter of a million of them.

The original design was a simple portable, the circuit being as laid down by Mullard. The only original feature was that the second if amplifier was biased from the emitter of the driver stage, which saved a couple of components. Very necessary on this compact board. Even so, a couple of components finished up underneath it.

A lot of thought went into the mechanical design. The chassis is all assembled by four rivets and the nuts on the controls. This chassis is held in the cabinet by a pair of wooden wedges, which may seem odd but works very effectively. (Eyelets are provided to make them easier to remove.) The battery is supported by a strong bracket, and also retained by a spring clip. The reason for this is that these sets were supplied complete with battery, and if somebody opened the back the battery would fall out, which might give a bad

impression and also even break the leads.

The moving components being the only things that would wear out, attention was paid to them. Wingrove and Rodgers made a nice little tuning capacitor, with a built-in epicyclic drive, and with the oscillator section cut to track. The volume control was a Plessey moulded-track type. The original switch was the BT type with single contacts, but later versions used a standard wafer type. All good stuff

The cabinet was up to the usual Roberts standard, with a "piano-type" hinge. The handle is actually PVC, of a "dog-bone" section, and then faced in leather. Leather by itself is not strong enough, as we had found from previous models. The ends of this handle are bound with webbing ends as used by the army, and it is held to the case by a couple of upholstery nails, cut short. (Why tool up when somebody has already done so?). All the metal parts are gold plated.

Space being short, the high-flux speaker is held in to the cabinet by the baffle, which is behind it. A ball-bearing turntable is fitted.

The second version of this set was fitted



Roberts' Radio
NEW TRANSISTOR MODEL

R200



the
finest
of all
portables

Price **17** gns. (Complete with battery and P.T.)

Weight 5 lbs. Size 8 $\frac{1}{2}$ " \times 5 $\frac{1}{2}$ " \times 3 $\frac{1}{2}$ "

ROBERTS' RADIO Co. Ltd., Molesey Avenue, West Molesey, Surrey



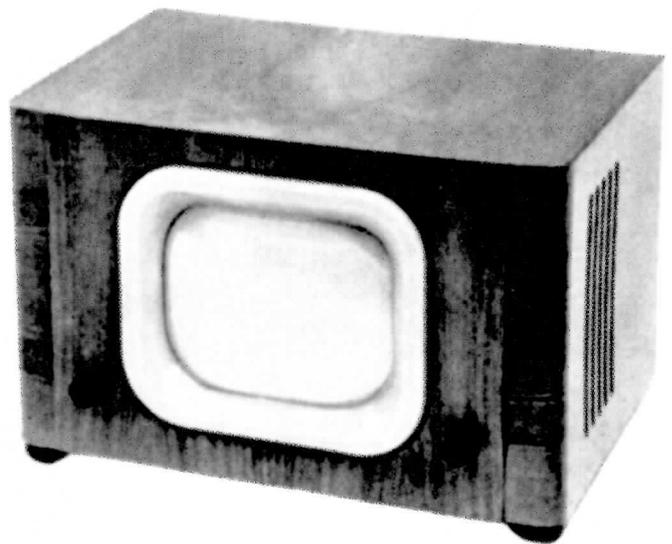
with a battery economy device consisting of a diode which compensated the bias on the output stage, for temperature and voltage. This diode was actually a dud transistor supplied by Mullard for the purpose, using only one junction. This circuit was so effective that the set was recommended by "Which?" for its battery life. We did not have it our own way for long, as Pye copied the circuit. We couldn't patent it as it came out of an article in "Funk Teknik".

The final version was a re-design using the AF117 series of transistors., and double tuned if transformers. This was in some ways an over-kill, as the extra sensitivity was at the expense of background noise. Also nobody knew then that these transistors were self-destructive!

Anyway I think it's a very nice little radio. The knobs and badge are weaknesses, although the latter can be replaced (from Roberts). The handles also wear out, due to the effect of perspiration and sunlight on the plastic, and there are, of course, no replacements. The chassis, though, seems to go on and on.

Early Post-War Television receiver development

by Pat Leggatt



The Pye B18T: the first 'modern' TV

The first post-war television receivers naturally embodied the patterns and techniques of those existing before the war. Receivers tended to be large and heavy and expensive, but offering small and rather dim pictures. There were some large picture tubes giving a bigger picture area, but these were very long and were usually mounted vertically and viewed via a 45° mirror which was not a popular arrangement. Clearly the public would only become a large and enthusiastic audience if bigger, brighter pictures could be provided in a domestically more convenient form.

From a reception point of view there was no particular difficulty, despite the large aerials required for Band 1 frequencies; and the BBC was actively spreading potential coverage over the country with high-power transmitters additional to that at Alexandra Palace. So what were the more difficult problems facing receiver designers in 1946 onwards?

The major challenge certainly lay in design of line scanning systems to match the larger cathode ray tube screens becoming available. A few earlier tubes employed electrostatic scanning deflection, but this required uneconomically high values of HT and electromagnetic deflection quickly became universal. To keep tube lengths and cabinet dimensions manageable demanded line scanning angles considerably greater than the 45°-50° of pre-war models. Scanning angles of 70° soon became normal, and anything up to 110° could be seen on the horizon. To cater for these wide angles by extension of the existing methods whereby a power output valve forced a linear sawtooth current through the scanning coils at a frequency of about 10kHz (and later more than 15kHz) was beyond the capabilities of most valves: and the high voltage pulse during flyback periods had to be suppressed with a power-consuming damping resistor. This all added up to hefty power supplies, with attendant weight and heat dissipation problems; and furthermore, losses and distortions in the then available transformer core materials could be formidable at such high frequencies.

Fortunately solutions were at hand, one a revival of a technique from the 1930s, and the other a wartime development from Dutch Philips.

In 1932 Alan Blumlein had turned his fertile brain to the subject of cathode ray tube line scanning and conceived the 'resonant return' arrangement. He considered that if a positive-going linear scanning current were to be generated by application of a direct voltage across an inductive coil, and if the DC source were then isolated by a switch, the energy in the inductance would be transferred by normal resonant oscillatory action to a capacitor connected in parallel. The capacitor would then discharge back into the inductance, producing a large rapidly negative-going current in the opposite direction to the original: this was the 'flyback' period. On the second half cycle of the oscillatory circuit the capacitor voltage would be in the correct sense to send positive-going linear current through the coil, rising to zero from its peak negative value, at which point the switch would once more be closed and the process repeated. The important point of this scheme is that the energy taken from the power supply during the first period when the switch is closed is transferred to the capacitor and recovered during the second period of positive-going scanning current in the inductance: ideally no power input is required over the scanning cycle as a whole, although of course resistive and transformer core losses prevent this ideal being attained. In practice the switching is done by an 'efficiency diode' automatically turned on and

off during the cycle by the varying circuit potentials; and the scan coils are fed, via an output transformer, from a line output valve rather than directly from the HT supply.

This resonant return scheme was enthusiastically adopted by set designers, and solved many of the line scanning problems in early days and in the future.

It was not easy to design an efficiency diode with heater/cathode insulation sufficient to withstand the high peak voltage appearing during flyback periods, although some suitable valves did in fact become available. An ingenious alternative solution was to feed the heater in series with an additional winding on the line output transformer which applied the same voltage pulse to the heater as appeared on the cathode, thus maintaining heater/cathode voltage acceptably low.

As mentioned, transformer core losses in line scanning circuits presented formidable problems. Conventional materials suffered from high eddy current losses at line scanning frequencies, and their harmonics which were necessary to preserve linear scanning waveforms. Early attempts to counter this by use of very thin laminations and, later, iron dust cores failed to achieve the necessary high values of specific resistance. The breakthrough came from Philips with their development of ferrite material, originally termed 'Ferroxcube'. Ferrites (magnetite) were sintered to form 'ceramic iron' and offered very high specific resistance to reduce eddy currents, together with low hysteresis loss.

Another problem arising from the need for larger pictures was the provision of EHT. For the smaller pre-war and immediate post-war screens, EHT of some 4kV was sufficient; but something like 15-20kV was needed for larger pictures of reasonable brightness. The early 4kV had been obtained directly from mains transformers - pretty lethal stuff - but insulation difficulties precluded this being carried on for higher voltages. The solution was to derive the EHT from the high voltage peak developed in the line scanning flyback periods, with special wire-ended high voltage rectifying diodes directly mounted on the line output transformer: the rectifier filament was fed from an ancillary winding on the transformer. For the very high

voltages needed for the later larger tubes, a carefully insulated over-winding on the transformer increased the peak voltage to the required level.

Even with the much improved line output transformers, a few ancillary problems remained in the shape of scan ripples or ringing producing vertical striations on the picture. These effects could arise from high-frequency Barkhausen oscillations during times when the line output valve anode became negative to the control grid, allowing electrons to oscillate to and fro about the grid: the cure for this was to mount a choke on the valve anode top cap. An allied problem was spurious ripples on the scanning waveform due to resonances between transformer leakage inductance and stray capacitances. This could be controlled by careful circuit design and by tuning the EHT over-wind coil to the third harmonic of the ripple frequency, which reflected a cancelling waveform back into the line scan generator. Increased peak voltage resulting from the third harmonic tuning also gave a useful boost to the achievable EHT potential.

The combination of resonant return circuitry and ferrite transformer cores enabled development of line scanning systems of greatly improved performance and power efficiency. Further advantage was

taken of ferrite materials in the shape of ceramic permanent magnets to replace the heavy and power-hungry focus coil for the cathode ray tube.

Concerning scan linearity, the advent of moulded glass cathode ray tubes with flat screens meant that scanning waveforms should not be completely linear to secure an undistorted raster. The necessary waveform corrections were applied by means of a saturable reactor in series with the scanning coils, with an adjacent permanent magnet to polarise the reactor. Correction was effected by the varying impedance of the reactor during the scanning cycle, fine-adjusted by a moveable ferrite core.

One other useful application of ceramic magnets was the ion trap. With even the best evacuated tubes some gas remained, forming heavy positive ions which bombarded the CRT screen phosphors and produced a desensitised area in the centre. To get over this the electron gun alignment was offset about 10° from the tube axis and a permanent magnet ion trap fitted to bring the electron beam back into line: the heavy ions were little deflected by this magnet and so landed harmlessly away from the picture area.

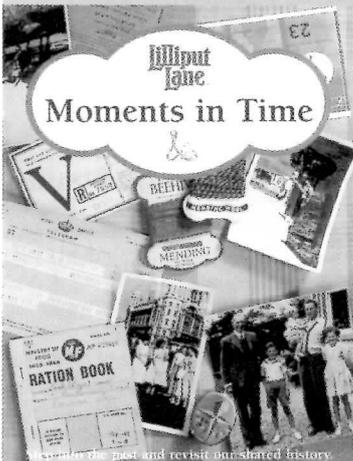
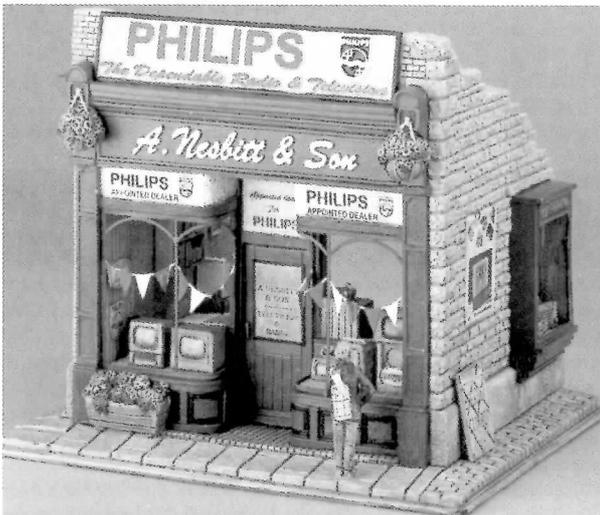
The Pye company showed great enterprise in taking advantage of a number of the post-war improvements, particularly in production

of their B18T model in 1948, only two years after the re-commencement of the television service. It incorporated a ferrite-cored line output transformer in a resonant return circuit with efficiency diode, and exploited the resulting low HT requirement to produce the first 'transformerless' television receiver in a series heater AC/DC configuration with no mains transformer.

A problem connected with line scanning was 'ragging' of displayed lines when local interference or noise disturbed the line synchronising pulses. An excellent cure for this came with introduction by Ferguson in 1948 of 'flywheel sync' whereby a voltage-controlled line frequency generator was corrected by a DC potential derived from comparison of the frequencies of the generator and received sync pulses: the time constant of the control circuit was sufficiently long to ignore any rapid transient disturbances.

Adoption of all these techniques and additional ancillary improvements steadily increased the availability of smaller, lighter and cheaper receivers displaying large bright pictures, with reduced power consumption and better component design leading to improved reliability. Many of these benefits were carried through with advantage into the colour era.

Our first 'Telly'



Moments in Time is an intriguing series of magical three dimensional sculptures which will take you back to visit scenes unique to a particular era.

The collection will include four unique models which have captured scenes from a 1950s high street, including 'Our First Telly', a detailed study of the interior and exterior of a T.V./Electrical shop from that wonderful decade.

Each sculpture in the Moments in Time collection has been carefully researched to ensure attention to historical detail. 'Our First Telly' will be entirely hand-crafted and produced to the meticulously detailed standards for which Lilliput Lane models have become world famous.

Lilliput Lane was founded in 1982 by David Tate, after he had embarked on an ambitious project - to capture the architectural heritage of Britain in the most authentic, detailed miniature sculptures ever seen. Since then, Lilliput Lane has become firmly established as the world leader in creating magnificent miniatures, which superbly capture the vernacular

architecture of Britain, northern Europe and the United States.

The success of Lilliput Lane models is largely due to their incredible detail, which is a result of a series of complex moulding processes developed by David Tate and his dedicated team. In a never ending quest to continue stretching the company's technical abilities, these processes have now been applied to the creation of building interiors. Moments in Time will be available from gifware and collectable retail shops.

Lilliput Lane would like to thank the following for their support and for allowing us to use their brand names on L2201 'Our First Telly': Philips Electronics UK Ltd., Gordon Bussey - Historical Advisor to Philips Electronics, Radio Times - The British Broadcasting Corporation. If you would like to know more about Moments in Time or Lilliput Lane, please contact: The Lilliput Lane Collectors Club, Skirsgill, Penrith Cumbria, CA 11 ODP, England. Telephone: +44 (0)1678 212700 Fax: +44 (0)1768 212601



The 1930
Cossor
"Melody Maker"

Model A [For A.C. Mains use.]

COMPLETE Kit, including three Cossor Mains Valves, all components, baseboard, together with handsome cabinet finished in two-tone blue lacquer. The Cossor Synchronised Control Unit and the Cossor A.C. Power Unit are factory-built and tested before dispatch. Included in the Kit is also a dual plug for wall sockets or light socket. A switch is fitted in the cable of the A.C. Power Unit. Available for 200-250 volts A.C. 50 cycles. **£15 complete**

Also Model B (For Battery operation.)

Similar in appearance to above, but without Cossor A.C. Power Unit and fitted with the latest Cossor 2-volt Valves instead of Cossor Mains Valves. There is sufficient room within the cabinet to accommodate the 120 volts H.T. Battery (not supplied with Kit). **£8 15s. complete**

The above prices do not apply in Irish Free State.

Manufactured by:

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

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How to
 assemble
 it—

The wonderful 1930
Cossor
"MELODY MAKER"
A.C. Mains Model

An Odd Melody Maker

by Geoffrey Dixon-Nuttall

Everybody has met the Melody Maker, in one version or another. It must have been the most popular and successful kit ever sold. The first version was the one with a single tuned circuit and two big dials, and the next one (1928) had a tin cabinet and two American dials. But what happened in 1929?

Cossor must have got fed up with people wrongly wiring their kits, in spite of the excellent diagrams, so the 1929-30 Melody Maker was designed to be fool-proof. All the RF wiring was in an aluminium box, and all you had to do was wire up the detector and the output stage.

