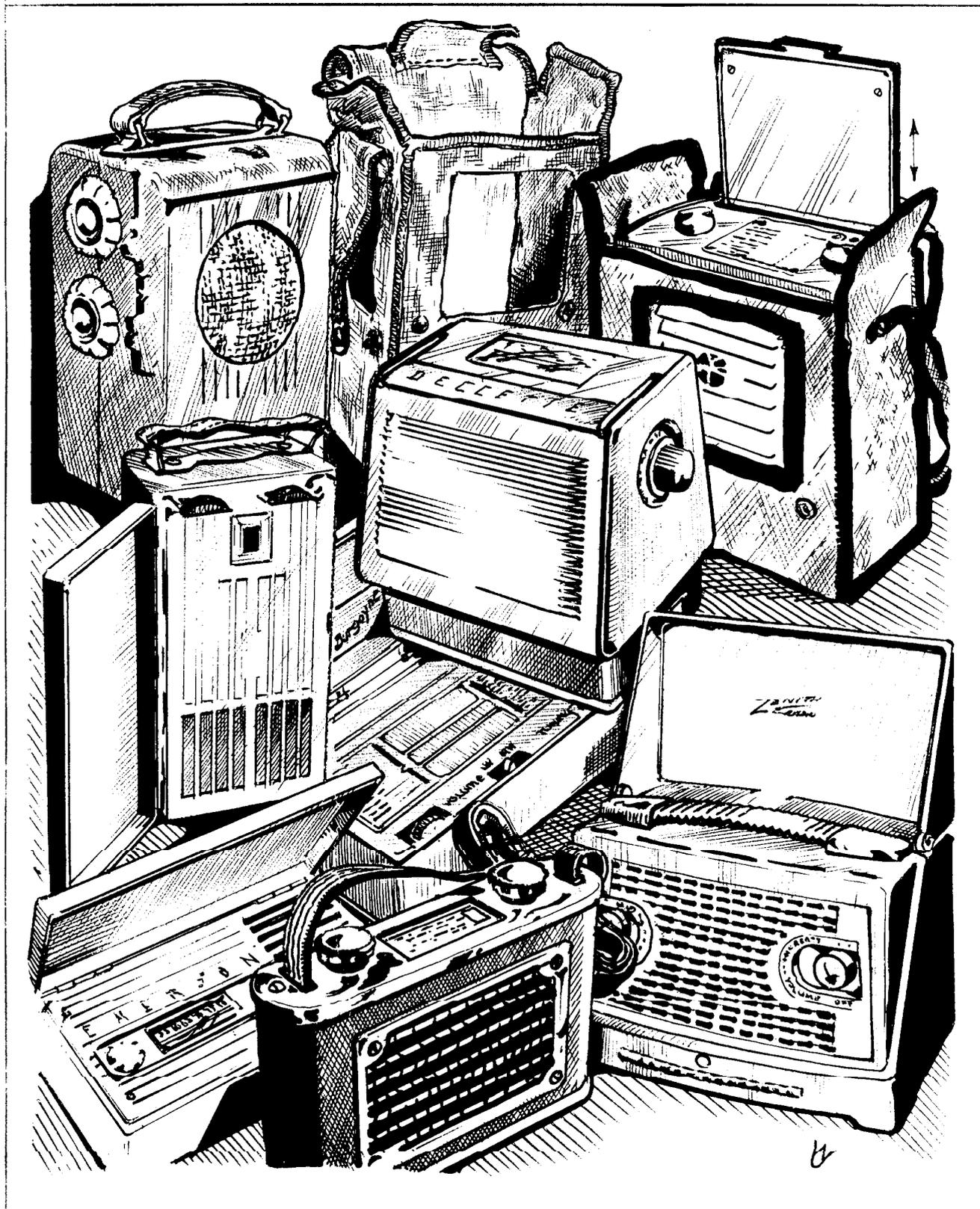


BULLETIN OF THE BRITISH

VINTAGE WIRELESS

SOCIETY



**BULLETIN OF THE BRITISH
VINTAGE WIRELESS SOCIETY**

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**BRITISH VINTAGE WIRELESS
SOCIETY**

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VINTAGE WIRELESS MUSEUM



The Vintage Wireless Museum, headquarters address for the British Vintage Wireless Society is at 23 Rosendale Road, West Dulwich, London SE21 8DS. Telephone: (01) 670 3667. The Curator is Gerald Wells, whom visitors should telephone before visiting the museum.

2MT Writtle *The Birth of British Broadcasting*

*"Stay for one fleeting moment,
Tuned to the last degree,
CQ! the concerts ending,
Ending for 2MT."*

by Tim Wander

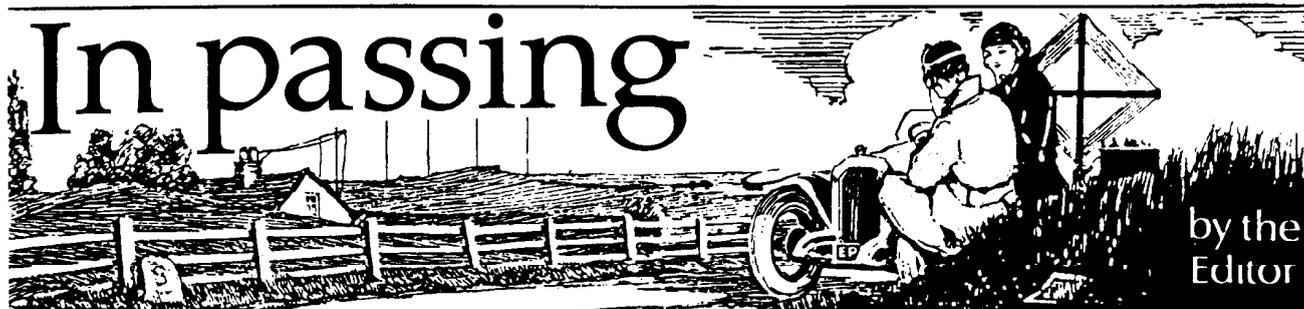
Tim Wander's new book charts the struggle to achieve a broadcasting service in this country - from the Chelmsford station MZX with the famous broadcast of Dame Nellie Melba in Chelmsford, through Writtle's sparkling success to the birth of the BBC. The book also includes separate appendices on Chelmsford and 2LO transmitters, Dutch station PCGG, telephony pioneers Grindell Matthews, Reginald Fessenden and David Hughes, and draws on much previously unpublished archive material.

Often a one-man show, radio station 2MT at Writtle established an individuality all its own which will ever remain a pleasant memory to its broadcast audience. Its burlesque entertainments, its parodies of grand opera, its peculiar announcements, the light-hearted spirit which pervaded the whole proceedings and the sheer joie de vivre that bubbled across the aether were not only a first but truly unique in the history of broadcasting.

The book is now available, (arrived at Easter) priced £12.95. However until Harpenden the offer of £11.00 + £1.00 postage and packing (£2.50 USA/Europe) still stands via the Writtle forms from the last journal. The book is a limited hardback edition, has 200 pages and contains 60 B/W photographs (many previously unpublished).

Each copy will be signed and numbered by the author. Please send orders, with remittances payable to Capella publications, to 44 Homefield Way, Earls Colne, Essex, CO6 2SP, Tel: (07875) 2674.

2MT Writtle :- The Birth of British Broadcasting

by the
Editor

Correspondence for the Society's Bulletin should be addressed to The Editor, Robert Hawes, 63 Manor Road, Tottenham, London, N17 0JH. Telephone: (01) 808 2838.

Harpenden meeting

The Society held another successful meeting at Harpenden in June which drew more than 300 people.

There was a heavier demand for stalls than usual which made it necessary for some members to share tables. Part of this demand may have been due to some members booking stalls in order to gain entrance a little earlier. This practice is deprecated, especially now that the time-lag between stallholders' and 'general' entrance times has been reduced to half an hour: this has been found to be the minimum possible because to allow 300 people to circulate while stalls are being set up would produce chaos out of what is already a somewhat hectic scrum. For future meetings, members will be asked to sign an undertaking that they will not trade in the hall or outside it before the official opening time of 10 am. Members seem to be arriving increasingly and unnecessarily earlier – some even camping out all night – and this causes congestion at the door and consequent problems for the organisers and helpers.