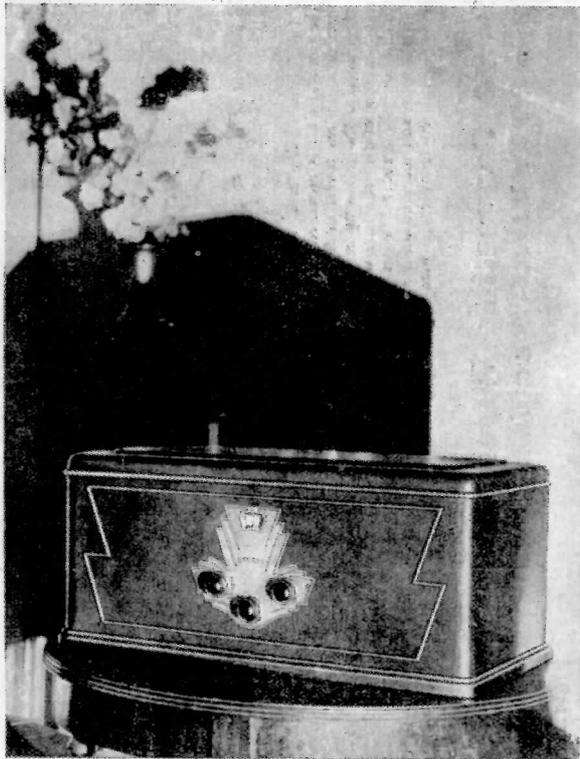
Now, the other versions of the Melody Maker turn up everywhere, but this one is a rarity. I have never seen this set at Harpenden, apart from the one I put in the auction. The mains version is even rarer, but I found one in a field at Ardingly Antiques Fair. It was a bit mucky, but complete. The circuit is as usual, screen grid, leaky grid triode detector, and transformer coupled triode output. The power unit is separate, in a metal box, and supplied complete.

There are one or two odd features. The

output valve is actually a four-volt battery type, 425XP. The other two are indirectly heated, and the screen grid was a very tired S4VA. The power unit is conventional, with a potentiometer across the HT for the 60 volts to the detector, and a dropping resistor for 90 volts to the screen grid. Smoothing is by the usual choke and capacitors. The latter were paper, and had exploded. Also the HT winding on the transformer was O/C. This winding turned out to be bifilar, presumably to save time on the coilwinder. The dropping resistors had been wound on transformer bobbins. The rectifier was a six-volt type, 612BU, and was luckily OK.

Cossor seem to have lost interest when it came to providing bias, as they took the easy way out and used a battery. It was still there, with a trace of voltage. I gutted it and

Plug in—Switch on—Listen—that's all there is to do!



**No Accumulators
to re-charge.**

**No H.T. Batteries
to replace.**

THE Cossor "Melody Maker" has been a phenomenal success for two seasons, yet the 1930 model will easily outstrip its famous predecessors. For the first time it is possible to buy an all-electric Screened Grid Receiver at little more than the cost of many Battery Sets. Think what this means to you if you are fortunate enough to have electric light in your home. No more worry about accumulator re-charging—no more expensive high tension battery replacements. Instead, your 1930 Cossor "Melody Maker" is always ready for use without attention. Click the switch and music from all the principal broadcasting centres of Europe is available for you.

Factory-built Power Unit

The 1930 Cossor "Melody Maker" (all-electric model) makes use of the new Cossor A.C. Power Unit. This unit is factory-built and factory-tested. It comes to you ready for mounting on the baseboard. It is fitted with one of the latest Cossor Bi-phase Rectifying Valves and it delivers an adequate supply of pure ripple-free high tension current to the three valves in the Receiver. This same unit also supplies the necessary low tension current for heating the filaments of the three Cossor Mains Valves supplied with the Set.

Bristles with improvements

The 1930 Cossor "Melody Maker" is a revolutionary Receiver. It bristles with new ideas—with far-reaching improvements. Its Synchronised Control Unit definitely ends the previous intricacies of tuning. Instead, the

whole control of this remarkable Receiver is reduced to three simple operations. One knob for tuning—one knob for volume—and one knob for selecting the required wave-band. All the control mechanism is within a sealed metal box—the balanced coils—the dual variable condensers matched to the most precise limits—and the rotary switch which automatically selects the required pair of coils. This Control Unit is factory-built and must pass the most elaborate tests before release.

Simplest to assemble

Not only is the 1930 Cossor "Melody Maker" with its special Screened Grid Circuit and its wonderful trio of Cossor Valves—by far the most powerful Receiver of its type yet produced, it is also easily the simplest to build. There are only 11 component parts to be assembled on the oak-faced ply baseboard—and 20 wires to connect them together. Compare this with other Receivers—compare it even with last year's Cossor "Melody Maker." You will agree that no Set could be as simple to build—because no other Set incorporates this Synchronised Control Unit.

Every detail carefully planned

On this latest—and greatest—Cossor "Melody Maker" there is no row of terminals to irritate or confuse. Instead, the aerial, earth and loudspeaker leads plug direct into their respective sockets by means of the moulded plugs supplied. Each is carefully marked—and the Receiver can be connected—or disconnected—instantly. The handsome cabinet is another important feature. Cabinets of wood are liable to warp—they are readily susceptible to damage—a scratch can spoil their delicate polish.

Handsome Cabinet

The 1930 Cossor "Melody Maker" is housed in an all-steel cabinet of the most handsome design, finished in a rich shade of blue lacquer. Its beautiful silver-finished escutcheon completes a most dignified and striking appearance.

The Wonderful 1930

Cossor "Melody Maker"

fitted a PP3 inside.

The rest of the set was in good shape, the audio transformer was OK thank goodness, but the double decoupling capacitor had also burst. The grid leak had gone up to infinity; this was a Dubilier 'Dumetohm' type which seemed to have been made by depositing carbon on a glass rod inside a glass tube.

The RF unit was held together in the battery version by tubular brass rivets. These had been removed and replaced by screws so that the connections to the (battery) on-off switch could be removed. The battery version contained a fault, as both RF circuits were earthed to the same brass rivet, and when this developed a high resistance to the aluminium can the whole thing went rather quiet. This fault had been attended to by separate earths in this set. The original 'battery off' position on the switch is still there, and the round knob which made changing bands hard work on the battery set has been replaced by a pointer type... I have a feeling that Cossor bought the whole unit in, as it just doesn't look like them.

Anyway, it went quite well after all this. I took the components off the varnished oak base and cleaned it up, and tied up the

cabinet, and that seemed to be that.

But then at the last Harpenden I found in excellent condition the original instructions for assembling the set. Idly scanning them to see if the owner had got it right (he did a good job, by the way, soldering some of the joints), I was surprised to find some discrepancies.

For a start, the valve types quoted were very odd, being as follows:

RF: 88M.S.G

Det. 82MD

O/P 88MP

The rectifier is not mentioned.

Other differences were noted, for example there was no bias on the RF stage, and all the valveholders had four pins.

After a bit of puzzling the penny dropped. These were the Cossor versions of the short-lived M.O.V. 'Point 8' series of valves, which had heaters of 0.8 volts and 0.8 amps. The idea was to use a heater of so much thermal inertia that the hum was reduced. The Americans had the same idea with their type 26 triode, but this seems to have been more successful; anyway, the 'Point 8s' had a very short life. I wonder if Cossor actually made them, or if they bought them off M.O.V.?

These valves seem to have been written

off as a bad job, as I can't find any reference to them anywhere. The Cossor valve book gives the correct types for this set as 41MSG, 41MRC, and 41OP. (The rectifier is either 612BU or 412 BU). It also reveals the type number of the set as M.K.530.

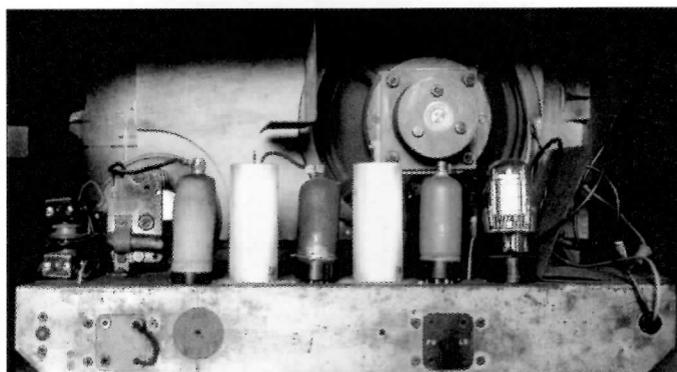
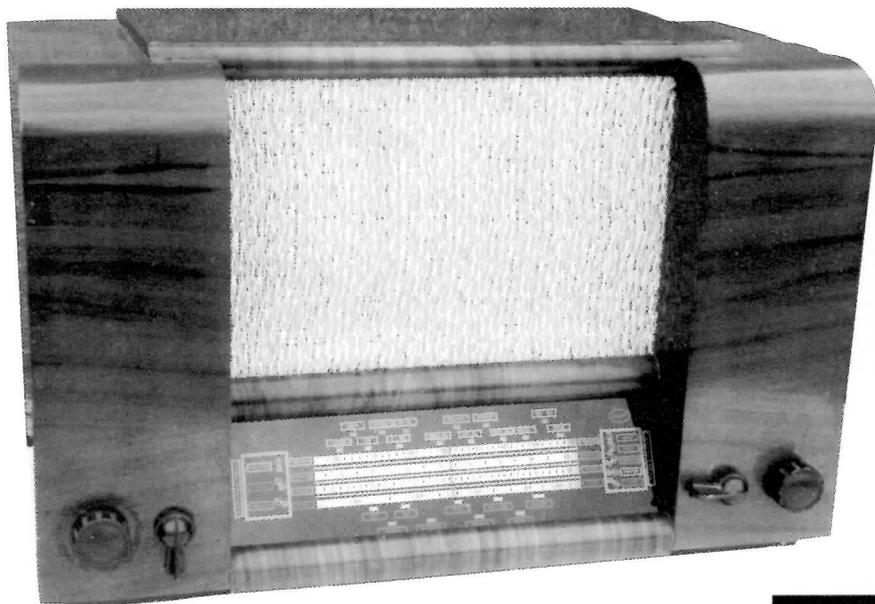
It would seem that this set was modified very soon after issue to use the indirectly heated types. This involved changing two of the valveholders and applying bias to the screen grid. This is not as simple as one might think, as its grid coil is earthed inside the RE unit, so they had to raise the whole thing up by a volt and a half. This means that the battery is common to both tuned circuits, but this doesn't seem to matter. Presumably there was more RF gain as well, so a by-pass capacitor was added on the detector anode.

Another modification was to fit one of those Belling Lee plug and socket connectors to the anode of the screen grid, as somebody must have noticed that it was easily possible to touch this.

These modifications must have been done quite early on, as the set reviewed in 'Wireless World' used, so they said, indirectly heated valves. They must have overlooked the output stage?

Invicta, the forgotten make

by WJ Williamson



Above: Invicta model 40
Right: Inside the model 40

I am not really into company history so I know very little about Invicta Radio Ltd. of Radio Works, Parkhurst Rd., London N.7. What I do know is that they seem to have been curiously neglected by collectors ; my copy of 'Radio, Radio' not referring to them at all. This is a pity as they certainly produced some very good and visually striking radios.

They do not appear to have survived very long; the earliest examples I know of dating from the late '30's and the latest from the mid '50's. I have 3 of these radios, all from the post-war era.

The most handsome of these is the model 40. Dating appropriately from the '40's its bright, modern appearance made it a popular favourite after the dark days of war. It covers long, medium and 2 short waves and the dial is exceptionally clear and easy to read. The results are excellent and the tone seems particularly pleasing although the circuit is a quite conventional battery superhet. Conventional, that is apart from the valve

line-up : KK32, KF35, KBC32 and KL35; 2 volt versions of the better known DK32 series. They soon became unobtainable and the set I have has been modified to take a TP2S frequency changer, a process which unfortunately involves changing the valve-holder. Similar modifications will, I feel, almost certainly have been carried out on any sets surviving today.

From a servicing point of view the model 40 was generally good, with a detachable bottom which allowed access to most parts, but there was one particularly irritating feature, the type of I.F. transformer used. The core was adjusted by a very slender (8B.A.?) brass rod, the extreme end of which was machined into a tiny oblong section about 1 x 1.5 mm. Presumably a special tool was used for adjustment but I never saw one. Instead, one had to be improvised by flattening a small piece of tube. The problem was that because of the small size it was extremely difficult to flatten the tube with sufficient accuracy. As a result it would invariably slip or jam at a crucial point in the alignment. To make matters worse the whole core assembly was somewhat flimsy and easily broken. As can be seen in the picture above the adjustment on the left is original but the one on the right has been broken and replaced by a more robust, if less elegant arrangement.

The model 40 had a 'little brother', the model 22, which measured 15" x 10" x 8" compared with the 40's 19" x 12.5" x 10". It is also capable of good results although the

smaller cabinet and speaker inevitably compromise the reproduction to some extent. The valve line-up is the more conventional DK32 series. Separate H.T. and L.T. batteries are used and an unusual feature is a socket on the chassis into which the L.T. plug can be inserted. Leads with spade terminals are connected to this socket via a dropper resistance so that a 2 volt accumulator can be used as a more economical L.T. supply. A frame aerial is attached to the inside of the set back, making it a transportable.

The successor to the 40 was the model 42. The cabinet is quite different although still continuing the tradition of light colour and large, easily readable dial. The valve line-up is a conventional TP25, VP23, HL23DD, PEN25. In addition to medium and long waves it covers no less than 5 short waves ; the 49, 31, 25, 19, and 16M bands. An unusual feature is an additional 45pf section on the tuning capacitor to provide bandspread on the short waves.

Unfortunately the only example I have is in poor condition. The chassis is reasonably good but the cabinet has been almost totally destroyed by woodworm. Although none of these sets is in any way innovative they all combine sound engineering with handsome cabinet work. It seems a pity they should be so neglected and it would be interesting to hear of the other sets they produced. Perhaps our readers can help. Are there any other Invicta fans out there?

CONDENSERS

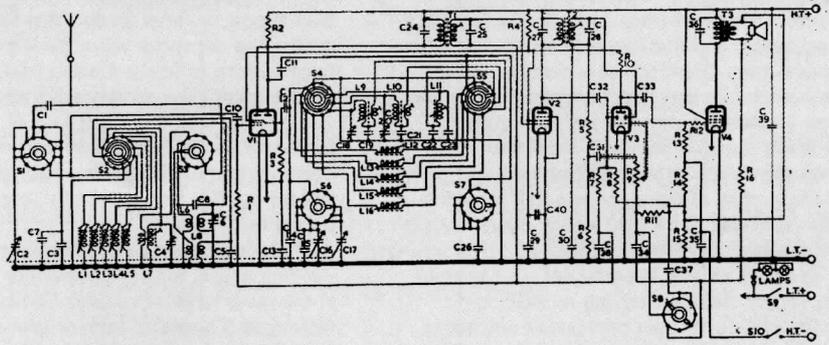
- C1 5 pF Ceramic ± 25%
- C2 50 pF Mica ± 1%
- C3 3-50 pF Trimmer
- C4 100 pF Mica ± 2%
- C5 3-50 pF Trimmer
- C6 10 pF Ceramic ± 10%
- C10 100 pF Ceramic ± 20%
- C11 100 pF Ceramic ± 20%
- C12 100 pF Ceramic ± 20%
- C13 -01 Tub. 1000 v.
- C14 14 pF Ceramic
- C15 100 pF Mica ± 2%
- C16 Gang Condenser 45 pF Swing
- C17 Gang Condenser 487 pF Swing
- C18 3-50 pF Trimmer
- C19 1700 pF Mica ± 10%
- C20 3-50 pF Trimmer
- C21 600 pF Mica ± 1%
- C22 200 pF Mica ± 2%
- C23 140 pF Mica ± 2%
- C24 20 pF Mica ± 2%
- C25 125 pF Mica ± 1%
- C26 140 pF Mica ± 2%
- C27 -05 Mid Tub. 350 v.
- C28 100 pF Mica ± 2%

- C31 -01 Mid Tub. 1000 v.
- C32 25 pF Ceramic
- C33 -002 Mid Paper Tub. 500 v.
- C34 0-1 Mid Paper Tub. 350 v.
- C35 100 Mid 25 v. Electrolytic
- C36 -005 Mid Paper Tub. 1000 v.
- C37 0-1 Mid Paper Tub. 350 v.
- C38 -05 Mid Paper Tub. 350 v.
- C39 4 Mid 150 v. Electrolytic
- C40 8 Mid 150 v. Electrolytic

RESISTORS

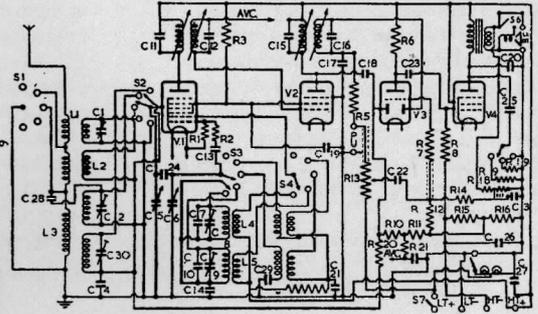
- R1 1 Meg. ± 20% w.
 - R2 15 K.Ω ± 10% w.
 - R3 47 K.Ω ± 10% w.
 - R4 22 K.Ω ± 10% w.
 - R5 22 K.Ω ± 20% w.
 - R6 560 K.Ω ± 20% w.
 - R7 560 K.Ω ± 20% w.
 - R8 1 Meg. ± 20% w.
 - R9 1 Meg. Volume Control
 - R10 68 K.Ω ± 20% w.
 - R11 2.2 M.Ω ± 20% w.
 - R12 330 K.Ω ± 20% w.
 - R13 1.2 Meg. ± 20% w.
 - R14 220 Ω ± 10% w.
 - R15 100 Ω ± 5% w.
 - R16 4.7 K.Ω ± 10% w.
- 2 Lamps 2.5 or 3.5 -15 amp.

CIRCUIT DIAGRAM

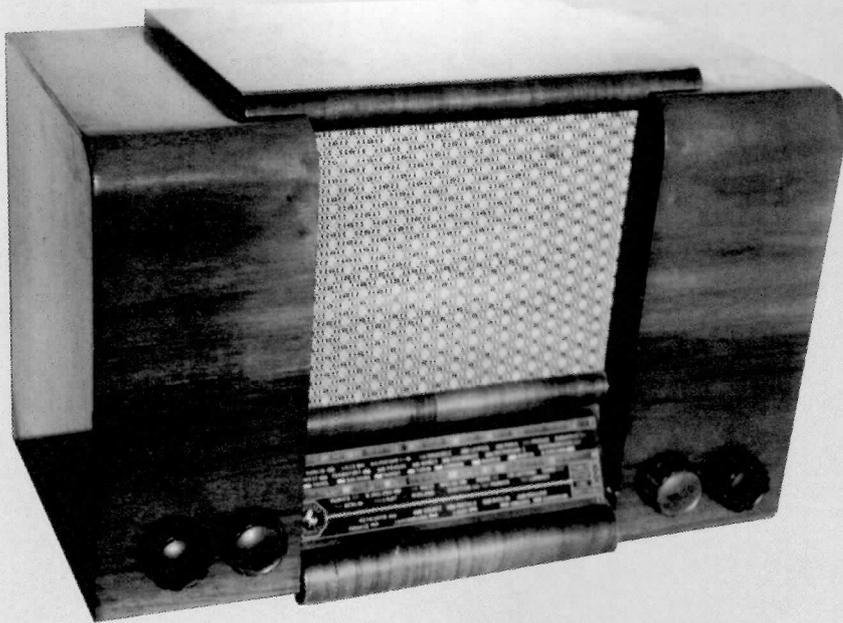


Made in England by INVICTA RADIO LIMITED, RADIO WORKS, PARKHURST ROAD, LONDON, N.7

INVICTA MODEL 40



Above: Invicta model 42 circuit
Left: Invicta model 40 circuit
Below: Invicta model 42



INVICTA MODEL—continued.

- C1 3/30 pfd. trimmer
 - C2 3/30 " "
 - C3 3/30 " "
 - C4 -1 mid. tub. paper
 - C5 532 pfd. swing } PPN 2008
 - C6 532 " "
 - C7 340 pfd. mica ± 2%
 - C8 3/30 pfd. trimmer
 - C9 3/30 " "
 - C10 22 pfd. mica ± 15%
 - C11 70 " " ± 2%
 - C12 70 " " ± 2%
 - C13 70 " " ± 2%
 - C14 70 " " ± 2%
 - C15 70 " " ± 2%
 - C16 70 " " ± 2%
 - C17 150 " " ± 25%
 - C18 12 " " ± 25%
 - C19 -1 mid. tub. paper
 - C20 1,300 pfd. mica ± 5%
 - C21 4,500 " " ± 5%
 - C22 -005 mid. tub. paper
 - C23 -001 " " "
 - C24 -001 " " "
 - C25 -0005 " " "
 - C26 25 mid. 25 pF v. electrolytic
 - C27 1 mid. tub. paper
 - C28 6 pfd. wire type
 - C29 2 " " "
- Speaker PM, Voice coil, 3 ohms.
Valves Mullard KK32, KF35, KBC32, KL35
Dial lamps 3.5 volt, -15 amp.
- R 1 47K ohms watt
 - R 2 22 " " "
 - R 3 22K " " "
 - R 4 1K " " "
 - R 5 100K " " "
 - R 6 100K " " "
 - R 7 100K " " "
 - R 8 470K " " "
 - R 9 2.7M " " "
 - R 10 220K " " "
 - R 11 1M " " "
 - R 12 1M " " "
 - R 13 1M ohm with switch volume control PN 2009
 - R 14 220K ohms watt
 - R 15 330 " " "
 - R 16 100 " " "
 - R 17 470K " " "
 - R 18 1M " " "
 - L 1 S.W. aerial coil } PN 527
 - L 2 Trawler " " PN 501
 - L 3 ML " " "
 - L 4 L. etc. coil } PN 502
 - L 5 M. " " "
 - L 6 S.W. " " PN 530 (KK 32)
 - L 7 Trawler " " PN 530 (FC 2A)
 - S 1,2,3,4. 4 pole S-way switch PN 2010
 - S 5 Dial lamps economy switch (plug and socket)
 - S 6 Internal speaker switch
 - S 7 On/off switch on volume control
 - S 8 Single pole 3-way Tone Control switch
- VALVE POSITIONS**
- (V1) KK32 (V2) KF35 (V3) KBC32 (V4) KL35

Marconi in London book and tour

Enrico Tedeschi has self-published a book based around a guided tour entitled 'Guglielmo Marconi in London'. The book lists a large number of buildings in London which have Marconi connections and includes the house where Marconi lived when he first came to London, the location of his early experiments and demonstrations, the site of his first London broadcasts in 1896, the office which Marconi rented and the hotel where he used to live.

The book is well illustrated and has a helpful map located at the beginning; pictures showing routes from various tube stations to these important locations are included so that nobody can get lost.

Enrico conducts the tours on foot and by underground, they are limited to fifteen people per tour and have duration of approximately 3 hours with roughly 3 miles of walking. All people on the tour must have a valid London Transport ticket. The tour costs £6 per person which includes the book.

For further information contact Enrico on: 01273 701650, his address is: Enrico Tedeschi, 54 Easthill Drive, Hove, Brighton, BN41 2FD. The book alone can be purchased from Enrico for £6 including postage.



it wants 2volt at 0.4 Amp. HT needs are 120V, 90V, 75V and 60V at a total of 10mA. Bias supplies are -3V and -1.5V at negligible current. Any converter needs some feedback regulation, and this can only be applied from one output. One thing to remember is that accumulators and high tension batteries are low impedance devices and their output voltage changes little with small load variations. This fact simplified the construction of the early sets, but it means attention has to be paid to any power supply which replaces these batteries.

Some TRF sets in particular are sensitive to supply changes, having no AGC to compensate for gain changes at any stage. Since receiver gain was often achieved by varying the filament volts on the RF stage, this supply must be stable. Likewise the HT can only vary by a small amount as a result of applying reaction, or instability occurs. These facts determine the choice of design of the converter secondaries, and make it more complicated than might be thought necessary. I may add that later superhet receivers do not need the same degree of stabilisation, but this supply is a worst case design, and the needs of the Pye 'Q' are a good example.

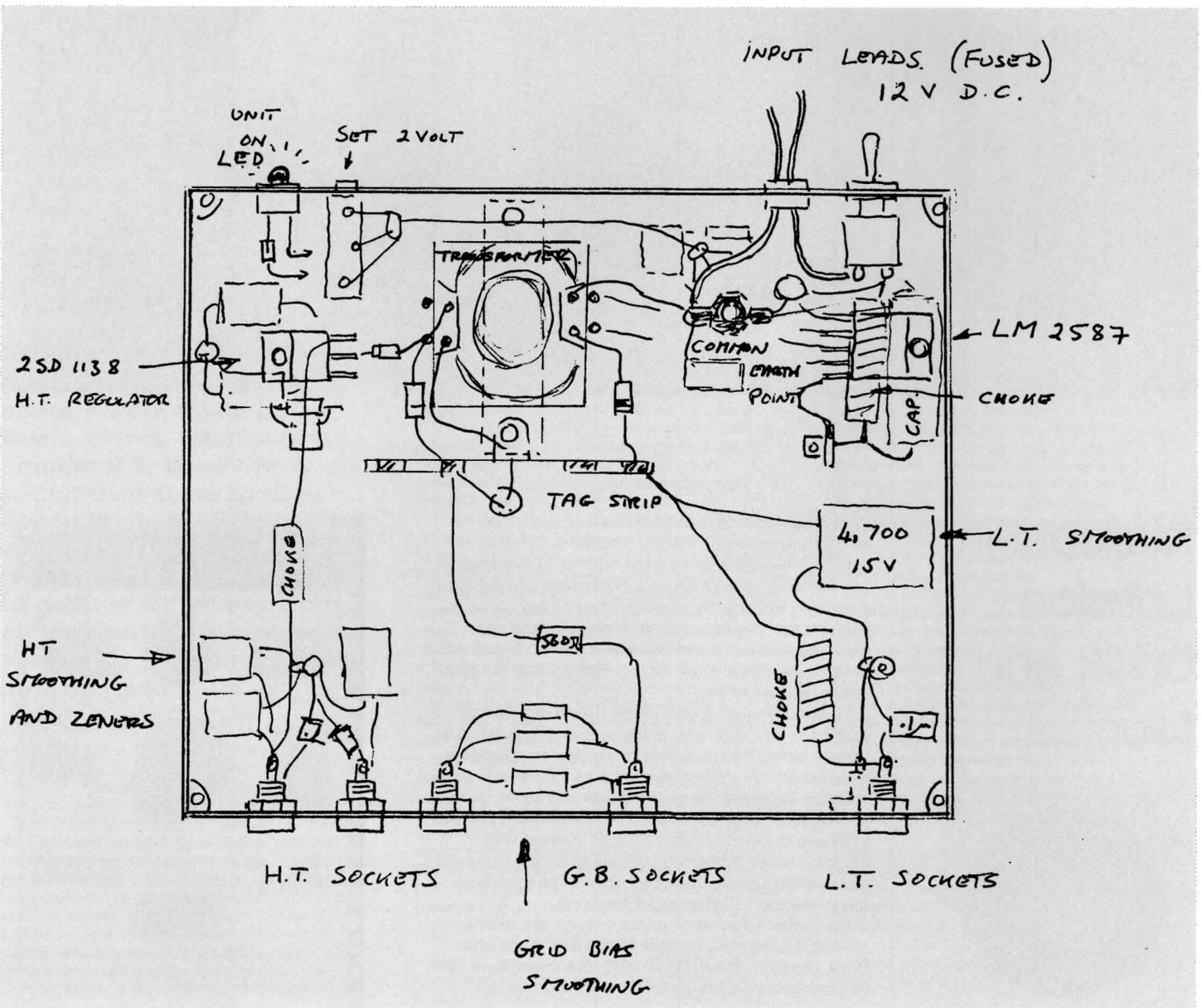
Therefore this unit has been designed to

stabilise the 2 volt supply by feedback on the oscillator, and the HT lines are stabilised by series regulator with Zener reference. The bias supply is Zener loaded and tapped down. The converter will cope with loads from nothing to about 4 watts total consumption. The battery volts can vary from 14 down to 10 without any loss of performance. Depending on the current consumption of the set, the battery should last for at least four hours of continuous use before recharging.

The circuit diagram is self explanatory and winding details for the transformer are given in the parts table. A suitable Ferrite is the Pot Core type 3 available from Maplin or similar from RS Components. As already stated the component layout is fairly critical to prevent pick up of unwanted signals from the oscillator. Decoupling is included everywhere to keep spikes to a minimum and all earths to the primary side should be made to a common point. It is important to have a fuse in the battery feed as the battery can provide many tens of amps and the oscillator chip will draw a lot of current if the 2 volt line is accidentally shorted. Otherwise everything should be straightforward, and normal good construction practice applies. It is not a cheap solution to powering these old 2volt

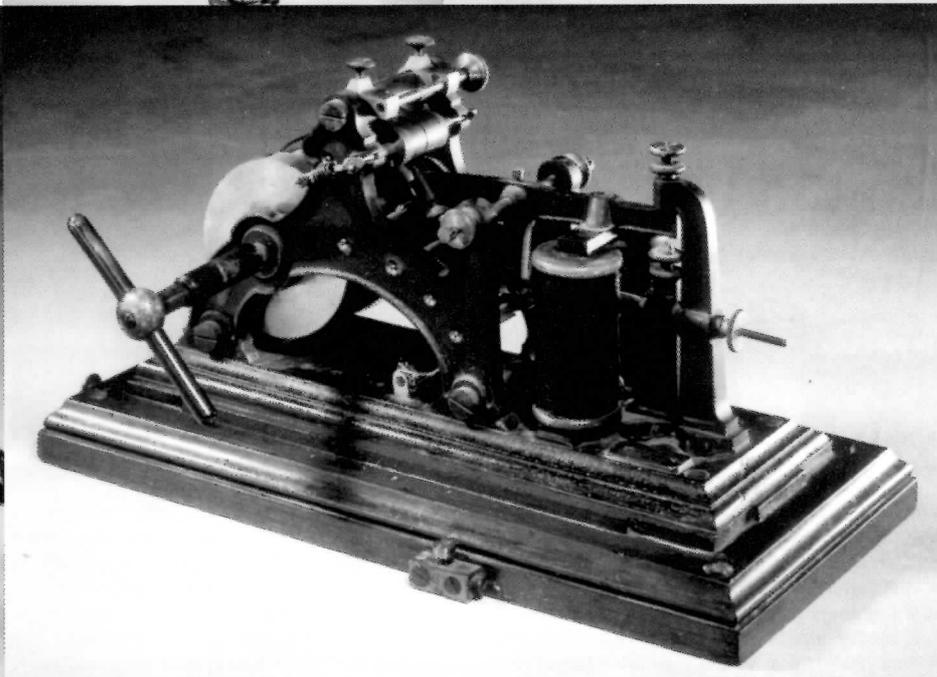
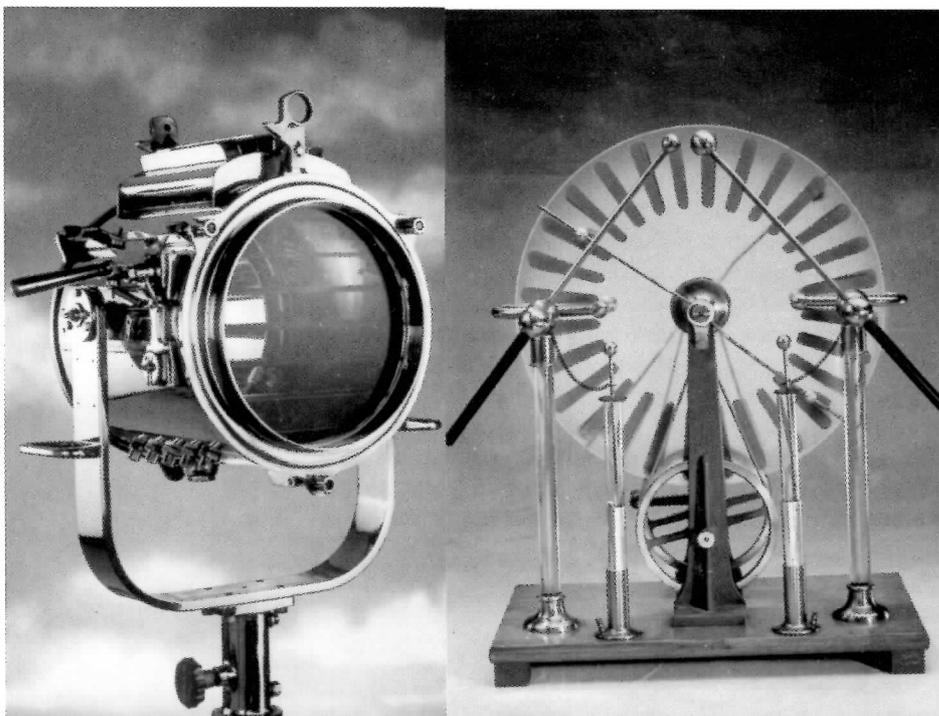
sets, but it is an elegant one for demonstration purposes, as it allows 'portable' sets to be moved while working. One advantage is that 50 Hz hum pickup, which can be a problem with mains fed eliminator units, is of course completely absent. A nice change from old mains receivers with energised field coil speakers and small value smoothing condensers.