However, despite the *mêlée* of the 'fleamarket', now confined to the main hall so that the ante-room can be reserved for display and social purposes, everyone seemed to enjoy the event. Vast quantities of wireless equipment, from useful bits-and-pieces in junk boxes to impressive and expensive items of hardware, changed hands to the obvious delight of buyers, sellers and swappers. The main purpose of the 'swapmeet' part of our meetings is, of course, to provide these facilities to help members with their collecting and study activities rather than to sponsor a purely commercial event, although it is probably true that most collectors become 'dealers' in a small way since they are sometimes forced to buy more than suits their needs or find it necessary to finance the extravagances of their hobby by restoring and selling items at a little profit. Our respected dealer members are welcome, for they often come up

with items which are hard to find and they can offer the benefit of their knowledge and experience to members. The sort of dealers most of us do not welcome are those who have no real interest in vintage wireless but who look upon our meetings as a source of stock to buy cheap and then sell dear to non-members in public markets. In this connection, members are requested not to provide guest tickets, which are intended for families and friends, to such traders.

The success of the ante-room displays continues. This time, David Read drew our attention to a 'late' area of study which many of us may not have realised was so interesting: the post-war battery 'personal' portables made possible by layer-batteries and all-glass miniature valves which had an extremely short heyday before the transistor suddenly and inexorably

eclipsed the thermionic age of wireless. (David writes elsewhere in this issue on the subject). Another display which included items brought by David and also by Ian Higginbottom, was of early to mid-twenties 'Fellophone' apparatus including a crystal set, a one-valver, a two-unit sloping panel set and an impressive bright-emitter set displayed by Pat Leggatt, who bravely fired it up to alarming brilliance and magically made it emit music of the proper vintage too. Another arresting item was Tony Carr's beautifully restored plate-glass-panel set, which one hopes will set an example to other members to display their handiwork at future meetings.

Gaining increasing popularity is the end-of-day Auction, run by Roger Snelling and Tony Constable with a few helpers. This enables members to dispose of unsold items which they do not feel like dragging back home, gives other members opportunities for bargains, and makes a welcome commission for Society funds. This time 78 lots were sold for a total of £654.50 giving a commission for funds of £66 plus £27 raised on gifts to the auction, which made the total raised for Society funds £93. Thanks are due to the givers and of course to Roger and Tony.

Despite the opportunity of the auction, members still left behind an amount of unwanted junk which had to be cleared away by the organisers. This included the customary couple of large and valueless television receivers (but the Organiser-sweeper lives in hope of even a tatty Televisor), abandoned boxes of smashed, incomplete and horribly sticky articles, and heaps of late and certainly not lamented items, to say nothing of coats and hats (once, even a pair of trousers), unclaimed auction items including one for which the purchaser had already paid the £80 bill, two display items and a few other forgotten things. The valuables have been restored to their owners but we are not admitting where we dumped the junk.

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In addition to requesting members to ensure they take home all their goods, we have another plea: members are asked to check their applications for Harpenden tickets. This time, we had a record number of applicants who either forgot to pay their subscriptions in time to qualify, failed to enclose return envelopes and stamps, wrote gibberish details or telephoned after the deadline requesting special attention. Now that the event has become such a large undertaking, it is becoming increasingly difficult to operate except in a 'sausage-machine' manner, so your cooperation is welcomed.

For your diary

The next meeting at Harpenden is on Sunday 13th November.

Members are also invited to the swapmeet on 6th August which is being arranged by BVWS member Marcel Ritmeester, curator of the Dutch Electricity Museum not far from Amsterdam, where the Netherlands Historical Radio Association meet. Visitors can see the museum's collection of about 500 radios and the collection of machinery and domestic appliances as well as attending the swapmeet. Information can be obtained from the Museum at Marktplein 2A, 3861 AB Nijkerk, Emmen. Telephone: 03494-59220.

Baird programme

A programme entitled 'John Logie Baird' is to be transmitted on BBC2 Television from 8.10 pm until 9 pm on 18th August. The film will include some unpublished autobiographical material.

Can you help?

The committee of the Society is considering printing a reproduction catalogue for distribution to members. If you have one which you would lend for a short time for photographing we should be very grateful and you can be assured that it would be treated with great care. If you have one which you consider suitable, our Chairman Pat Leggatt would like to hear from you. We are particularly seeking to borrow the Brown Brothers catalogue no.217 for 1925/26 issued in softback in September 1925.

BBC Radio Show revival

The BBC is to revive the 'Radio Show' at Earls Court, London, from 30th September until 9th October, after a break of 22 years, with a £1 million exhibition celebrating BBC Radio, the 21st birthday of the 'new' networks and the launch of their local radio.

The Press handout says it will be star-studded and action packed, introducing the public to the story of radio, past and present and to the technology of the future, but the Editor hears that the coverage of 'The Past' at the show is unlikely to include any vintage apparatus, although there will be photographic and other displays. The 'vintage' sets on display will be large mock-ups in painted expanded polystyrene which will be part of an audio-visual display telling the history of radio from the early discoveries in wireless to 1967.

A stage set is being built in the form of a 32m wide by 10m high photographic blowup of a 'Ghetto Blaster' rather than a V2 or a round Ekco, in which presentations will depict programmes ranging from Woman's Hour and The Archers to Kaleidoscope and Old Time Music Hall.

Other events among the plethora of stands will be a banquet in aid of charity, competitions, live radio station presentations and talent contests.

New museum

The 'Museum of the Moving Image', London's latest cultural attraction, is to be opened by the Prince of Wales on the South Bank, under Waterloo Bridge and behind the National Film Theatre, on September 15.

Over 50 exhibition areas in the £10 million, 3000 square-metre building will chart the story of the moving image from the Chinese shadow play of 2,000BC to the latest in optical disc technology in ever-changing displays inside what will become the world's largest museum devoted entirely to cinema and television.

Visitors will be able to actually take part in the activities of live television studios and workshops.

For vintage television buffs there will be a corner displaying objects including original Baird apparatus and other material illustrating the history of wireless transmission of moving images.

Missing Bulletins

Some copies of the Bulletin are missing from the files of the Vintage Wireless Museum at Dulwich, where the library is used by many members. If any members have borrowed and forgotten to return them, it is hoped they will heed this reminder: it is now impossible to replace these original and well out of print issues and photocopying is expensive.

Chairman's notes:

Pat Leggatt, chairman of the BVWS writes the following notes:

BVWS Badges

Having debated the possibility for some years, we are finally getting round to producing enamelled BVWS badges. Designed by Bob Hawes, with advice from Norman Jackson, these will display our R valve motif surrounded by the letters 'British Vintage Wireless Society'. The colour scheme will be blue and gold and the badges will have a pin attachment.

They will be available at £2 each in time for the November Harpenden meeting.

Regional Meetings

A few dedicated members organise regional meetings which are much appreciated by the Society as a valuable extension of our activities. Some are private ventures of individual organisers; while others are classed as official BVWS events with financial and other support from the Society.

To assist organisers to achieve well-run and successful BVWS regional meetings, the Committee is preparing a set of guidelines covering such things as general organisation, financial guarantees and insurance cover. We shall be publishing these guidelines in a future Bulletin.

One thing we feel would be right is to limit the number of BVWS meetings to no more than two per year in any one region: we hope thereby to encourage a fair sharing out of meetings across the country. We would particularly like to see an event in the north of England or on the Scottish border and any volunteers would be most welcome: it could mean quite a lot of work, but would earn the gratitude of many members.

Personal Portables

by David Read

Portable receivers were in existence almost from the beginning of wireless communications, since trench crystal sets as well as those with 'R' valves in the 1914-18 war were by definition portable. For the purpose of this article, however, the term applies only to receivers with internal frame aerials, speakers and internally housed batteries.