Be sure to test the unit on a dummy load before connecting to a set. The possibility of destroying a set of 1930's valves because of a wiring or component fault does not bear thinking about ! I have done it once so I know. It is also a good idea to monitor the battery current when first testing the unit. Off load it takes about 100mA or less, rising to 400mA depending on the power consumption of the set it feeds. If there is excessive current switch off quickly and check for wiring faults. The chip will destroy itself if allowed to work into a short circuit secondary load for any length of time. Once working the converter has proved very reliable.



19th Century telecommunications exhibition in Brussels

by Fons vanden Berghen



A unique exhibition will be mounted in Brussels from the 15th of September to the 15th of December 1998. It will be primarily on 19th Century telecommunications.

It is organised by the bank GEMEENTEKREDIET in its Gallery in "Passage 44", Blvd. Botanique 44 in Brussels (near the Nieuwstraat on the Rogierplein side, a short distance from the North Station). It will be open from Tuesday through Sunday from 11 a.m. to 6 p.m. (closed Mondays and holidays).

This exhibition, which will cover an area of 600 square metres, will be unique because an enormous amount of historical telecommunications apparatus will be on display, some for the first time, mostly concerned with 19th-century telegraphy. This first portion is built up around some 200 items from my own collection, the emphasis being primarily on the great diversity of the technologies: needle-, dial-, Morse-, printing- and optical telegraphs, tickers, sounders, and various accessories. You can already admire a good part of it by having a look on the internet at: http://www.cris.com/~gsraven/fons_images/fons_museum.html

Most of the material on loan comes from BVWS member Fons Vanden Berghen's unique collection (see BVWS Bulletin 22/1) and has been expanded with a number of exceptional items on loan from the CNAM (Collection Nationale des Arts et Métiers de France), the PTT

Museums of the Netherlands, Belgium, and France, various university museums (Aachen, Ghent, Antwerp, Liège, Delft, and Leuven) and from other fellow-collectors.

Special attention is also given to wireless telegraphy and then mostly to Marconi apparatus (e.g. coherer, magnetic detector, 10-inch induction coil, multiple tuner..).

Telegraphy was the very first widespread application of electricity. As an introduction, therefore, a series of interesting devices are shown from the initial period of electrostatics and electromagnetism. Here, you will find a splendid series of electrostatic generators (Nairne, Winter, Holz, Ramsden, Carré...), exceptional galvanometers, electrostatic experiments, tubes from Crookes and Geissler, and so on.

Then, apparatus displayed from the initial period of the other forms of electrical telecommunication: telephony (a beautiful series of 19th-century models), radio (with superb radios from the 1920s), facsimile (including the pantelegraph of Meyer from 1869), television (limited to the 1930s: Nipkow disks), and telex.

In total, more than 600, largely, historical items will be on display.

It is doubtful whether an exhibition of this subject on this scale has ever been held elsewhere and it is recommended that you do not miss this extraordinary event. An annotated catalogue will also be available.

A transistor radio mini history

by Enrico Tedeschi

Much in the same fashion as Louis XIV King of France, who maintained that the sun would never set on his empire, the American Lee DeForest proudly declared that the vacuum tube would never be replaced.

Notwithstanding his affirmation three UEA research scientists of Bell Laboratories, Shockley, Bardeen and Brattain managed, in December 1947 to invent a solid state device that they called the transistor. They succeeded in creating a completely new amplifying device just by adding a second contact point to the already popular crystal diode based on a piece of germanium crystal with a pointed 'cat's whisker' touching its surface. In 1956 in recognition for their extraordinary work they were awarded the Nobel Prize.



Unfortunately the practical application of the transistors was somehow slowed down by their manufacturing difficulty and by their cost. When in 1952, mainly due to the new junction method developed in their construction called diffusion transfer, their price managed to climb down; the first possible application appeared to be in the hearing aid market. The fact was that their low frequency cutting made them suitable

managed to find a small TV boosters manufacturer who was keen on the idea and their name was, by coincidence, IDEA based in Indianapolis. Its president Ed Thdor figured out that with the cold war going on at the time and with the fear of a nuclear attack from the USSR the transistor radio was going to become an essential life survival item. He projected sales of at least 20 million sets in three years.



only for audio applications and also their high cost appealed only to products with a high price target.

This suited well the hearing aid manufacturers as they had been trying for some time to lower the size and the battery consumption of their products. Also the high price target of this medical apparatus made possible the use of an otherwise too costly component and also allowed them to absorb the extra cost of the new solid state device.

By 1956 Western Electric was ready to supply possible future manufacturers with their "key in hand" transistor manufacturing plant while other firms, such as Raytheon, were able to produce their own transistors.

The first transistor radio

By 1953 a firm called Texas Instruments was already producing its own line of transistors under Bell Laboratories licence and their president, P.E.Haggerty, decided that the time for producing a transistor radio was ripe. They quickly managed to design a prototype set and began searching for a suitable manufacturer who would use their transistor in the manufacture. Most of the big firms were not interested, as happens when something drastic comes along to disrupt their peaceful lives. Also many of them like RCA, Sylvania, Philco etc. were producing their own transistors and so could see no future for the TI offering. In the end TI

Unfortunately it was not going to be an easy task as, apart from resistors, there were virtually no miniature components to build their radio with. Furthermore many of the components manufacturers were not keen on building miniature replicas of their best product for fear of losing their hard earned reputation. In less than six months, IDEA, Texas Instruments and Painter, Teague & Peteril an industrial design firm which was put in charge of the design of the case, managed to reduce the number of transistors from the original six to only four and to squeeze all the components into the small cabinet. A vague idea of what this effort should have meant at the time is shown by the small dimple that had to be machined inside the case in the effort to accommodate the adjusting screw of the tuning capacitor.

Finally in November 1954, just before the Christmas shopping season, IDEA managed to put the first transistor radio, the Regency TR-1, on the market at a price of \$49,95 excluding the leather case (another \$3.95) and the earphone (another \$7.50).

The Regency was the first one on the market but not by much. In February 1955 Raytheon, another transistor manufacturer, introduced their first portable radio: the model 8TP-1. It was a much larger wooden set covered in the, then, fashionable leatherette vinyl. It sounded much better than the TR-1 but it was much bigger and much more expensive (\$80: about \$450 at today's price).

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POCKET Radio

World's first and tiniest Miniature has "Big-Set" tone and clarity!

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Earphone (accessory) 7.50 Only 49.95 (tax extra!)

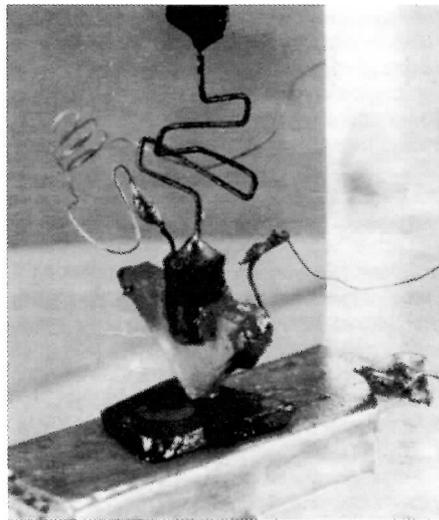
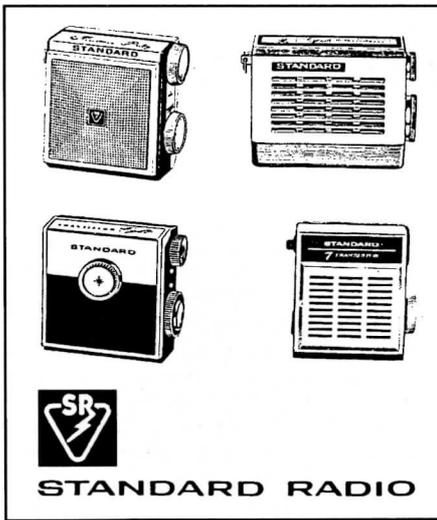
Leather Carrying Case (accessory) 3.95

COME IN FOR AN EXCITING DEMONSTRATION

Left to right: Sony 8TP-4, Sony TR610, Sony TR72, Sony TR63, Sony TR55

SONY

The Smaller TR-610



Left: a prototype transistor

Above: the inventors of the transistor: Shockley, Bardeen and Brattain of Bell Laboratories, USA

Notwithstanding the poor market sales record of the TR-1 other American manufacturers began to flood the market; Zenith announced their Royal 500, Emerson their model 842, RCA the BT-10, General Electric the 675, but the TR-1 remained the only shirt pocket set on the market (as opposed to the coat pocket size of the other makers).

The diffusion and popularity of the transistor radio coincided luckily with the new Rock n' Roll revolution and it is hard to say which one of the two helped the other one to succeed as many young persons regarded as a boon the possibility of taking with them the music that Elvis and others were throwing at them. Their parents were only too happy to let them have their own personal set which made the home valve radio free again for the domestic use. Also the fact that many of these small receivers could be listened to with an earphone made them attractive to those who wanted to listen to them in privacy and at their own volume level.

The Japanese invasion

But back in Japan not all was peaceful and quiet. A small tape recorder manufacturer called Tokyo Tsushin Kogyo Ltd. managed in 1953 to convince the Japanese Ministry of Trade and Industry (MITI) to let them acquire the transistor manufacturing licence from Western Electric and Bell Laboratories patent.

After some struggle to understand and learn the technology and the manufacturing process (the Western Electric licence did not include the know-how) Totsuko (as Sony was known at the time) managed to produce their own transistors and in August 1955, their first coat pocket size transistor set (the model TR-55). Unfortunately the TR-55 was produced in small quantities and only for internal consumption and is therefore very rare.

Their second set was a bigger set (model TR-6) which did not do significantly better. Their third model was an even bigger wooden affair (model TR-72) which apparently was only exported to Canada under the name of their local distributor: GENDIS (GENeral DISTRIBUTORS).

The TR-63, their first really 'pocketable' transistor set, was produced in March 1957. It was a real revolution, a new way to see technological and aesthetic design. The consumers liked it and it was a worldwide success. Contrary to the TR-1 which inside had a mixture of new and old technology and

was made with Texas Instruments transistors, the TR-63 was manufactured with purpose made miniature components and with Sony made transistors.

After the great success of the TR-63 Sony managed to produce an even smaller shirt pocket set called TR-610. This was (and is) the most typical of all transistor radios, the one by which all the others were going (and are) to be judged. Sony sold so many of them (nearly half a million) that the American manufacturers started fearing for their life.

Social changes

And indeed the hearts of the consumers stayed with the Japanese shirt pocket sets. From 1958 up to the mid sixties an unbelievable and bewildering variety of models in all shapes, sizes and colours were produced by dozens of large and small Japanese manufacturers. This unrepeatable period of technological advancement and aesthetic innovation brought out the most astonishing transistor radio designs of all time. In fact the transistor radio transformed entirely the way radio was regarded and used. It made it possible to take the set with you and to listen to it everywhere. From a piece of furniture the radio set had become a personal accessory.

This also meant that the radio, which was regarded essentially as a home accessory which was controlled by the head of the family, could now go out of the house and reproduce itself for each individual. It also meant that the new way to see this new personal piece of equipment contributed to escalate the demand from one set for each house to one set for each person.

The sixties

At the beginning of the sixties Japanese manufactured sets became even smaller by reducing the size of their components and by cleverly redesigning their electronic circuits so as to be able to use lower levels of voltage and current and therefore smaller batteries. From the 22.5 volts of the first Regency TR-1, the battery voltage was lowered to the 9 volt used in the Sony TR-63 and then to the single 1.5 volt cell used by certain manufacturers in the early sixties. This was an extraordinary achievement for an industry that had only been going for a few years since 1954.

The third Japanese wave came with the advent of the mini-micro radios barely larger than their smallest loudspeaker. The most notable examples of these were the now famous Standard make which with their incredibly minute series of Micronic Ruby radios were unsuccessfully challenged by all the other manufacturers except Sony which only succeeded in making a smaller set (the ICR-120) at the end of the decade by using the Integrated Circuit, the new solid state device which combined transistors and passive components in the same package.

By about 1963 it was all over. The Japanese invasion had killed off many American manufacturers and even glorious names like RCA, General Electric, Philco etc. were forced to use Japanese made components or to have their sets made in Japan altogether. Some of the Japanese transistor radios had to bear American sounding names in an effort to disguise their origin for the hard-core nationalist consumer. Brand names like 'Trans American', 'Americana', 'Lafayette' and more were nothing other than sets made in Japan.

Dating and identifying

The first thing you must look for in a transistor radio for dating purposes is to see if the dial has any, so called, CD marks. These were in the shape of little triangular marks which should appear in all the transistor radios made up to 1963. These marks were meant to show the frequencies for the emergency tuning of the radios in case of nuclear attack from the USSR. It was about the time of the cold war and the American authorities were much concerned by the fact that known frequencies could have been used to guide intercontinental missiles to their destination. The scheme called CONELRAD (CoNtrol of Electro-magnetic RADIations) was a typical example of the Civil Defence system still, even if in a different way, in use today in the USA.

This does not mean that you might not encounter the odd set made within this period which lacks these marks but this is a reasonable way of dating period radios (valve from 1953 and tr from 1954).

Then you should look and see if you can determine if the set has been made in the USA or in Japan or indeed somewhere else. Generally speaking historical sets were made in the USA from 1954 to 1961 and Japanese

ones from 1956 to 1966. Then came Hong Kong which roughly covers the period from 1964 to the 1970s.

Subsequently you should look inside and see if you can recognize the style of design and construction. Generally speaking the early sets had a case made with thicker plastic than the later ones. The Japanese sets used the incredibly small encapsulated tuning condensers made by a firm called MITSUMI which gave them the name of Polyvaricons while the American sets were still using the open air style variable condensers.

The early transistors can be recognized by their unusual shapes: oval, oblong, with a lower flange or with a top nipple. All in all as the technology improved the printed circuits were "machine" soldered as opposed to the early manufacturing processes which called for 'hand' wiring. Early USA made transistors used models starting with 2N

numbers and, of course, the lower the number the older the date of manufacture. Early Japanese transistors bear the 2S number series and later ones 2SA and 2SB. Some transistor manufacturers used their own numbering system, the most typical being the CK series by Raytheon and the OC by Philips and Mullard.