When public broadcasting began in 1922 it was not long before a few very large receivers more properly described as 'transportables' were manufactured. But with sufficient accumulator capacity to provide current of almost three quarters of an amp to each of several valves, enough single cells in battery form to provide 100 volts of HT, to say nothing of some models with integral folded horn speakers, it is hard to imagine these sets as being carried anywhere except perhaps on the running-board of a Bentley.

By the late 1920's two developments had occurred which enabled a practical solution to the problem of portability, at least in terms of weight if not size. These were the moving-iron paper-cone speaker, and low consumption 2 volt valves with oxide coated filaments of the HL and PM variety. Sets of this period, often in suitcase form, standardised into a 5 triode TRF format and then, using screened grid tetrodes for HF amplification, continued into the late 1930's. The so-called 'unspillable' jelly accumulators were a notorious cause of acid damage as collectors of such sets know only too well.

Improvements in valve technology during the 30's, particularly with respect to multiple and complex electrode assemblies, gave rise to some rather more efficient portables with fewer valves and somewhat smaller cases, but at the outbreak of war in 1939 the situation in the UK was one of design chaos. Radio receivers, depending on the various trade affiliations for valves, were manufactured using old fashioned B4 and B5, B5 and B7, side contact, Mazda Octal, and International Octal line-ups. Even the old suitcase cabinet was still being made by Burgoyne, McMichael and Beethoven, with Roberts offering a slightly smaller version with their M4B.

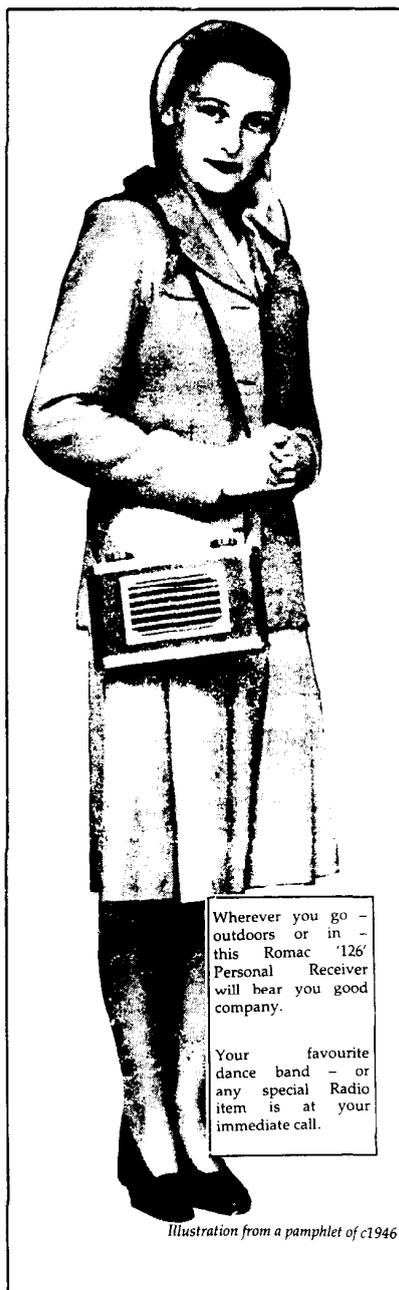


Illustration from a pamphlet of c1946

Wherever you go - outdoors or in - this Romac '126' Personal Receiver will hear you good company.

Your favourite dance band - or any special Radio item is at your immediate call.

The main incentive to miniaturise electronic applications was concerned with deaf aids rather than radios. The pioneer work in this respect was carried out by Hivac who from 1935 onwards developed methods both for sealing lead-out wires without the conventional stem pinch, and for constructing pentode electrode assemblies within a 10mm diameter bulb. Outside the British Valve Makers Association they carved out a niche unique in the industry. Similar developments followed in the USA which led to miniature valves designed specifically for radio applications being announced by RCA late in 1939. With glass 'button' bases and lead out wires stiff enough for plugging directly into a

valve socket, RCA's announcement was a major milestone. The new 1.4 volt, 0.05 amp valves measured only 9 mm by 54 mm, had seven pin bases arranged in the now familiar B7C configuration, and were available in production quantities by early 1940. The first 'personal' radio, the RCA BP10 appeared soon thereafter. In this way and in a single step, the practical limit had been reached in miniaturising a four valve superhet with integral frame aerial in the lid, speaker, and batteries. It measured 8.75 by 3.6 by 3 inches and turned on automatically when the lid was opened.

The RCA BP10 personal receiver was actually smaller than the battery compartment needed for the British 'suitcase' and indeed often smaller than the HT battery alone. This underlines the other crucial development needed for miniaturisation, namely the layer battery for HT, also developed in the USA, in which the 50 or more traditional zinc/carbon cells connected in series were replaced with a compact and integral construction of solid layers. Where LT was concerned, a single torch cell sufficed since the four 0.05 amps filaments consumed in total less than one usual 0.3 amp torch bulb. These developments were taking place as Britain entered the war in Europe, and whilst the new B7C valves were available as imports, the radio industry was entirely diverted to support the war effort. Thus with the exception of the 'civilian' receiver made to a common standard by all manufacturers, no new radios were available to the public until the war was over.

The first 'personal' portable of British manufacturers was the Romac 106, described in *Wireless World* in November 1946. Measuring 9.5 by 5.25 by 2 inches and with the frame aerial embedded in its shoulder strap, it immediately established a different shape and style to that started by the BP10 type of construction, however the volume of its cabinet was virtually identical to the BP10. A rival 'personal' in terms of release date was the Vidor 353 which is also shown by E. Molloy in 'Radio and Television Servicing' published by Newnes to have been released in 1946. This was similar in size to the BP10 but was made of black bakelite with a white urea-formaldehyde panel. It had a long wave aerial embedded in the back cover as well as the usual one for medium wave in the lid. With its Egyptian 'Deco panel design and very high quality of construction it is perhaps the most pleasing of all sets in

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this category. It was priced at nearly £21 including purchase tax, about four times the then average weekly wage. When Radio Olympia opened its doors in October 1947, the Burgoyne Playboy and the Marconiphone P17B were shown in addition to the Romac and the Vidor. Future releases followed with Pye M78F and the Marconiphone P20B in 1948. The age of the 'personal' had dawned in England.

My display at the June Harpenden meeting showed the range and style of personal receivers available in the 40's and 50's. It is interesting how the earliest receivers were not only the smallest but very similar in volume in spite of large variations in combination of length, width and height. For instance, those manufactured up to 1948 only varied in volume from a little over 90 cubic inches in the Burgoyne Playboy, Emerson 558 and RCA BP10 to a little over 100 cubic inches in the Marconiphones and Vidor. The Pye M78F at 147 cubic inches is the largest, with its unusual design and larger speaker, more sensible battery capacity, and optional mains operation. The Zenith 4E41 is such an example though still very small. The frame aerial is in the door which lifts to reveal the control panel exactly as in their larger and more famous Transoceanic.

Norman Jackson's drawing for the bulletin shows some of the less usual receivers, starting with the RCA BP10 and finishing with the Deccette, sitting on its battery eliminator. The Deccette was the first British receiver to use a ferromagnetic rod aerial in place of the conventional frame. It was introduced in October 1953 and forms a sensible milestone to conclude this article on portable valve receivers.

Footnote

Illustrated in Norman's drawing (top left) is an upright American receiver in black bakelite with 2 large white plastic knobs of distinctive design at the side and a large chromed wire grill speaker aperture at the front. It has a leather handle at the top and comes in a canvas bag. I would be pleased to hear from anyone (particularly American members) who can recognise this receiver which though well labelled internally with valve layout and RCA patents is anonymous except for the mysterious attribution: 'made in Chicago Plant A'.

(Editor's Note: See David Read's articles on the Adey portable in volume 3 issue 4 and the Marconiphone P60B hybrid portable, which bridged the valve/transistor periods, in volume 8 issue 2.)

Looking back

Roger Snelling looks back at reports in the wireless press of the early days

From 'Wireless World' April 1917:

Using old dry cells

Amateurs will be interested in the hints given in our contemporary, *Telephony of Chicago*, regarding the use of exhausted dry cells. 'To make the best wet batteries on earth' writes the contributor '... take quart ... fruit jars and "put into each about one tablespoonful of powdered sal-ammoniac. Take an old dry cell with the zinc not too badly eaten - the better the zinc the better the wet battery and punch a screwdriver once through the zinc halfway up the cell to admit the solution. Put the dry cell into a fruit jar and fill to within half an inch of the top of the jar with rain water.' The writer goes on to suggest that two sets of cells be made up, for use alternately, so as to give each set a rest. 'Don't let the old batteries stay in until all the zinc is gone or your battery jar will be choked by swelling. Don't imagine you will not have to look at these batteries occasionally. You may have to add a little water and a little sal-ammoniac once every four or six weeks or replace the old dry cells. Almost everything needs a little attention occasionally, and batteries are no exception.'

From 'Wireless World' April 1st 1922, 'Questions and answers':

E.H.G. (Glasgow) asks for criticism of a set, and for details of the size of parts, and receives the reply:

'The sketch you send is unintelligible, as it appears to show two L. F. transformers between each pair of valves, with reaction *ad lib*. The set might be of some use if the transformers near the plates were H. F., but if this is the case the final reaction is led back to the wrong transformer in the first plate circuit. We are afraid the set would be rather unmanageable. There will be nothing abnormal about the dimensions, and we think that if you are capable of making and handling a set of this type you will be able to collect the dimensions you require from the many sets illustrated recently.'

From 'Wireless World and Radio Review' April 16th, 1924:

Single-valve Reception over 6,500 miles

Listening in with a single-valve set, Mr W. Rogers of Worthing, has on several recent occasions heard the signals of LPZ, on approximately 20,000 metres, working with Nauen (POZ), and he enquires as to the identity of the former station.

LPZ, operating on the Telefunken system, is situated at Monte Grande, Argentina, a distance of approximately 6,500 miles.

From 'Wireless World "Editorial"' April 7th, 1926:

Oscillation: Is there a cure?

We were sorry to see, some days ago, an unauthorised statement in the daily Press regarding a wireless invention which, it was stated, was due to Sir Oliver Lodge. Fortunately, attention was drawn to it in time and correction was issued in most sections of the Press on the following day.

Sir Oliver Lodge is apparently at work on the interesting problem of the prevention of radiation from receivers. The statements made in the Press would have led one to believe that no receiver capable of producing this desirable result had so far been developed.

This, of course, is not the case. We know that in the early days of broadcasting the Postmaster-General prohibited the sale of sets capable of causing interference in this way, whilst very many devices have been described in *The Wireless World from time to time* which provide a means of achieving the same end, even though the receiver itself may be in a state of oscillation. The reason that sets incapable of causing interference have not come on the market is that some loss in efficiency results from the introduction of methods to combat the evil or else an additional valve stage is required.

If Sir Oliver Lodge's experiments produce a circuit which is effective, with even a single-valve oscillating set, then he will have contributed another important invention to the progress of wireless, but unless such a scheme is applicable to simple sets without expense or complication, we believe that we shall still be as far off from a solution of receiver oscillation troubles as we are today.

From 'Wireless World' 'Reader's Problems,' 20th June 1928:

I am a new recruit to wireless, and am puzzled by what are to me mystic symbols, such as '1-v-2' and '0-v-1' applied to wireless receivers. I gather that these refer to some method of circuit classification, and should be glad if you would explain it.

As you surmise, these symbols relate to a method of classification, which was published in *The Wireless World* at the time when receiving valves came into general use. The initial figure refers to the number of high frequency amplifiers, and the letter to the detector; v for valve, and c for crystal. The last figure refers to the number of L.F. stages. Thus a set with two stages of H.F. amplification, a valve detector and one L.F. magnifier, would be referred to as a 2-v-1, and an H.F.-crystal combination as 1-c-0.

The system, which is reminiscent of the method of classifying locomotive engines, has never been universally adopted, possibly because it is not easily applicable to reflex or superheterodyne receivers.

A new Scottish Wireless Museum

The old radio heart of BBC Edinburgh – the main control room desk – has been dismantled by a team of volunteers and moved to a new home. The desk, which linked the sound studios in Broadcasting House, Edinburgh to the national network, will become one of the star exhibits in the Bo'ness -based Museum of Communication.

A BBC spokesman comments: 'The control room desk and the audio source selectors date from way back, so they're out of date now and no longer suitable for the BBC to use. We are delighted that they are going out to Bo'ness to become part of this very exciting new project.'

The voices of some of the most famous names in Scottish radio history – people like Sir Compton Mackenzie, Wendy Wood, Auntie Katherine – have been fed through this control unit and on to the Scottish airwaves. When it is rebuilt at Bo'ness, it will form part of a 1940's radio studio.

Engineers from electronics giant Hewlett Packard at Queensferry as well as Army engineers volunteered to help move the equipment to the new museum, which is part of Bo'ness Heritage Trust.

Supervising the rescue operation was veteran BVWS member Harry Matthews, whose collection of communications equipment forms the basis for the Museum.



Harry Matthews, working on the old control-desk from the BBC studios

Harry says: 'We are delighted that the BBC have given us this chance to save the equipment which has brought Scotland so much of its news and entertainment for so long. Once installed in the new home we are creating for the Museum at Bo'ness, I'm sure people will find it fascinating.'

The Museum of Communication is one of the projects for Bo'ness Heritage Trust, the other two main ones being the recreation of a 1920's Township adjacent to the Bo'ness and Kinneil Railway, an operating steam railway,

and the opening of Birkhill Fireclay Mines where people can actually go underground and see what it was to work in a Clay Mine.

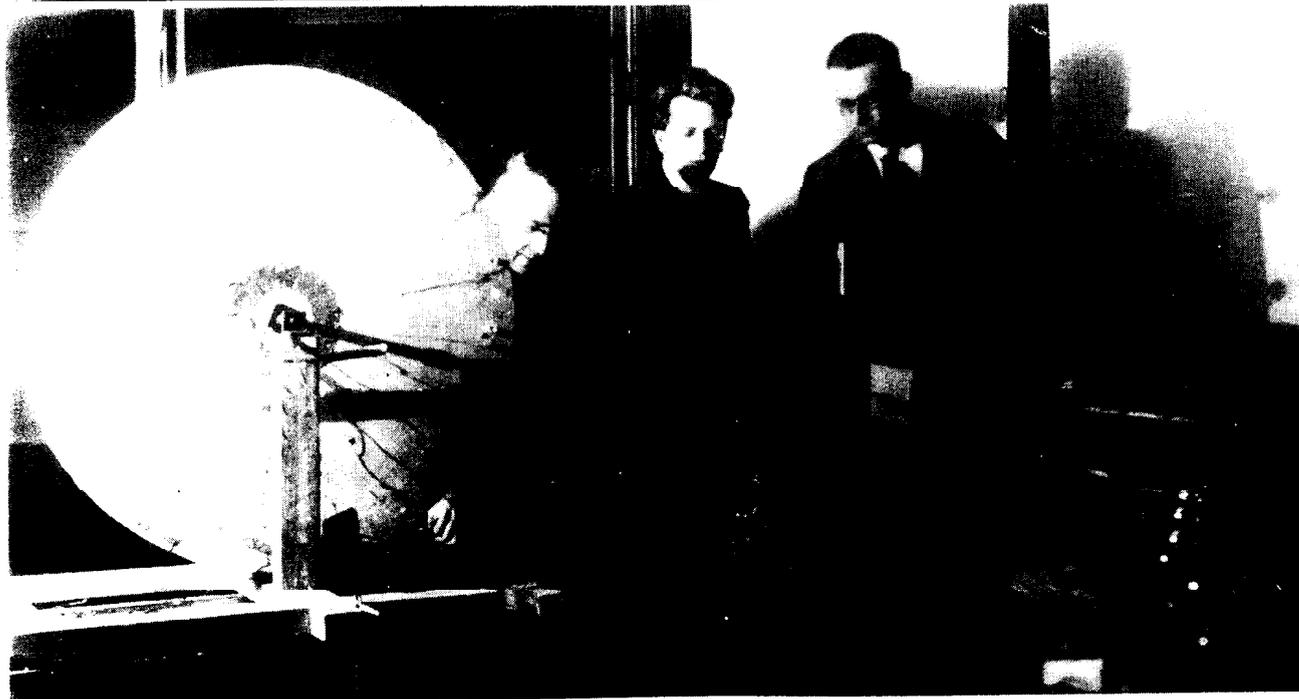
The Heritage Trust will be providing a home for the Museum of Communication, which started as a private 'wireless collection' by Harry Matthews in Edinburgh University some 15 years ago. There are now some 14 tons of communications equipment in the collection, which includes telephones, wireless, television, telegraph, bits of satellite – everything from cat's whiskers to computers.