If you are lucky enough to find the protective case as well, this could give you a clue for dating the set as early production were enclosed in real leather while later ones used simulated leather or vinyl.

As for their value one should naturally think that the older ones are the more valuable but this is not always true nowadays as the keen collector seem to prefer the shirt pocket sets instead of the bigger portable ones. Maybe one day this situation will be different but today's interest is for the early miniature Japanese production. Then, of course, there

are the specialized interest areas; for example, the German collector would be naturally keen to collect German sets or you might want to find that nostalgic set that you had when you were at college etc.

Today is still a good time to start collecting as the more seasoned wireless collector still regards the transistor radio as a sort of novelty set without realising the enormous importance that tr sets had in changing social behaviour and the history of communications.

If you are really serious you should start by trying to get hold of the few sources of information available today and by joining the only club known at the moment. This at least for the present time until the appreciation level will start to pick up and transform what is still a handful of nostalgic people all over the world into an avalanche of collectors.



Restoring a 1937 HMV 485A

by Howard Carlton

I didn't realise that taking an interest in a radiogram in 1996 would lead to my ownership of one for free, but would cost me an awful lot of money to set right.

BVWS member Charles Betts enquired about my interest in a set at the Southborough meeting and advised me that if I wanted a radiogram, not to bother with one like this, but find a good quality one. He said that he had a 1937 HMV 485A that I could have- it was a rusty wreck with the veneer lifting and flaking off, which he had brought back from up North.

On the 1st of November I headed Westwards to view it and ended up taking it home, no point in wasting the journey. There was another factor however, this sad, large old box with a rusty chassis, performed and sounded a treat. Atlantic Radio on Long Wave came in very strong on a short piece of

aerial wire, there was even treble! I was hooked. I joked with my neighbour the following day when he was helping get the 'gram from the car to my front room, I said that in three days time it would be bonfire night and was wondering if he would help me take it to the bottom of the garden.

I enjoyed listening to the HMV during the long Winter nights, often surprised at the treble and clear bass notes it was capable of producing.

In the Summer I made a start and called a local antique restorer and they took the cabinet away. I didn't see it for about three months, when it was returned it looked like new. They had remade the lid and extended the rosewood along the sides at the bottom.

It took me longer than the restorers to clean the chassis, speaker and various bits and pieces in my spare time. By the time it was finished I had a good suntan from sitting on the lawn scraping and polishing for several hours over many days.

I cleaned the chassis with everything in situ. It would have been a shame and unnecessary to destroy all the original workmanship from sixty years ago, especially as it looks as though only the smoothing

condensers have ever been changed. I am not very clever on the 'circuit side' and was happy to leave well alone.

The rust was removed with fine grade aluminium sandpaper and re-polishing the steel with car rubbing compound, using tiny sticks and strips of cloth. Any screws removed were screwed back in order onto a piece of card that I had marked out, so that they could go back exactly where they had come from. I have decided to leave the rusty works of the record changer until next Summer; it was best to put it all back together for the time being. I have seen too many projects that drag on and then never get finished with all the small components lost.

With help from the valve boys: Ken, Rod and Phil, I now have a new set of the correct original Marconi valves. These have been put away in their boxes and a set of scruffy ones from the £1 and 50p boxes at the swapmeets installed. I can now use it and not worry.

Used with respect for their age, they can bring a lot of pleasure, rather than rusting in an attic. My friends and family think it is wonderful, a young cousin said "that's really old, it must be from the fifties"!



Above: pictures from the Harpenden 6th June swapmeet

BRITISH VINTAGE WIRELESS SOCIETY Statement of Accounts for 5th April 1997 to 4th April 1998

	1997/98 £	1996/97 £	Assets	1997/98	1996/97	Movement
Income			Current Account	21160.35	21717.86	-557.51
Subscriptions and Donations	20343.53	21895.59	Deposit Account	3625.80	3510.49	+115.3
Sale of Publications	132.30	(-3258.89)	Giro	383.39	383.39	
Meetings	4082.71	(-878.61)	Cash			
Interest on Deposit	115.31	389.07	Total assets	25169.54	25611.74	-442.20
Total Income	24673.85	18147.16	Increase/Decrease in Assets			-442.20
Expenditure			Matched by a corresponding income deficit			
General Expenses	4174.96	5613.06	David Read FSCA Honorary Treasurer			
Sundries			I have examined the accounts and books of the British Vintage Wireless Society and confirm that the Statement and Report are in accordance with these records.			
Bulletin costs	20941.09	17630.90	David Davis ACMA			
Extraordinary Items		925.90				
Total Expenditure	25116.05	24169.86				
Income surplus/(deficit)	(-442.20)	(-6022.70)				
Matched by a corresponding decrease in assets						

Black Propaganda part 4

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



Fig 2

Fig 1: After remaining abandoned for many years the old studio complex was given to the Anthill and Woburn District Scouts to be used as a combined camp-site and store. Fig 2: By October 1943 the battle with the BBC for Aspidistra was finally won and Soldatensender Calais burst forth on 360, 410 and 492 metres. Harold Robin had been able to squeeze another 100 kW from the medium-wave transmitter - a massive 600 kW far exceeding any in Europe - with an ability to drown out any existing station. At the same time he had installed two 100 kW short-wave transmitters, giving much more power than the PWE had ever had before, and four 7.5 kW transmitters. He even had a mobile half-kilowatt relay operating on the cliffs of Dover, opposite Calais, to help confuse the Germans if they tried to get a fix on the location of top secret Aspidistra. Above: The original wartime aerials for Aspidistra were replaced by these short-wave antennae around 1950.

The broadcasts of both the Atlantiksender and the Soldatensender were a continuous series of hoaxes but Delmer still had the ultimate hoax up his sleeve. What interested him most about 'Aspidistra' was the powerful transmitter's ability to change frequencies in seconds. It interested Churchill too, and the plan for the ultimate hoax, which Delmer referred to as his 'Big Bertha', had been approved in principle as early as December 1942, but had been vetoed on the almost unbelievable grounds that it was considered undesirable for the Germans to be able to claim after the war that part of the cause of their defeat was a propaganda trick. The BBC also objected, fearing that the Germans might either jam or bomb its own transmitters. It was not until shortly before the end of the war that Delmer's 'Big Bertha' was used and it came about quite by chance.

Churchill, staying at General Eisenhower's headquarters, read in the American forces newspaper, *Stars and Stripes*, that Allied military radio stations were instructing the German people to stay calm and to remain in their homes. Churchill was furious. He wanted the German people out on the roads, jamming the Army's movements, just as the French civilians had done to the British Army in 1940. He gave orders for immediate counter-instructions and sanctioned the use of 'Aspidistra'. At last, Delmer could fire his Big

Bertha' and how he did so was extremely clever: the takeover of a German radio station.

In Germany there was a single radio programme, the Reichsprogramm, that was relayed from Berlin by transmitters located in twelve key cities. It had been noticed that when an RAF raid was 50 miles distant from the target city the local transmitter went off the air so that its signal could not be used by the approaching bombers as a navigational aid. It was this knowledge and the capability of 'Aspidistra' that had given Delmer the idea for his ultimate hoax.

The Air Ministry co-operated and the RAF would inform Delmer at lunch-time that a raid on Hamburg was planned for the coming night and gave him the time that the bomber stream was expected to reach the target. On the night in question, half an hour or so before the stated time, the programme broadcasting from Hamburg would be picked up by the receivers at Milton Bryan and relayed by land-line to Crowborough. At the same time MB would pick up the Frankfurt transmission and relay it on a second line to 'Aspidistra'. At the moment that Hamburg went off the air 'Aspidistra' relayed the Frankfurt transmission on the Hamburg frequency. The change was made in 6 milliseconds and the listening audience was completely unaware that the programme of music was not coming from the Hamburg transmitter. The team at MB

continued with the music for a short time before fading it out for Delmer's specially prepared announcements. These never took more than two or three minutes and when completed the music was brought back, played for several minutes, and then faded out again for the approach of the RAF raid. When the raid was over, the genuine programme from Hamburg continued.

Delmer's announcements were designed to cause confusion. Residents of Hamburg might, for instance, be instructed to report to the railway station where special trains had been laid on for evacuation to another part of Germany, and people in another city might be told that special ration vouchers for those bombed out of their homes were available at a certain Government office.

The first target for this clever intruder operation was actually Cologne. During the preceding two weeks, recordings of Radio Cologne were taken from the library at MB and carefully studied. Cologne used a man and a woman for its announcements and Delmer replaced them with Moritz Wetzold, who had once been a trainee announcer, and Margit Maass who was an actress capable of imitating any voice. The text of the announcements was prepared by Clifton Child, C. E. Stevens and Hans Behrmann, and rehearsed by Wetzold and Margit Maass until they could copy perfectly the voices of the

Fig 3

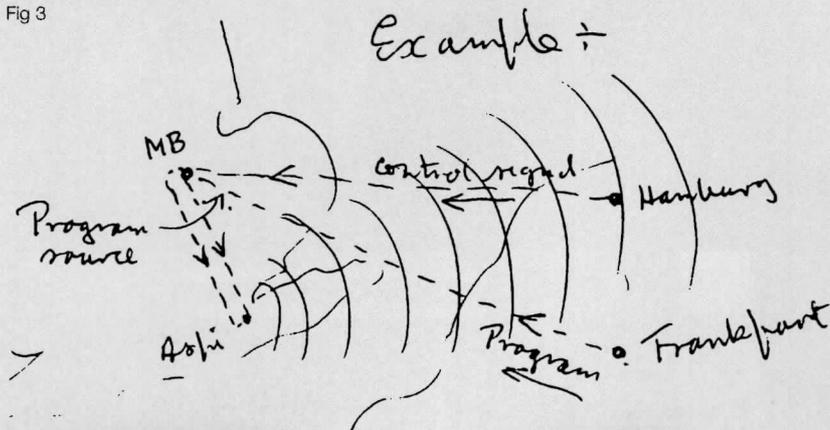


Fig 4



Fig 5



Fig 6

Fig 3: The ultimate hoax was 'Big Bertha'. Harold Robin explains with the aid of his own rough sketch. 'MB receives two Reich radio programme signals: one from Hamburg, which goes off due to a raid by UK bombers, and the second from, say, Frankfurt. The latter stays on and will be relayed by Aspidistra now tuned up to Hamburg frequency (908 kcs) but not radiating because RF drive is held off. Hamburg goes off air, MB heterodyne tone to Aspi goes off, drive now comes on and Aspi radiates Reich programme as received from Frankfurt. Local people hear a short click of about six to eight milliseconds duration and Reich programme continues until MB fades it down and Delmer's announcer speaks up.' Thus, for the duration of the raid, MB was free to disseminate a variety of information to the population of Hamburg under attack designed to induce panic and distress.

Fig 4: The short-wave transmitter building also stood within the Aspidistra compound.

Fig 5: The decor, reminiscent of cinema interiors of the 1930's was the work of Cecil Williamson who had worked in the film business before the war.

Fig 6: Harold Robin, who retired in 1971, pays a nostalgic return visit.

Cologne announcers.

On March 24, 1945, the RAF advised Delmer that Cologne was to be the target that night and that Radio Cologne could be expected to go off the air at 9.15 p.m. The operation was perfect. At 9.20 p.m. the programme being relayed from Berlin via 'Aspidistra' on the Cologne frequency was faded and Wetzold and Maass began their announcement. The Gauleiter, they said, had ordered people to leave their homes immediately, taking with them only essential possessions. The men should report for duty to defend their neighbourhoods against the approaching Allied advance but the women and children must walk to a specified evacuation centre. Local Nazi party officials were ordered to marshal the evacuees. According to reports captured after the end of the war, the hoax was completely successful. Frankfurt and Leipzig were the next two cities to be targeted and by the end of the war 'Aspidistra' had been used for 'Big Bertha' intruder operations on ten occasions.

One further use was found for 'Aspidistra'. Although the war was nearing its inevitable end, the Luftwaffe's night fighter force was still capable of inflicting heavy losses, and the Air Ministry asked if Delmer's team at Milton Bryan could assist in any way with disrupting the German fighter controllers. The transmitters of the Deutschlandsender were very powerful

and the German controllers used its network to broadcast running commentary instructions to their fighter pilots. Effective interference was obviously a job for 'Aspidistra'.

Delmer consulted the PWE psychological adviser, Dr T. McCurdy, and learned that the greatest confusion could be caused if MB listened to a fighter control commentary, recorded it, and then re-recorded it several times over on the same disc with a small time difference between each. This was done and the resultant recording was broadcast by 'Aspidistra' on the Deutschlandsender frequency whenever Allied bombers were under attack.

Another, and very simple, variation of the same theme was to record the German fighter control commentary during an RAF raid on, say, Cologne and to broadcast it several nights later when Berlin was under attack. The Luftwaffe pilots, believing the instructions to be genuine, used up their fuel circling in vain over a city that was not under attack. This very effective trick was code-named 'Dartboard'.

The Atlantiksender and Soldatensender West closed down for the last time on the night of April 29/30, 1945, without any formal announcement. Harold Robin must have realised that Delmer's work would be of interest to historians in the future and he recorded the last two days' broadcasts on more than 20 discs. He kept them at his home



Fig 7



Fig 8

Mr Delmer
For information
Ellis/Hay
 March 26/26, 1945.

ASPIERA INTRUDER OPERATION ON 1305 kw's (FRANKFURT)

Note: Reichssender Frankfurt was off the air before, during, and after the operation. Relays of the German home service programme were taken from Munich, Vienna, Leipzig, etc.

B.S.T.

20.43 Aspidistra goes on the air with relay.

20.48 First announcement: Approach of Allied armour, evacuation instructions.

20.51 Aspidistra off the air.

20.59 Aspidistra back with relay.

21.02 Second announcement: Repeat of first announcement for different town.

21.10 Third announcement: Instructions telling Red Cross workers to report for duty.

21.27 Fourth announcement: Armoured reconnaissance units in Darmstadt.

21.34 Aspidistra carrier out for 30 seconds. No trace of Frankfurt transmitter.

21.36 Fifth announcement: Report of armoured reconnaissance units.

21.44 Aspidistra carrier out for 30 seconds. No trace of Frankfurt transmitter.

22.23 Sixth announcement: Announcement about suspected enemy agents in German army car.

22.38 Seventh announcement: Repeat of previous announcement, No. 6.

22.52 Eighth announcement: Instruction to butchers in Kasel area.

22.53 Aspidistra carrier out for 30 seconds. No trace of Frankfurt transmitter.

23.04 Ninth announcement: Appeal for handarts, etc.

23.14 Tenth announcement: Air raid situation report. Kurhessen area.

23.16 Eleventh announcement: Air raid situation report. Kurhessen area.

23.24 Twelfth announcement: Air raid situation report. Kurhessen area.

23.29 Thirteenth announcement: Air raid situation report. Preliminary all clear for Kurhessen.

23.37 Fourteenth announcement: Call upon Frankfurt doctors, midwives, etc. to remain in area.

23.50 Fifteenth announcement: Air raid situation report. All clear for Kurhessen.

Fig 9

Fig 7 & 8: Artistic elements worthy of an Odeon. HMGCC is short for His Majesty's Government Communications Centre, changed to Diplomatic Wireless Service (DWS) after the war. ASPI 4 refers to a 50kW Marconi short-wave transmitter in another building.

An example of a successful Intruder operation. Fig 9: The synopsis for the programme. Fig 10: Extracts from the script. Fig 11: Report on reception monitored in Paris. Fig 12: Account published in the Daily Mail on March 26, 1945.

LZ 4.10 26.3.45

TO: MR DELMER

(CYPRER) =SPECIAL (PILOT)=

=FROM PARIS TO FOREIGN OFFICE=

MR. DUFF-COOPER

=NO. 506= D3

26TH MARCH, 1945 R3 12.58 P.M. 26TH MARCH, 1945

=IMMEDIATE=

=TOP SECRET=

=PILOT XL=

FOLLOWING FOR P.I.D. FOR DELMER FROM HODGKIN.