From the Counting House: Desmond Thackeray, Treasurer of the Society, Writes:

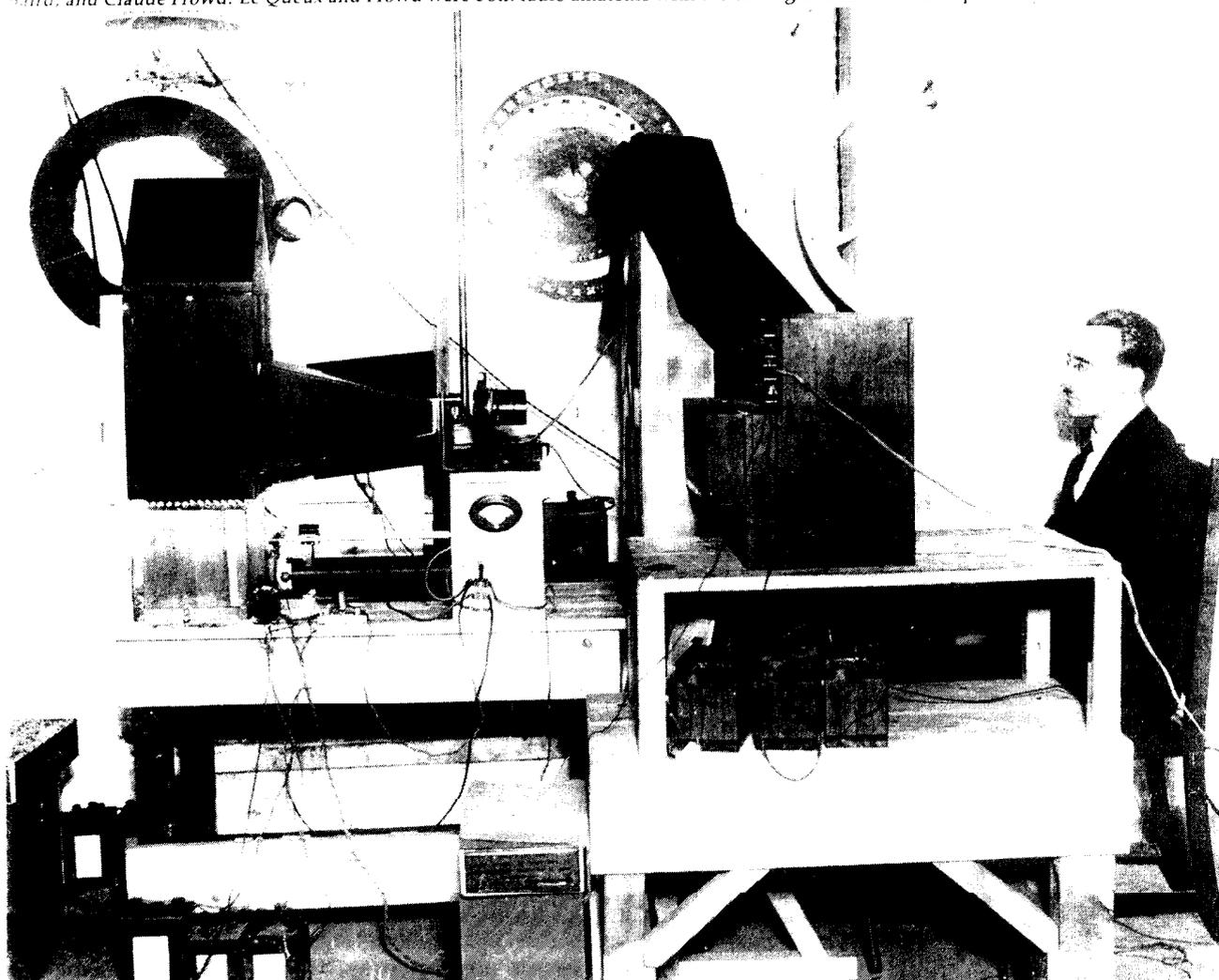
Guildford and District Radio Society tell us that the Maurice Child collection of vintage hardware will at last find a permanent home on display at the Fort Widley Museum, which is being set up by the Communication and Electronic Charitable Trust, apart from one small item in the Guildford Museum. Don't all rush down to Portsmouth tomorrow for it will take time. Now here's a strange problem associated with this situation: the hardware is there, but next to nothing in the way of written material either by or about the man himself. Yet Maurice Child was an

extremely active and inventive person in the early days of wireless, meriting several mentions in Blake's *magnum opus*, and lived a long and full life. Where his books and personal papers went is a mystery, and it is here that BVWS members might be able to help. Does anybody have any other references to his work, to his birth, and his possessions? Does anybody have a book with his signature on the flyleaf, even? I'll be happy to pass on to the archivist of the Guildford and District Radio Society any information you can send me.

This is a convenient time to thank, on behalf of BVWS, those members who have contributed financially to the Society during the last financial year by donations, or by contributing hardware to be auctioned at Harpenden. The Society is most grateful for this supplemental income to swell its capital resources, which in turn funds special expenditure from time to time. This kind of expenditure is outside the regular recurrent cost of Bulletin production and distribution, which intentionally uses most of the subscription income.



The Queens Arcade, Hastings, early in 1924 where it all began. From left, William Le Queux, President of the Hastings Radio Society, J. I. Baird, and Claude Frowd. Le Queux and Frowd were both radio amateurs with the call-signs 2AZ and 2FS respectively.



Stereoscopic television equipment in the Baird Long Acre laboratories in August, 1928. The viewer is Tom Collier.

Baird Centenary

Vintage Vision

The 13th August 1988 marks the 100th anniversary of the birth of John Logie Baird, whose name more than any other is associated in the public mind with the 'invention' of television. Just as Marconi did not 'invent' wireless, Baird was not the inventor of television, but from 1923 until 1931, largely ignored and often derided by the scientific establishment, he was the lone pioneer of a system of transmission of low-definition images, produced initially from 'Heath-Robinson-style' assemblages of household junk, first in a room above a shop in Hastings, later in a Soho attic and eventually for the BBC. In the end, his lifetime's work had scarcely any influence on the eventual development of television, for the crude whirling discs and flashing lights of his mechanical system were doomed to failure against the sophisticated electronics of the cathode-ray tube. Yet Baird deserves his place in history for his battle, against all the odds, to promote the feasibility of 'Seeing by Wireless', which in 1923, when he began his experiments, was a fanciful notion. Like Marconi, he had that special quality of creative imagination, often missing in men of pure science, which enables practical devices to be assembled from the bringing together of more abstract ideas.

It is one of Baird's earliest opponents, no less than BBC chief engineer Captain P. Eckersley, who has left one of the nicest epitaphs to the inventor: 'Baird is to be honoured ... among those who see past immediate technical difficulties to an eventual achievement; Marconi did much the same with radio. Neither Baird nor Marconi were pre-eminently inventors or physicists; they had, however, that flair for picking about on the scrapheap of unrelated discoveries and assembling the bits and pieces to make something work and so revealing possibilities if not finalities.'

As the Bulletin's tribute to Baird's anniversary, we present some early photographs, kindly selected for us by Ray Herbert, which may not be familiar to readers. Grateful acknowledgement is given to him and to BFI and MOMI for their use. To mark the Baird anniversary, Ray Herbert will be putting G2TV (now the call-sign of the Baird Museum Amateur Radio Society) on the air again on 13th August. The station will be run by Ray and by Ben Clapp, who were both original operators of it.



J. L. Baird (left) and O. G. Hutchinson erecting the aerial for 2TV, the call-sign of the world's first television transmitting station, on the roof of Motograph House in the summer of 1926.



J. L. Baird with his 600 line colour receiver at his home in Crescent Wood Road, Sydenham, in December, 1940.

Feedback

Letter:

from Chas. E. Miller, Editor of
'The Radiogram'

Electrical Safety

I would like to be permitted to challenge certain statements made in a recent issue regarding AC/DC receivers and safety. I have already dealt with this subject at length in another publication but wish to mention the salient points again, as I feel very strongly that erroneous and misleading assertions may do a great deal of harm, especially when read by impressionable people of limited technical knowledge.

One contributor alleged that 'universal' receivers were so intrinsically unsafe as to make them unusable by the general public. This, of course, is utter nonsense; were it anything else virtually every mains-powered television receiver now in use in the UK – and for that matter almost anywhere – would have to be recalled and modified or scrapped, since they use either AC/DC techniques or, worse, bridge rectification of the mains which renders their chassis live regardless of mains polarity. It should also be borne in mind that a significant number of nominally AC-only radio receivers do in fact derive their HT supplies directly from the mains and therefore have their chassis connected to one pole. Bush was one firm which made considerable use of this system in their post-war sets; are we to scrap all those AC1s, AC2, SUG3s, SC81s, AC91s, etc, etc, that are giving excellent service to their owners?

Without doubt a great deal of misunderstanding has been caused by the use of the misleading term 'live chassis' instead of the correct 'mains-connected chassis'. The chassis of an AC/DC or of a mains-derived HT receiver will be 'live', ie, at mains potential with respect to earth, only if it is connected to the live pole of the mains. Since the abolition of DC mains (which might have the positive pole earthed) in the UK there is no reason at all for any universal receiver to be operated with its chassis live with respect to earth. When connected to the neutral pole, which is earthed, it is no more dangerous to touch than any other earthed object. The use of a three-pin non-reversible plug and socket will ensure that the mains are connected correctly and safely. Countless millions of mains-connected chassis TV receivers have been installed in the UK alone over the past 40 or so years



without there being a mass outbreak of electric shock accidents.

There is no necessity for isolating transformers to be used when servicing sets of the above-mentioned types. The various Electricity Boards may be relied upon to maintain correct polarity of their supplies and a simple neon-screwdriver test will indicate whether or not a chassis is safe to be touched. On the other hand no isolation transformer in the world is going to relieve an engineer of the responsibility to avoid handling other parts of a receiver that are at high potential with respect to chassis.

With regard to true AC-only receivers long experience suggests that there is no cause to anticipate trouble with insulation in the mains transformers used. These components were made to last and last they do. I suspect that over the last 40 years I may have changed as many broken-down transformers as anyone, of which the overwhelming majority were due not to internal faults but to overloading brought about by component failure elsewhere in the sets.

It is plain that the writer commenting on resistive line cords in AC/DC sets is ill-informed on the construction and use of these unfairly maligned devices. Incidentally 'line cord' unqualified is merely the USA term for a mains lead, ie, an ordinary length of two- or three-core flex. The resistive line cord has an additional core consisting of nickel-iron wire wound on an asbestos former and insulated electrically and thermally by a wrapping of the same substance, the whole then being covered by conventional packing and

braiding. To preclude bleating on the part of panicky individuals with an asbestos complex, an expert on the subject states that in this application it presents no danger whatsoever, unless the owner of the set should take to chewing the line cord! Certainly, to describe resistive line cords as 'lethal' demonstrates a woeful lack of understanding on the part of the writer.

Resistive line cords originated in America as an alternative in 'midget' sets to conventional mains droppers where the heat dissipation of the latter was unacceptable. In due course they started to appear in UK receivers and were well-established by the outbreak of WW2. Should anyone have doubts as to the longevity of resistive line cord, I would be pleased to show them a 50-year old midget with its cord in good working order, despite the fact that the state of the cabinet denotes that the set has had a great deal of use. Receivers made in the IJSA before the war for export to Britain were normally equipped with an extra length of resistive line cord to suit 200/250V mains, either at source or by the importers. (It must not be forgotten, though, that a significant number of consumers, especially in London, had supply voltages between 100 and 130V). During the war the cord was much used, but was in fact only one of the options open for this work; conventional mains droppers in ventilated cases and auto-transformers were other solutions to the problem. Some enterprising people even employed ordinary mains bulbs in holders fitted to the top of the receiver cabinets, thus turning the otherwise wasted watts into usable light!

Editor's note: The problem of electrical safety in vintage equipment is obviously a controversial one and further opinions are welcome. It ought to be pointed out that although old equipment might be thought reasonably safe in the hands of 'old hands' with a respect for safety precautions, younger members brought up in the transistor age ought perhaps to have the benefit of some cautionary counselling.

Letter

from George Meechan

Glass-panel sets

BVWS member Tony Carr in his article on restoring glass-panel sets (Vol.12 no.4), asks the purpose of such panels. The answer is twofold. Some Ebonite panels suffered leakage problems, so what better than glass as an insulator? Secondly, more affluent constructors liked to show off their handiwork and to emulate the commercial sets using glass fronts.

• more letters on next page

Letter:

from Kath and Keith Wilson

'Black Cat' set

In issue 2, volume 10 of the BVWS Bulletin the Editor, Robert Hawes wrote an article on the small KB bakelite 'cube' receiver which disposed of the idea that this was given away with 'Black Cat' cigarettes, and was thus not entitled to its popular appellation of the 'Black Cat Set'. We thought you might therefore be interested to see an advertisement which we recently came across for the real 'Black Cat Set'. This is a much less attractive receiver, and involved just as great a risk to the health of the would be owner as the KB, again requiring the coupons from 5,000 cigarettes!

It happens that we have one of these sets, and a very basic thing it is. The cabinet is poorly finished thin ply, and whilst the size is certainly as claimed in the advertising copy, it contains mostly air. To be fair, the batteries would have occupied some of this space, and the speaker - a reed driven type - has a typically large cone. The circuit is the usual grid leak detector with regeneration, transformer coupled to a single LF stage. Performance is exactly what you might expect - adequate but unexceptional. All in all this set has little claim to Classic status, unlike its KB cousin, but nevertheless it is the real 'Black Cat'.

Does anyone have any other information about sets given away as advertising premiums? this could perhaps provide the theme for an interesting display at a future Harpenden.



Letter:

from Stanley Casperd

"Ensign" crystal-set.

I enclose a photograph of one of my crystal sets and I wonder if anyone can throw any light on its history?

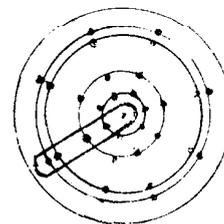
The set is called the "Ensign" Crystal Receiver Model "A". You can just see the knob on the right of the cardboard box and this can be moved forward and backward. Behind the panel are two pancake basket coils of 24 turns each, one is fixed and the other can be moved over the fixed coil by movement of the knob. The respective coil windings are connected in series directly between the aerial and earth terminals. There is no condenser fitted anywhere and tuning, crude as it is, seems to rely on the aerial/earth capacity. A printed

label inside the box under the panel says . . . 'This Set is guaranteed to be of entirely British make'.

Letter:

from George Wise

Display Switch



I have constructed a rotary switch to supply power to any selected set of a display-case containing housing 12 small battery receivers. The switch is made from rivets fixed into a drilled wood circle, over which sweeps a spring-loaded arm carrying HT and LT supplies through a hollow spindle to a loom on the back of the display cabinet which houses the sets. Made a year ago, it still works well.



Advertisement from 'John Bull' magazine of 1932 showing the KB set which was available in exchange for 1,250 coupons from 250 packets of 20 cigarettes or could be bought for four guineas (£4.20p).

Workshop

Direct-Action Tuning

Notes on the Philips press-button tuning system.

The idea of press-button tuning started in the USA and by the 1938 Radio Show nearly every manufacturer had at least one set on their stand with this feature. Either they used switching and pre-set circuits, or they incorporated one of the American tuners, the most common being the Mechomatic.