RECEPTION RATHER WOOLY AT THE BEGINNING AND THE FIRST 2 MESSAGES NOT QUITE CLEAR. RECEPTION OF 13 REMAINING MESSAGES EXCELLENT. THERE WERE SEVERAL SUDDEN BREAKS LASTING SOME SECONDS THOUGH CARRIER WAS STILL UP. FIRST BREAK CAME AFTER THE WORD OFFEBACH DURING THE FIRST MESSAGE, THE OTHERS DURING MUSICAL PERIODS. VOICE GIVING SPECIAL ANNOUNCEMENTS WAS MADE LOUDER AND CLEARER THAN VOICE ANNOUNCING MUSICAL ITEMS BUT PRESUME THIS IS INEVITABLE. PROGRAMME WAS TH TIMES OVER LAID BY FAINT MALE GERMAN VOICE. HOPE YOU HAVE SENT FULL ACCOUNTS OF BOTH OPERATIONS BY AIR MINISTRY COURIER SO AS TO GET HERE AS SOON AS POSSIBLE.

(ADVANCE COPY SENT TO SIR R. LOXX BRUCE LOCKHART.)

O.T.P.

Fig 10

The Reichssender Frankfurt is interrupting its programme to bring an important notice.

(Pause)

Attention, Attention, Command Post of the Gauleiter of Hessen-Kassel. Here is an important announcement for the track control posts in Kreis Darmstadt.

Advanced enemy tank formations approaching Dudenhofen and Seeligenstadt. All track companies which are ready move off immediately. Route: Schweinheim - Hesselthal. Further instructions will be issued at the track control post in Hesselthal town centre.

I repeat: Advance enemy tank formations approaching Dudenhofen and Seeligenstadt. All track companies which are ready move off immediately. Route: Schweinheim - Hesselthal. Further instructions will be issued at the track control post in Hesselthal town centre.

End of announcement.

Further announcements will follow for Frankfurt, Offenbach and Hanau.

Fig 11

Radio warns 'Tanks near' FRANKFORT PANICS

FRANKFORT radio broke into its programme time after time last night with warnings of tanks nearing the city, of mysterious "wanted" men racing for the interior of Germany, and of great columns of refugees marching along the roads ahead of the Allied armies.

Warning No. 1 came at 9.28 p.m. This said that "reconnaissance cars" had passed through Oberramstadt, near Darmstadt, and were moving on Grundernhausen, 20 miles from the Rhine.

Ten minutes later it broadcast a warning from the local Gauleiter that "tank spearheads" were approaching Dudenhofen, 30 miles east of the Rhine and 15 miles south-east of Frankfurt.

A little later a woman announcer broadcast an "urgent warning" to all "police, Volkssturm, and Schuettern are urgently requested not to join, for the time an army lorry racing eastwards towards Geinhausen.

In the lorry said the announcer, were four persons wearing German army uniforms presumably enemy agents. The car must be stopped at all costs and its passengers arrested. In case of resistance they must be killed.

Finally the Gauleiter of the province came on the air with a warning which disclosed that the population of Frankfurt is in full flight.

He said: "In order to assure medical attention for the population streaming out of Frankfurt, doctors, midwives and chemists in the rest centres of Geinhausen, Bad Soden, and Schuetttern are urgently requested not to join, for the time an army lorry racing eastwards towards Geinhausen.

In the lorry said the announcer, were four persons wearing German army uniforms presumably enemy agents. The car must be stopped at all costs and its passengers arrested. In case of resistance they must be killed.

Earlier, Allied pilots had reported a mass exodus along the Frankfurt railways.

Fig 12

until 1981 when they were lodged for posterity with the Imperial War Museum. They have since been transcribed onto tape.

Very little else remains. Soldatensender West was last off the air at 5.59 a.m. on April 30, 1945. Immediately afterwards, Delmer threw a party in the MB canteen and on the following morning he called his staff together for the last time. He told them that, even after the war, security must be maintained and that no matter what might be said by the BBC, PWE, or any other source, they must never reveal their wartime experiences. His reason was to prevent the Germans from claiming that the war had been won by propaganda as

they had done after the First World War when Lord Northcliffe boasted about his work as the British propaganda chief. The meeting over, the staff set to and collected all the scripts, documents and recordings and burned them outside the main building.

Just how successful the British black propaganda radio operation was will probably never be known. Immediately after the end of the war in Europe, Delmer was asked to go to Germany to conduct a survey on the impact of his work, but he declined on the grounds that he had done the job to the best of his ability and it was now finished. He did go to Germany: he went to Hamburg on behalf of the

Foreign Office to make sure that the Germans read the 'right' sort of newspapers, and his former studios at Milton Bryan continued in use for a while, sending on Hell-schreiber the 'right' sort of information for publication.

Despite the lack of an official survey, there is a considerable amount of evidence that the Atlantiksender and the Soldatensender had a very wide and varied audience and caused great concern to the Nazi hierarchy even if the broadcasts did not actually accelerate the German surrender. Interrogation reports reveal an enormous amount of 'come back' and show that the programmes were listened to by members of all Services in very large



Fig 13

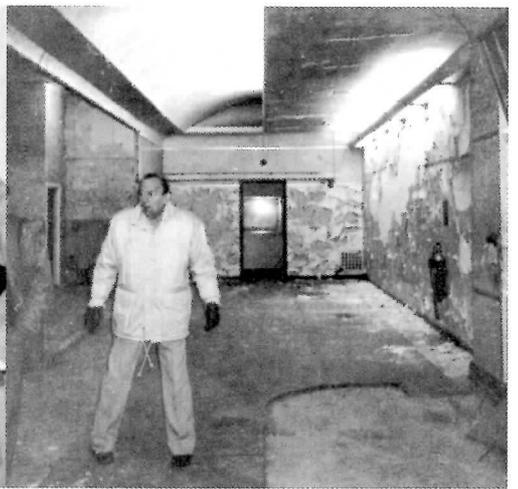


Fig 14

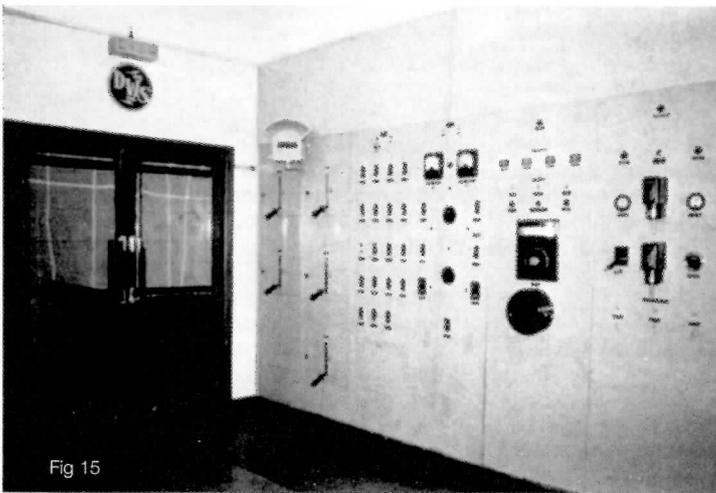


Fig 15



Fig 16

Fig 13: After the war, Aspidistra became part of the facilities provided by the External Services of the BBC, by the Diplomatic Wireless Service — now the Communications Engineering Department of the Foreign and Commonwealth Office. It remained in continuous service for forty years but ceased regular transmissions on September 28, 1982 when Harold Robin was accorded the privilege of performing the final shutdown.

Fig 14: Five years later Harold robin returned; a sad day indeed.

Figs 15 & 16: Work began to dismantle the equipment in May 1984 and by 1986 the interior presented a sorry sight. Outside, the aerials were demolished by the simple expedient of cutting the guy wires and letting them fall down.

numbers, and in most war theatres.

In 1944, Hitler ordered Himmler and his deputy, Walter Schellenberg, to investigate the truth of the Soldatensender news items and to search for a German origin.

After the plot on Hitler's life in July of the same year, a large team of military radio specialists was ordered into the Führerhauptquartier at Rastenburg in East Prussia to check the telephone system for line taps as it was thought that British propagandists might be obtaining information by this means.

Among captured documents after the German surrender were several reports containing warnings against listening to the Soldatensender, but perhaps the most telling evidence came from one of the men for whom the Atlantiksender was intended.

Peter 'Ali' Cremer joined the Kriegsmarine before the war and was one of only three senior U-Boat commanders to survive its full period. Severely wounded in a surface battle with a British corvette, HMS *Crocus*, his badly-damaged boat was nursed back to La Pallice by an officer placed aboard from a U-tanker and then, after a period in hospital, he was appointed Second Staff Officer at U-Boat

headquarters. He ended the war as a Fregattenkapitän and the commander of the bodyguard of Grand Admiral Karl Dönitz. Cremer relates that U-Boat headquarters had a retired commander, Gottfried Teiffer, who was responsible for the analysis of British propagandist, and how this officer recruited radio operators to write down the Atlantiksender programmes. During Cremer's term as Second Staff Officer (February to April, 1943), U-Boat headquarters was in Berlin. At first the HQ staff treated the Atlantiksender with amusement but it was not long before the laughter was replaced by grave concern. Dönitz referred to the station as 'Poison Kitchen Atlantic'.

The Atlantiksender broadcasts gave the U-Boat men the impression that nothing was secret any more and they began to talk openly in the bars and cafés at the French bases. This careless talk caused the frequency of the regular monthly lectures on security to be increased to fortnightly and in some bases to once a week, for it was now apparent that the British interrogators worked closely with the staff at MB.

Despite the frequent lectures, the British interrogators continued to extract the

information they required and passed it on to Delmer. In a final attempt to counter the intelligence leak, the Oberkommando der Marine ordered a documentary film to be made. When completed it was realised that its clear and unintended message was that the life of a prisoner-of-war in British hands was quite comfortable. The film was never screened.

Aboard his own boat, Cremer pretended not to know that his radio operators listened to the Atlantiksender sports results every day, and on June 1, 1942, he was unnerved when the station announced that he would be taking U-333 to sea on the following day.

Some official responsible for matters concerning former prisoners-of-war, possibly with a wry sense of humour, ended the story of Milton Bryan with an ironic twist. It may, of course, have been entirely coincidental but, when the period that was to become known as the 'Cold War' began, there were many prisoners still in England whose homes were in East Germany and who could not be repatriated. The compound at Milton Bryan became a camp for former U-Boat officers and ratings — the very men at whom the Atlantiksender had been aimed. The prefabricated huts where Clifton Child, the

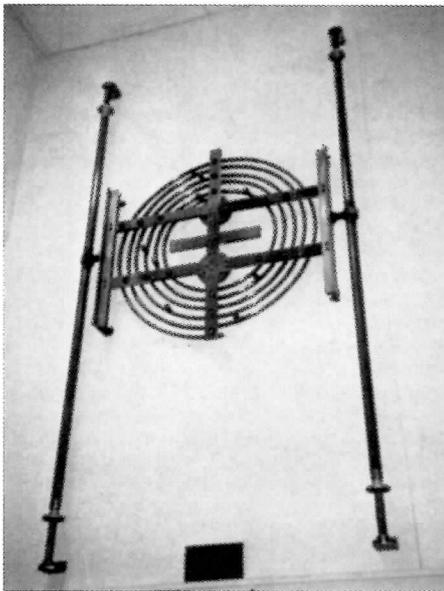


Fig 17

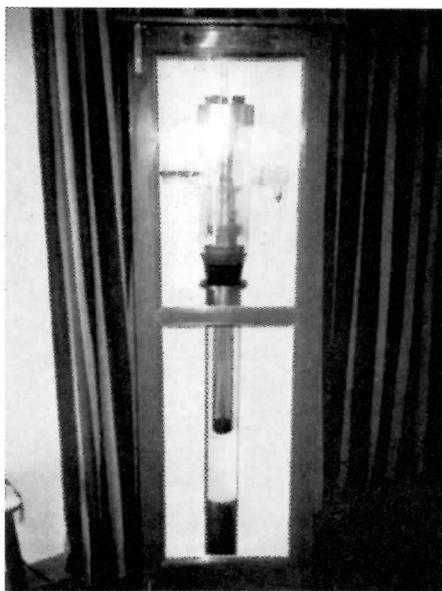


Fig 18



Fig 19

Aspidistra's duties were taken over by more modern equipment at Orfordness and it is there that two pieces remaining from the scrapped transmitter can be seen displayed. Fig 17: One of the three RF output coupling coils. Fig 18: One of Aspidistra's massive power triodes. For the technically minded, it is an RCA 898A as used in the Class C power amplifier and Class B modulator stages. There were 26 of these valves in the transmitter. The 898A had an anode dissipation capability of 50kW and was operated at 12kV DC anode voltage. The 33-volt, 3-phase filament was of pure tungsten and dissipated 4 kW. Due to valve obsolescence, the transmitter was re-valved with English Electric Valve Company BW189 triodes which were in use right up to the final closure of the transmitter. Fig 19: And in Felix Delmer's garden a final relic — one of the huge insulators which stands almost like a memorial to his father's wartime achievements.

scriptwriters and others had worked were converted into barrack blocks for the German inmates, and the canteen became their recreation hall. It is highly unlikely that the U-Bootbesatzungen ever knew that their temporary home in Bedfordshire was the place from which the programme they had so often listened to was broadcast.

When the Germans finally went home in 1949 — four years after the war's end — their place was taken by Irish farm labourers, and when they left, the MB complex was left to fall into decay. Today, the main building, which housed the broadcasting studios and in which Sefton Delmer and Harold Robin had their offices, still stands but in a ruinous and badly-neglected state.

The buildings that housed the transmitter at Potsgrove still stand, but the steel aerial masts have long since been removed.

'Aspidistra' continued long after the war and was used on the World Service and BBC European Service. In September 1982, Harold Robin attended a shutdown ceremony and pressed the 'off' button for the last time. The transmitter should have been preserved but Robin had retired from the Foreign Office in 1971 and had no influence to prevent its sale for scrap. The underground building has since been extended and refitted by the Home Office, presumably for the storage of records, but the outside buildings still remain untouched and as they were during the war.

Pre-War television listing

This listing has taken a year to complete. The compiler has been a keen collector for over 15 years and knows quite a few other collectors, some who have been contacted quite recently for the first time. They are gratefully thanked for contributing to this list.

It will be noticed that quite a lot of well-known manufacturers do not appear in this list, such as Alba, Bush, Decca, Dynatron, Ferguson, Ferranti, Philips, Philco and KB.

It is a pity that none of the above manufacturers seem to be represented by surviving sets (unless you know otherwise, and if this is the case please write to the BVWS Bulletin).

Manufacturer	Model				
Baird	T5	4	Marconi	701	1
Baird	T14	1	Marconi	702	7
Baird	T18	1	Marconi	703	2
Baird	T20	1	Marconi	704	1
Baird	T23	2	Marconi	705	2
Cossor	54	3	Marconi	706	5
Cossor	137 T	1	Marconi	707	9
Cossor	437 T	1	Marconi	709	6
Cossor	1210	5	Marconi	9" mirror lid model unknown	1
Ekco	TA201	4	Murphy	A42V	3
Ekco	Model unknown	1	Murphy	A56V	4
GEC	BT 0070	1	Murphy	A58V	2
GEC	BT3701	1	Pye	815	2
GEC	BT 8090	1	Pye	817	3
HMV	900	6	Pye	819	1
HMV	901	5	Pye	838	1
HMV	902	9	Pye	843	1
HMV	903	1	RCA	TRK 120	1
HMV	904	8	RGD	382 RG	3
HMV	905	10	Truphonic	12" TV radiogram	1
HMV	907	7	Ultra	T22	2
HMV	1850	1			
Invicta	TL4	1			
Invicta	TL5	1			
Total 134 known sets					

So just *why* do I do it?

by Jonathan Warburton-Brown



The ideal location for finding wireless addicts in action: The NEC in Birmingham, May 10, 1998. Enough to make one's 'Radio Radar' go beserk!