The problems with the first system are that everything gets very complicated if more than two circuits are used, and that drifting seems to be unavoidable. The mechanical system works quite well, and its descendant is still used in cheap car radios.

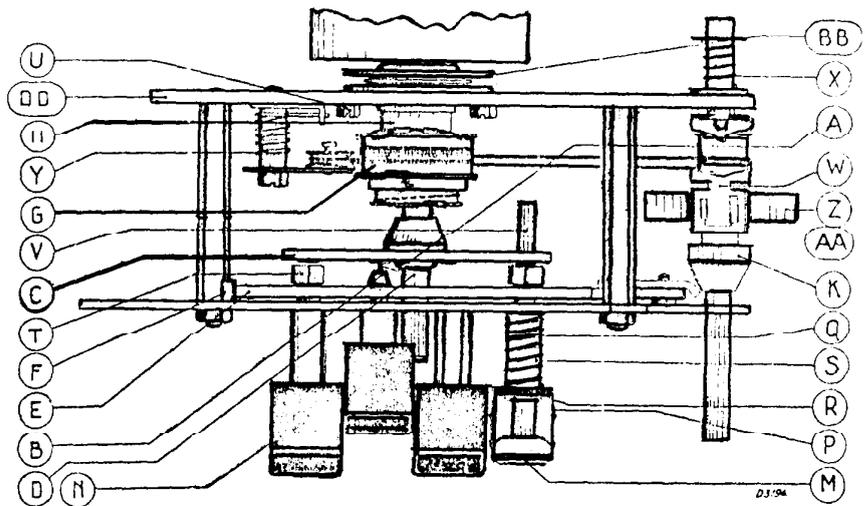
Philips always believed in doing their own thing, and were offended by the basic problem of the mechanical tuner-press buttons moving in a straight line, whereas the tuning capacitor has to rotate through 180 degrees. They produced an original answer to that one.

The Philips direct-action tuning capacitor consists of a pair of coils of brass tape, which slide into each other. For a capacity change of 490 pf. less than 1/2in of movement is required. The manufacture of this required great precision, and while they were about it they made it a three-gang.

From then on, the design of the mechanism is fairly simple. The buttons carry screws which depress the place C, and with it the tuning capacitor. Manual tuning is effected by a cord which turns drum G, inside which is a screw. Before using manual tuning, the knob has to be pulled out, which releases any buttons. Before using button tuning, the pointer has to be turned to the end of the scale, so that H is fully screwed into G.

This system is used in the models 555 and 660. An entirely different system was used for the 753 which had a normal tuning capacitor and motor tuning, using another original system which we won't go into just now. Altogether their R & D must have had quite a year!

There were several snags in this arrangement. From the user's point of view changing from auto to manual was somewhat confusing, and also the



waveband had to be changed when needed. From the manufacturing and servicing side it will be seen that the design of the capacitor made it 'straight line capacity' not 'straight line wavelength'. This meant that the dial cord layout had to be thoroughly non-linear to avoid all the stations crowding up one end of the dial. This was done by a weird-looking system whereby a spring-loaded cord pulled round an off-centre drum. This works, but doesn't look as though it would!

So for 1939 they produced Mark II. Now the basically simple idea got very elaborate. The buttons now move downwards, rotating a rod which, by means of a crank, depresses the capacitor, and which also carries extra levers which work the bandswitch. By winding the capacitors with tapering brass tape they made the action more like 'straight line wavelength', and could then use a more normal dial drive. This was fully mechanical - no cord!

From the collector's point of view, these sets are either fascinating, or totally abominable. The sets concerned are the 680, 735 and 855. They have other peculiarities as well, but we will not go into them here. The mechanical side as can be seen is pretty complicated, but a little light oil should get everything working. Damage to the tuning capacitor is usually fatal due to the incredibly small clearances, so do not touch the vanes. The other peculiarity of the system is the pointer. This is carried on a version of James Watt's parallel motion, and is made of glass. The idea is that it focusses the light from the dial bulb into a thin vertical line of light, which is actually on the back of the dial; hence no parallax error.

Those who stop to think at this point will realise that by converting the movement of the buttons into a rotation the whole point of the clever capacitor has been lost. They might as well have gone back to the Mechomatic!

Adjustment of the pointer is well described in the appropriate 'Trader' sheet. The Philips service information is not quite so helpful. They try hard but their amateurish diagrams are a bit off-putting. It will be seen that the high-frequency end of the band is set by a special jig 2V 351.063. These have of course been extinct for years, but a substitute is this:

17.6mm
18g brass, or similar

This object goes between the round washer on the end of the spindle and the tuning capacitor frame.

It will be seen that there are mechanical adjustments for almost everything. In spite of its fragile and eccentric appearance the system works well. My 680 is true to calibration over the whole band within the thickness of the light beam, and the preset tuned stations come in well - with a mighty crash as all that machinery snaps into action.

The sets were originally supplied with a selection of station names to label the buttons. These can be reproduced with 12 pt. Futura Medium White Letraset on brown card. This I think adds a final touch.

So next time you see a radio that looks as though its mother was great friends with a typewriter look again. Under all the dust is a very clever piece of work, and a source of great amusement to the dedicated tinkerer.

Headphones:

(continuing Desmond Thackeray's feature in Vol. 12 no. 4 of the Bulletin)

Part II – Using Low-Impedance Headphones:

Of course, a single receiver is not as effective acoustically as a pair, though the unused ear *can* be blanked off to mute other sounds. Nevertheless, the telephone practice of a single receiver or two single receivers was transferred to early wireless telegraphy, despite the desperate need of wireless for as much sensitivity as could be found in the early days. There seems to have been no tradition to guide here, as line telegraphy apparently ignored headphones completely, operators using their ears to decode from the clicks of a sounder, against a noisy background of other sounders and typewriters.

There are good reasons for winding wireless headphones to a higher resistance than line receivers, in that wireless detection may be more efficient thereby, and more selectivity perhaps obtained from the tuner. An audio transformer can always be used to transform upwards the low impedance of 'phones intended for line telephony, though actually finding an ideal transformer of suitable ratio (perhaps between 4:1 and 10:1) with windings of suitably low resistance, may be difficult today. Such transformers were used in early Marconi W. T. Co. sets, of course. And the designer of the S. G. Brown microphone amplifier seems to have had such an impedance change in mind for users of that device. As L. L. Williams describes this in *Vintage Wireless 10*, (1986), 58-60, it has an input winding for the reed of around 2000 ohms, and an output winding to drive 120 ohm Brown headphones or any similar 'low' impedance device.

Not that one should not lean towards figures *greater* than 2000 ohms; but winding small coils to higher resistances was probably not very practical, at least under factory production conditions. Certainly the highest resistance I have seen mentioned for a pair of phones has been 8000 ohms, presumably containing four 2000 ohm coils. Incidentally the d.c. resistance, though flattening the frequency response, is also a drawback; for crystal set use the resistance actually biases back the crystal by virtue of the rectified current

flowing, a nuisance though not usually a serious one for 4000 ohm phones.

The windings on audio transformers have a much greater ratio of impedance to d.c. resistance than do headphone windings, so they do actually provide a slight design advantage if very high impedances are sought. I doubt though that the evolvers of early equipment had such thought in mind. But it is interesting to see that in the practical development of the Marconi 'valve' set which used the very low permeance Fleming diode as detector, not only did the telephone transformer provide it with a high audio load impedance, but the shunt impedance of the tuner was also suitably high by virtue of the high L/C ratio enforced by the use of a 'billi' condenser.

Unnatural Practices:

I seem to have strayed rather far from oddball headphones. Really big earphone cases have room for the construction of crystal sets. Readers of Tony Constable's book can remind themselves of one commercial version depicted as Figure 59 on page 78. But even the biggest case can hold only a smallish tuning-coil, with correspondingly large losses. I have a home-made single earpiece crystal set in which a tapped coil is neatly fitted around the magnet assembly, with a tapping switch fitted to the back of the case. The original maker had constructed a detector from a single element taken from a Westector. That, like many Westectors, was not successful; but substitution of a germanium diode showed that the coil design was viable, by offering an intelligible signal from BBC 909KHz when connected to a substantial aerial.