Just what is it that drives us all to collect these boxes of wire, valves and dust? It's a rhetorical question really because I know fairly precisely what it is that spurs me on. Putting it into words though is perhaps a bit awkward in as much that it may well lend credence to my wife's assertion that I suffer at times from somewhat obsessive behaviour. Should you choose to read on, you may well relate to some of the 'symptoms' I detail below.

Rising at the crack of dawn, much to the chagrin of loved ones, in order to avoid the possibility of missing that elusive bargain of a lifetime is just the beginning. Even while preparing to leave the house an overwhelming feeling of excitement and expectation builds and a sense of urgency pervades my every pore. Having scuttled round the house on tip-toe while getting dressed in order to minimise the risk of being delayed by curious children (Where are you going daddy?) or demands for cups of tea and toast, the door is finally closed behind me. It is only when sitting behind the wheel of the car and starting off down the road that leads to the car boot sale though that I can feel safe that the adventure has begun and, barring the unforeseen hand of God, will not be interrupted.

It can be taken to be expected behaviour that other road users and traffic lights will conspire to cause as much delay as possible and it is surely an immutable law that states, the more this is found to be an annoyance, the more it will happen. Every pedestrian crossing will be overflowing with people waiting to cross and every first time learner driver will be practising three point turns in front of me... slowly. It is during these moments that it dawns upon me with an utter and dismal sense of certainty that a rival collector has just swooped upon the very set, priceless and unique, that has spent its entire life waiting for me... and has paid a fiver for it.

But then finally I arrive. The car is parked and an almost euphoric air of expectation fills me as I find myself, nostrils flared and eyes alert, on the threshold of the fair. As a regular visitor, I will already have my route through the stalls planned knowing full well which are most likely to have those gems I so desire. Everyone there is a potential enemy out to foil my efforts and speed is of essence. I usually do a couple of quick laps round the

best stalls to ensure I get there first before settling into a more sedate and studied inspection of the remainder. Perhaps my key advantage over the casual attendee is that I have in-built 'radio radar'. My senses are so well tuned (if you'll forgive the pun) to seeking out sets half buried under second-hand clothes and other paraphernalia that I can easily spot such objects at great distance and evaluate the urgency of getting to them, in the blink of an eye. This skill is only paralleled by my ability to weave through crowded aisles at a speed approaching that of light should the need arise. The one downside to all this fine-tuning though is that if I am ever asked to keep an eye open for anything else, I invariably miss it.

And then it happens. My mental magic eye goes fully green and with a burst of speed I am in front of the set making myself as large and intimidating as possible to keep other lesser mortals at bay. Heart beating yet prepared for disappointment I make an initial assessment of its state of repair. Is it complete, all knobs present and correct, back cover in place, not too scratched? After all, it is not wise to spend too long on anything borderline because there may be a better bet in the next aisle. If it passes first inspection peering into the back to ensure the essential innards are present is the next step. It is often at this point that the excitement is heightened further by what can best be called 'The right smell'. It is that heady and intoxicating mix of wax, rubber, tar, dust and age that just makes it right and proper that this set follow me home for restoration to glory. This of course leads to the next hurdle.

Being careful not to be obvious, showing a well-practised and perfected air of disdain guaranteed (at least in my mind) to fool the stall holder, the all important question of "How much?" is asked and accompanied by a disinterested nod of the head in the general direction of the radio. This is often followed by an indignant repetition of the question, "HOW MUCH!?!?" and a detailed list of absolutely fatal flaws in the set in direct contradiction to my own private assessment of a few moments earlier. It's too scratched, missing vital components, in no fit state of repair and, well, not very collectable anyway. The age-old art of haggling is embarked upon and finally the deal struck. My quest has been a success; how happy everyone will be when I get home!!

Now, this raises another aspect of radio collecting many of us have to face. The set, now mine, its wooden case glowing warmly because it knows it's going to the best possible home, is popped under one arm and lifted with ease into the foot-well of my car. It is driven home while, still euphoric, I heap praise upon myself for being such an astute bargain hunter. Not until I park the car in the driveway and extract the set from the foot-well does it, as if by magic, take on the proportions of a large tree trunk. And my wife Angela, with her uncanny sixth sense, finds her way to the front door in time to remark with a suitably jaded expression, "And where do you think **that** is going?"

Grimacing somewhat sheepishly and mumbling something inane about where the television used to be I swear blindly that it wasn't that big when I bought it.

Despite all the trials and tribulations, the set makes its way into my home where it is lovingly cleaned and restored amidst remarks about the amount of attention received by my radios versus the rest of my family. I shouldn't be too hard on Angela though because, for the most part, she is happy to indulge me in my... obsession... with good humour and patience which is but one of the many reasons I love her. With the many sets I have dotted around the house she has become quite an expert at guessing the age of any new ones I bring home. She still complains though that they only seem to receive 1035 Country AM, this being the strong local station I use for testing and calibration. Secretly, though never to be openly admitted, I think she understands full well the fascination I find in radios and even takes pleasure herself in seeing them restored. After all, I'm not always off down the pub or engaging in anything too dangerous... give or take a few hundred volts.

There really is no thrill quite like obtaining a special set and nursing it back to its former glory and then there is the history to consider as well. Some of these sets were around so long before I was born. They have survived World War and been used and enjoyed by people and families I shall never know, all of which adds to the rich patina of wonder and fascination that spurs me on to collect ever more.

I can say with absolute conviction that, without a doubt, I know **just** why I do it and that I hope to continue for many years to come.

Letters

Dear Editor,

Regarding Pat Leggatt's article on cabinet design in the 1930's. If he has got any spare 'gross' Defiant M900s or any 'hardly beautiful' Ekco AD65's I'd happily swap them for a Picasso print or better still a very attractive Grundig piano-key set from the 1950's!

Paul Stewart
Reading, Berkshire

Dear Editor,

I write to support Lesley Curwen's appeal that women members of BVWS should be treated as equals. Unfortunately as long as a "pipe and slippers" mentality prevails in the society we are going to experience the type of sexist comments which Lesley refers to. In the same issue of the bulletin in which her letter appears there is a reference in one article to "er indoors" and an assumption that all American radio collectors are men.

Also in the same issue there is an article on J. Scott-Taggart by Geoffrey Dixon-Nuttall. Geoffrey could have added a gem of a quote. In his book, "The Book of Practical Radio" published in 1934 there is a chapter on operating wireless receivers which Scott-Taggart opens by saying:-

"Women, I am afraid, are for some reason probably the slowest to discover the basic law which underlines the adjustment of all wireless receivers"

Gosh!

BVWS members who persist either deliberately or inadvertently in the use of sexist comments look as silly as J. Scott-Taggart and do the society a disservice. Lesley Curwen is right, there is a world outside our doors and her letter is welcome for bringing it to the attention of bulletin readers.

Yours sincerely,
David E. Jones.

Dear Editor,

May I comment on Lesley Curwen's letter in the Summer Bulletin.

At the moment (July 1998) we have 19 woman members. Of these, 3 are Complimentary acting as Secretaries of other Societies or Journals.

9 are Family Members on their husbands' subscriptions. Clearly they are sympathetic to BVWS concerns, and indeed some at least may have a positive interest in vintage wireless equipment or history; but I have no means of knowing just what their involvement might be.

This leaves 7 women who have full membership in their own right, not dependent on a family connection.

All these various categories of woman members play a significant part in Society affairs, and are much appreciated; but it is only realistic to accept that vintage wireless is not an interest of many women, and the 7 full members represent slightly over 0.5% of our total membership. So it is hardly surprising, although regrettable, that it should sometimes be assumed that women attending meetings are not themselves enthusiasts and collectors.

I am sure that the hard-pressed staff registering attenders at our meetings will, as a result of Lesley Curwen's letter and perhaps of

mine, do their best to avoid false assumptions. The policy of the Society is of course to welcome all members, without distinction, who subscribe to its aims.

Yours sincerely,
Pat Leggatt.

Dear Editor

I thought I'd write in response to Robert Chesters' excellent article covering the Ekco AW87 in issue number 2 volume 23. I'm glad that these 'not-so-famous' Ekcos are getting a bit of recognition as, to me, it is their design and history which makes them appealing.

I have been collecting radios for several years now and have attended countless swapmeets and fairs but have only ever seen two AW87's in all this time, whereas one can find dozens of AD65's, AD75's or A22's etc. Does this make them rarer? Or is it because, had the AW87 been included in Radio! Radio! or any subsequent publication on the subject, it would come out of hiding and make more frequent appearances.

Another one of these poor-man's Ekcos is the AD37; a TRF from 1936 with heavily curved sides, its the next best thing to a circle! I first bought one about 3 years ago in black and ivory finish and another more recently in brown. Searching through my collection of coffee-table books on radios for information or pictures I couldn't find anything about it



which may explain why there are so few around. I am reliably informed that an all ivory model was produced but this particular beast looks set to remain untraced. I don't know if it was designed in-house or by someone externally but its release date indicates it would be amongst the Chermayeff and Coates designs. One feature which is of interest is the metal vent mounted on the inside of the back cover; this fits over the top of the mains dropper and directs most of the heat outside. (A feature which would no doubt have saved all those ivory DAC 90A cabinets from stress cracks!).

I have enclosed a photo which I hope you can include, but in the meantime, if any member has any history or further information on this little-publicised set, I'd be delighted to hear about it. (So would everybody at the BVWS- Editor)

Yours sincerely
Paul Stewart

Dear Editor

I found the following piece of information in a

book entitled 'Stranger Than Science' and provides an interesting slant on the history of wireless communication:

Neglected genius

Years before Marconi won fame for sending and receiving wireless code signals, a Kentucky farmer had been publicly sending and receiving both voice and music by wireless. His success is no stranger than the oblivion that befell him.

The crowd that milled around on the court house lawn in Murray, Kentucky, on that memorable day in 1892 had no concept of the historic nature of the occasion. They had come by the hundreds to scoff at the efforts of an eccentric fellow farmer named Nathan Stubblefield, who claimed that he could send messages through the air without wires. Even when he performed the feat before their own senses, they failed to appreciate the magnitude of the event.

At points about two hundred feet apart on the court house lawn Stubblefield had set up two boxes, each about two feet square, and not connected in any way. Each box contained a telephone—and as Stubblefield and his son talked to each other from opposite sides of the court house lawn their voices could be clearly heard by the curious crowd that clustered around the boxes.

When the historic experiment was concluded, Stubblefield was greeted by hoots and snickers. He angrily gathered his equipment and tossed it into his wagon, condemning himself for his stupidity in conducting the demonstration among such dolts.

It was 1892. Marconi, later to become famous as the father of wireless, was then just an eighteen-year-old boy. Nathan Stubblefield, telephone repairman, who eked out an existence on a flinty farm in Calloway County, Kentucky, had conducted a public demonstration of wireless transmission of the human voice for the first time in history—and had been hooted out of town for his achievement.

Word of what he had done finally reached the St. Louis Post Dispatch, which wrote to him asking for a demonstration. Weeks later the paper received acknowledgement of their request—a post card which said simply: 'Have accepted your invitation. Come to my place any time, Nathan Stubblefield, inventor.' The reporter for the Post Dispatch arrived at Stubblefield's little farm on January 10, 1902. The inventor handed him a telephone which was connected to a pair of steel rods about four feet long, and told him to take the outfit anywhere he liked in that neighbourhood, stick the rods into the earth, and put the receiver into his ear.

In recounting his experience, in the newspaper article, the reporter told how he had gone about a mile from the inventor's house, and, as he said, "I could hear every syllable the Stubblefield boy spoke into a transmitter as clearly as if he were just across the room!"

How did he do it? Stubblefield told the newsman that he was merely using the electrical field which permeated the earth, the water and the atmosphere. He predicted that some day wireless transmission of speech would enable people living in Kentucky to listen to weather reports from the nation's capital, and to hear music and news from points all over the world.

The newspaper article brought invitations for this Kentucky telephone repairman and part-time farmer to bring his gear to Philadelphia for demonstration before

interested financiers. Stubblefield scored a spectacular success there in May of 1902, and went on to Washington DC, where he again amazed the scientists of his time by the magic of his abilities.

As usual, the sceptics were on hand to see him fail. It was preposterous to expect this untutored fellow from the Kentucky hills to send and receive voice messages when Marconi himself could only send and receive dot and dash code.

The gear was installed on the little steamship, Bartholdi, and scores of prominent persons stationed themselves at points of their own choosing along the Virginia shore of the Potomac. As the ship churned the waters, the startled dignitaries communicated with those aboard the vessel, clearly and distinctly, by merely sticking the customary iron rods in the ground and speaking into their telephones.

The Washington Evening Star said in headlines on May 21, 1902: "First practical test of wireless telegraphy demonstrated beyond question."

Plaudits ringing in his ears, financiers begging him for contracts to enable them to develop the invention, Stubblefield packed up his gear and went home. He was afraid someone would steal his ideas. He took out patents, but they made little sense to those who have studied them.

As time dragged by and others learned to send voice messages just as he had done years before, Stubblefield became increasingly bitter and morose. He was found dead in his crude shack in the Spring of 1929, his equipment missing, his records scattered.

A stone memorial on the court house lawn at Murray, Kentucky marks the spot where he made history in 1892. He had foreseen with surprising accuracy the wonders that broadcasting would accomplish—and he said of himself—"I have lived fifty years before my time!"

What do you think of that?

Yours sincerely
Reginald Dykes

Wow!-Editor

Dear Editor,
As one of the members who raised the issue of inadequate setting up time for stallholders at Harpenden I should like to register my agreement with the views expressed by both Steve Harris and Chas Miller in the last Bulletin. I have had the impression for some time that there appears to be a sort of anti 'trader' attitude on the Committee. Personally I prefer the term Business Owner or Businessman rather than Trader. I wouldn't refer to RadioSpares or Marks & Spencer as 'traders' and feel that my business, KENZEN, should be given similar respect. It is a professional business and I regard my ownership and management of it as a profession and not a 'trade'. For those who may not know I have an Honours Degree in Electrical and Electronic Engineering and have worked as a professional engineer for the BBC for over 13 years. My company KENZEN was established over 12 years ago whilst I was still at the BBC, not to provide any income or profit for myself but as an enjoyable hobby which ensured that 'vintage' radio parts, which were in those days often thrown away, would be found a new home and put to use. I like to think that KENZEN has provided a useful service to fellow vintage wireless hobbyists who have, for example, been seeking a particular valve

or component to bring back life to a cherished wireless receiver.

During my 12 years in business I have made many friends from amongst my customers and get lots of regular orders from BVWS members and other radio hobby clubs. The vintage radio hobby scene would be a much poorer place without businesses such as KENZEN, Chevet Supplies, On The Air, Radiophile, Radio Bygones, etc. Invariably you will find that these businesses are run by enthusiasts for enthusiasts. Our prices are keen and we go out of our way to help customers, in many cases with small orders that are not strictly profitable after taking account of telephone calls, postage and overheads.

We do it because we enjoy it and in many ways our business is our hobby. Why else would I work up to 80 hours a week?

Of course we have to live, like anyone else, and where our business is our only income we have to support our families as well. So we have to make a profit. This isn't a dirty word and we don't deserve to be treated as second class BVWS members. Nobody who runs a vintage wireless related business is going to become a millionaire (unless they win the lottery or start the business with TWO million).

May I plead therefore for the Committee to try to be a bit more realistic, rather less anti business and more 'user friendly' to all BVWS members. I would hate to see 'factions' emerging again to remind us of the utter stupidity which embroiled the Committee in the bad old days. Finally I would like to make a suggestion which I feel will benefit all the members. The BVWS has plenty of surplus funds in its coffers not to have to consider raising the subscriptions. I must contradict David Read's view and say that it is perfectly prudent to rely on income from meetings and auctions because if these were to drop significantly (highly unlikely) then there are surplus funds in the bank sufficient to cover any shortfall. In fact I think the society can go further and I make no apologies for repeating an idea which I raised with the 'old'

Committee. Let's make the next AGM at Harpenden a FREE EVENT (no entrance fee). This will give something back to the members and help achieve the Committee's wish of trying to maximise AGM attendance. So what does the Committee think? You won't risk much by trying this idea just once.

Ken Bailey BSc (Hons)

Editor replies

Ken, we (the Committee) are not 'anti trader', some of my closest friends in the Society just happen to be traders—ask Simon Wade, we just happen to believe in an even playing field for all members, a half hour setting up time delays the yield unto temptation.

I like your suggestions regarding free entry to the AGM and perhaps you will run for a Committee position as we are in need of members, especially those with the conviction to carry out their ideas.

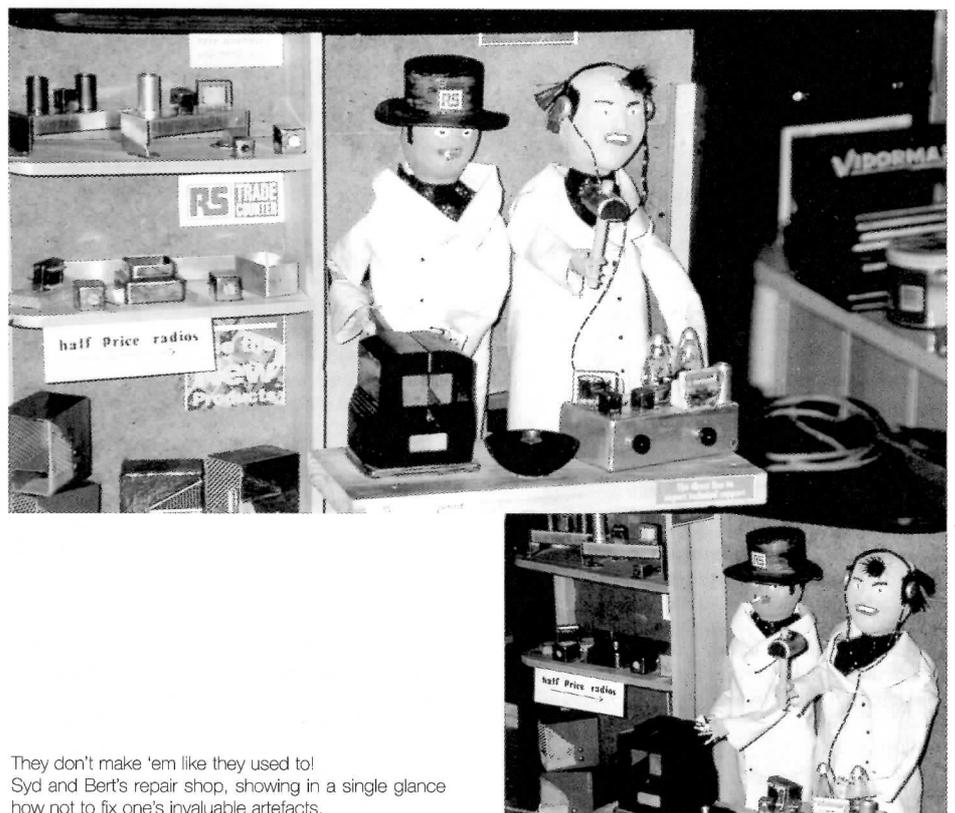
Carl Glover BA (Hons)

Dear Editor

Returning from holiday in the West country recently. I paid my usual call at Philip Knighton's vintage wireless shop in Wellington. In conversation I told him how I had managed to make an innards for a very nice 1930s Pilot cabinet picked up at a junk sale by sawing a T19 Pye chassis in half and stuffing the bits into the available space!

Mr Knighton was not at all impressed 'We do that kind of thing all the time' he said. He thereupon produced a fantastic large working model of a radio repair shop in which Syd and Bert are seen busy sawing up and hammering away at luckless radios sent in for repair. The sawing in half operation is justified by the shop sign 'HALF PRICE RADIOS'. The attached photo doesn't do justice to the amazing detail. Tiny coils, capacitors and bits of chassis are seen stacked on typical open front shelves -it's an absolute work of art!

Phil Rosen.



They don't make 'em like they used to!
Syd and Bert's repair shop, showing in a single glance how not to fix one's invaluable artefacts.

BWWS Minutes

Thursday 28 May 1998 at 7.30 pm

Present: Andrew Zimmer, Pam Zimmer, Mike Barker (acting chair), Jeff Borinsky, Carl Glover, Ian Higginbottom, Guy Peskett

1 Apologies, David, Steve

2 Matters arising

Mike reported that the small refreshment bar would be reinstated at Harpenden. Pam will approach Terry Ransome about streamlining auction payments system. Carl will put administrative announcements in a prominent and stable position in the Bulletin. Committee members will wear the new large ID badges at events.

3 Membership

Pam reported that the membership stood at 1,150. The names of 13 new applicants and one lapsed member were tabled. All were admitted nem con. (bringing the membership to 1,164).

4 Bulletin

Carl reported that the Summer issue is complete, the transparencies will be finally corrected and sent to the printers next week, Bulletins should reach Eileen by mid June.

5 Website

Mike demonstrated draft pages, generally approved, the storage required will probably be about 1 Megabyte when it goes live at the end of June 98. Currently we are renting 25 Mbytes from the internet service provider Force 9 at a cost of £7 month. The domain name (bwws.org.uk) has been registered for two years at a cost of £152.

6 Harpenden organiser

Mike reported that Ian Gurton is about to start a further education course and is standing down. It was reported that David has talked to Steve about taking over but the outcome was not known. (After the meeting David confirmed that the next Harpenden meeting was covered.)

7 Members adverts

Ian mentioned that one guideline he used was to restrict the list to one double sided sheet of A4 (4 AS sides). He asked for comments on the requests by some members for more than one entry. The feeling was that this should not be allowed and that any multiple entries that were received should be combined.

8 Constitution

Guy read out a number of amendments which had been suggested by members at renewal. A proposal to describe the committee as consisting of members fulfilling at least the listed roles (rather than specifying a number) was discussed. Guy was asked to produce a new draft of the document (with proposed changes in bold) for circulation with the minutes.

10 Advertisements manager

Carl suggested we should have an advertisements manager to spread the work of producing the Bulletin. This was approved as a new committee task. All present took an action to look for someone who was willing to be co-opted. The start of a new regime could coincide with asking for payment for copy in advance.

11 AOB

(i) Not for profit Bulletin inserts will be mailed free. For profit inserts where agreed will be charged for, the new advertisements manager to

adjudicate, inserts will only be included if received by the mailing deadline.

(ii) Carl requires authorised data for membership list fairly soon, Mike will write program to extract this from membership database and pass it to Pam.

(iii) A complaint was received from a member about lack of control of entry at Portishead. Andrew will talk to Alex Wooliams.

(iv) Pam announced a probable change of job which may make it difficult for her to run the BVWS stand at meetings. There are two problems, transporting the sales stock to the venues and doing the selling on the day. It was proposed that a sufficient selection of stock be held by the meet organisers and that for Harpenden meetings Eileen be asked if she would make the sales (after the entry rush). Arrangements for sales at other venues were not established.

(v) Pam suggested Roy Hudd as patron. The feeling was that a figure more prominent technologically should be sought. All present agreed to think about possibilities.

(vi) Estimates will be obtained for 500 of each of the three posters designed by Norman Jackson, action Carl (who will bring forward suggestions for other posters as well).

12 Next meeting

7.30, Thursday 23 July, at Ian's

Action List

Pam to talk to Terry Ransome
Mike to assemble web pages
Guy to produce new draft constitution to mail out with minutes
ALL to think about candidates for advertisements manager, patrons.
Mike to write software to extract membership list information from the database and run it for this years list
Andrew to talk to Alex Wooliams
Carl to obtain quotes for posters

Thursday 23 July 1998 at 5 Templewood, Ealing

Present: David Read, Jeff Borinsky, Steve Sidaway, Ian Higginbottom, Pat Leggatt, Guy Peskett.

Resigned: Pam & Andrew Zimmer

1 Apologies Carl, Mike,

2. Minutes of last meeting

approved Matters Arising
Steve will talk to Terry Ransoms about the possibility of speeding up transactions at auctions.

3 Membership secretary

David reported that due to starting a new job, moving house, and Andrews ill health Pam had resigned. The committee expressed sympathy for their predicament and wished them well. The offer by Pat Leggatt to pick up the membership work for the remainder of the year was welcomed and accepted and he was co-opted onto the committee.

Pat reported that the current membership list had already been transferred onto his database and was operational. He tabled a print out from the list to illustrate the convenience of the format and also passed a system disc to David so as to prove that portability and backup were secure on Microsoft PCs. (since confirmed) It was accepted that these requirements would continue to be satisfied as long as DOS machines were extant. Pat's report promoted a discussion on appropriate databases for the Society's needs, and the Committee agreed that in the event of any need to change in the future, ease of use should be the critical factor.

4. Membership and renewals

Pat reported the following statistics as of July 22 1998:

UK 1033 + 14 family (including 11 applications)
(+2.6%) (+3.9%)
Overseas 123 (-7.5%)

The figures in brackets are the comparisons with the same month last year.

The current admissions procedure involves the names of candidates being tabled at the next committee meeting. Now that the average time between meetings is eight weeks (rather than four weeks as previously) it was felt that the need for the committee to hear the names was less important than the delay in responding to applicants. It was agreed that the Membership Secretary would in future admit all applicants without delay.

4a. (Additional item) Bulletin back numbers
The question of what to do with back numbers of Bulletins and other publications was discussed. It was agreed that (i) 15 copies of previous years publications should be retained by the Membership Secretary (ii) An adequate number of the current years publications should be retained. It was agreed that Gerry Wells' Museum should be approached (by Steve) with the following proposition. (i) archive copies be stored at Rosendale Road where they will be displayed with the Society's membership application forms on a rack payed for by the Society. In return for this service the museum should be authorised to sell back numbers at Rosendale Road and at meetings (eg Harpenden and the NEC) on terms that that are mutually beneficial to both the Society and the Museum.

5, Events Co-ordinator and Harpenden Organiser Store will organise next Harpenden. After practical experience he will decide if he can continue with it as well as being coordinator.

6. Committee

The work to be undertaken by the committee for the coming year was discussed.

(i) It was reported that Carl would welcome the establishment of an editorial panel (charged with procuring all copy including advertising) leaving him free to concentrate on the design of the Bulletin. The committee agreed that such a panel should be set up and that a committee post of Chairman of Publications Panel (or some other title) should be established. David will discuss further with Carl.

(ii) The establishment of a Website Manager as a committee post was not decided and will be re-addressed.

(iii) The responsibility of the Secretary for the Committee's calendar was clarified.

The need to encourage more members to serve on the committee was emphasised by the Chairman. It was agreed that an article or editorial to this end would appear in the autumn Bulletin (David). Guy will produce Call for Nominations flyer for review. Agreed version to be ready for Autumn Bulletin.

7 Website

The Society's site - currently 20 pages - is to go live at the beginning of August (achieved) and will be updated regularly with new features. Payment for the first year will be £98 and paid in advance to secure a discount of £36.

8 AOB

Pat asked about Jonathan Hill's 20th anniversary report. David to follow up. Jeff suggested that Society members thinking of standing for the Committee be invited to attend some meetings. Agreed.

9 Date of next meeting(s)

If required, 27 Aug
Definite Oct

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Braun, pioneer of wireless
telegraphy, that was the weekend
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BVWS - the first five years, the
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Fellows magneto Company, Ekco
RS3, Black Propaganda.

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Sonorette, Bush SUG3, RNAS
Transmitter type 52b, North
American 'Woodies'.

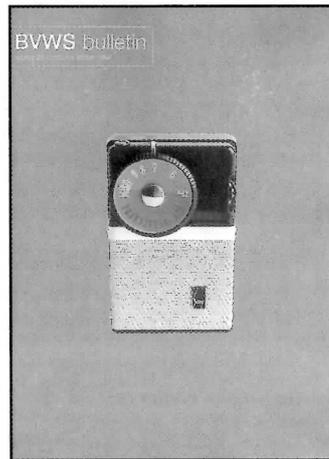
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News and Meetings



Wootton Bassett meeting

Mike Barker will be organising a swapmeet on **December 6th**.

Harpenden meetings

There will be a swapmeet on Sunday the **6th September**, and the year finishes with a swapmeet on the **29th of November**.

NEC Meetings

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

Southborough Meetings

John Howes will be holding a swapmeet on the **8th November** in Southborough.

American meetings

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

Gerald Wells' garden party 1999

Gerry Wells will be having a garden party on Saturday **5th June** at the Vintage Wireless Museum, 23 Rosendale Road, West Dulwich, London SE21 8DS. Telephone 0181 670 3667.

1999 Harpenden meetings

For those who need to plan their diaries well in advance, there will be an auction, a restoration contest and the AGM on Sunday **7th of March**. Sunday the **6th June** hosts a swapmeet. Autumn is heralded with a swapmeet on **5th September**, and the year finishes with a swapmeet on the **28th of November**.

Bulletin Index

The Bulletin Index is currently available up to issue 23/1 and is a complete cross reference of authors, subject matter and main articles back to the beginning of the Society. Please send a large A4 SAE (31p stamp) with a cheque for £2 payable to Pat Leggatt at 28 High Park Road, Farnham, Surrey, GU9 7JL. Telephone 01252 719081.

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!

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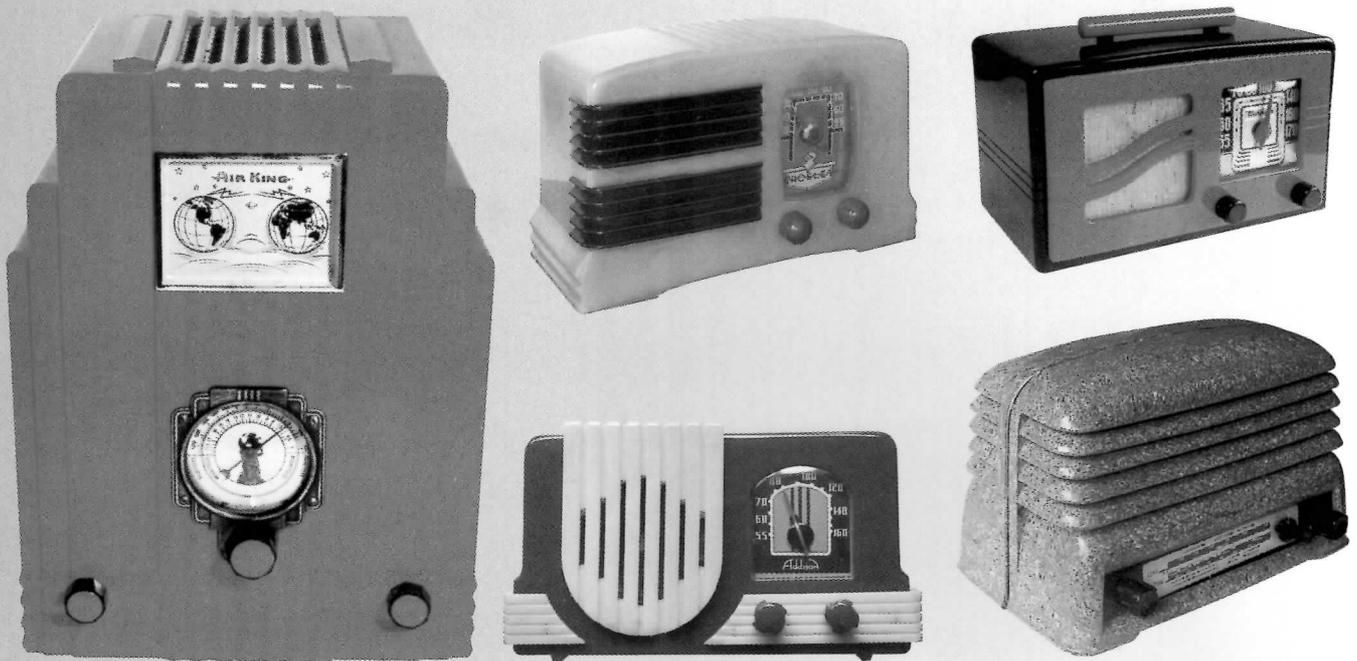
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