Another moderately successful operation is the conversion of a headphone to work as a gramophone pick-up. Though I did this as a youth by soldering a sewing needle radially to the surface of the diaphragm, with suitable saw-cut in the ear-cap, the example I have today is better engineered, and has been developed from a Brown tuned-reed mechanism. An aluminium extension has been riveted to the reed, and this extension drilled to take the gramophone needle and locking screw. A piece of rubber pencil eraser wedged under the reed provides extra stiffness and mechanical damping. But for a *really* curious adaptation consider Clyde J. Fitch's 'Galena Loud Talker', which appeared in both *Wireless Weekly* and *Radio News* during 1923. The case of a single receiver is apparently emptied of its

magnet and pair of coils, leaving only the diaphragm, which is then adapted to carry a galena crystal. A counter-electrode carrying carbon balls is screwed through the back of the case until the balls touch the galena. Passing a signal current between galena and carbon balls produces heat which causes mechanical expansion, which drives the diaphragm, so the article informs. Does it really work, I wonder, or were both magazines hoaxed by a 'phoney'?

Low impedance telephone outputs have appeared at various times since in military radios; perhaps compatibility with line telephone hardware is deemed to be useful, and certainly 'surplus' headphones seem almost universally so. This does suggest a possible source of telephone transformers for the keen experimenter. But failing that, a glance at the RS catalogue shows a possible in their range of miniature audio transformers, that which is billed as having 25 kohms for its high-impedance winding. Alternatives lie amongst the small mains transformers, split and tapped primaries plus a wide choice of secondaries being apparent. There is little point in trying to use a line telephone transformer from a telephone, by the way; the winding impedance of the 'line' winding is far too low to be really useful for wireless use.

Repairs and Testing:

In general, headphones are fairly robust and not impossible to clean and re-lead. Where there are still inexpensive supplies of some old headphones, a simple exchange of parts may be what is required. There is of course a definite risk that the magnets will be weakened by removal, fine wires broken, and grit introduced into small air-gaps. Occasionally one can deduce that these processes have already occurred at the hands of some previous owner! Then, there is little to lose by dismantling again and cleaning. Magnetic particles can be fished out with 'Blutack' or a fine sewing needle.

I find it handy to run through the audio spectrum by driving each receiver from a small oscillator, just listening for untoward buzzing noises which tell of problems within. Even when the two receivers don't have identical sensitivities, the quality of sound should be much the same; if one produces a thinner, more distorted sound than the other, something is amiss. 'Something direful in the sound'; is it a Tisiphone?

Book Reviews

Book Review:

'Radio Manufacturers of the 1920's' Volume 1: A. C. Dayton to J. B. Ferguson, Inc. by Alan Douglas. Obtainable from the Vestal Press, Ltd, Vestal, New York 13851. Price \$19.95 softback, \$29.95 hardback; plus a few dollars postage.

Alan Douglas, a BVWS member in America, has naturally titled his book with American readership in mind: the British reader should mentally expand the title to 'American Radio Receiver Manufacturers of the 1920's'. The book does indeed deal exclusively with American manufacturers (although did you know that our Ferguson Radio Corporation started life in 1923 in New York City as J.B. Ferguson, Inc.?) but let no one imagine that it is therefore of only secondary interest to us on this side of the Atlantic.

As Alan says in his Preface, there have been plenty of books on the history of broadcasting, but none on the companies who built the receivers. In this first volume – with two more to come – he has set out to fill this gap most successfully.

His Introduction gives a brief history of the American receiver industry during the twenties, outlining the evolution of TRF receivers, the introduction of single dial tuning, early superhets, and the first AC mains sets. There are also interesting tables showing the growth of receiver sales throughout the decade, numbers of American homes with sets, and other statistics.

American receiver design and manufacture of the 1920's was dominated by the patent holdings of Armstrong on regeneration (reaction) and the superhet; and of Hazeltine on the neutralised RF amplifier (neutrodyne). Alan gives useful lists of those companies which were licensed by Armstrong or Hazeltine.

The main body of the book comprises individual sections devoted in this first volume to twenty manufacturers from A-C Dayton to Ferguson. Each contains a brief history of the origin of the company; the men who founded it or who made significant contributions as designers or entrepreneurs; and (in many cases) the events leading to eventual bankruptcy or take-over by another organisation.

The major part of each manufacturer's section is given over to descriptions and illustrations of the set they made.

The author's declared aim is to describe every advertised model of each company and I can well believe he has in fact done this.

The whole book is profusely illustrated with photographs of receivers (from present-day collections) and with reproductions of 1920's catalogues and advertisements, the sources and dates of all contemporary material being meticulously noted. In several cases there are full-length contemporary articles describing and illustrating the buildings, laboratories and manufacturing processes of the company. Most of the advertisements are aimed at radio dealers and are hence rather more informative than would be those designed for the general public.

The book is, of course, very valuable as a reference to the history and products of American manufacturers. But it also makes fascinating reading as an account of the rapidly changing inter-relationships between the companies and their personnel, and the expedients and intrigues which they found necessary in their struggle against patent restrictions and the rather baleful influence of RCA and its allies. Especially full treatment is given to the remarkable ups and downs of de Forest and his numerous companies; and to Atwater Kent, the biggest success story of the period. Alan Douglas's writing style, in flawless English but relaxed and flowing, makes for very easy reading.

A reviewer must find some point of criticism, if only to show he is not a pushover! I was mildly irritated by lack of a contents page: although the company sections are in alphabetical order, does one look for A-C Dayton under A or D; and de Forest under D or F?

The index could be more comprehensive: for example Dayton is to be found only as A-C Dayton, although the company themselves used Dayton without the prefix in one of their catalogues; on page 20 the All American Radio Corporation is described as existing from 1922 to 1928, but the index mentions only the later name of All American Mohawk; and the Electrical Research Laboratories appear only as ERLA, although the company themselves tended to use the abbreviation only in inverted commas.

But it's the book itself that counts. Hop on the next Concorde flight and buy yourself a copy! – Pat Leggatt

Magazine review

'Retro-Radio', The Periodical of the Belgian Vintage Radio Society: 'Vlaamse Liefhebbers v.d. Historische Radiotechniek' = (literally) 'Flemish lovers of Historical Radiotechnology'

It seems surprising that such a small ethnic group as the Flemish-speaking Belgians have their own vintage wireless society and publish their own periodical 'Retro-radio'. Even more surprising is the high standard that the periodical achieves. The May 1988 issue consists of 26 A4-size pages, including the pink covers, stapled together. Its contents are varied and well illustrated, and are a tribute to the dedication and ability of the editor Roger Dhaen.

The issue begins with news of the society, and members' requests for information or apparatus, followed by reviews of other countries' vintage wireless publications. Our own BVWS Bulletin receives especially high praise, and is declared the best that the reviewer has come across. A short article on disguising cracks in bakelite cabinets is followed by Part 4 of a series about the Tesla coil. This is supplemented by illustrations and instructions for coupling a Tesla coil to a Reinartz valve circuit to cause a shaped piece of wire to whizz round and spray blue sparks. It hardly seems vintage wireless, though based on an article from 1924, but is nevertheless fascinating. Two contributors describe in rather more than two pages the results of their efforts to persuade a crystal set to drive a loudspeaker, and append circuits and a table of results. Another two pages tell how to obviate hum in a mains radio. A survey of all the 'SBR' radios manufactured from 1932 to 1937 is no doubt of main interest to Belgian readers. An article of 2½ pages provides most useful information about international valve-bases, taken from a publication of 1947. The practical project that follows it, described by John W. Barber, gives full details for making a versatile two-valve receiver, complete with plans from a 1925 issue of 'Modern Wireless'. Another project consists of plans and instructions for building a two-valve resistance-coupled L. F. amplifier designed by G. P. Kendall and taken from an early issue of 'Wireless Constructor'. The periodical ends on a whimsical note with a poem about a mouse, written by a Fleming who died in 1902. It seems this page is devoted to

• more book reviews on page 13

(continued) **Book Reviews/Feedback**

• *continued from previous page*

vintage poetry – perhaps a secondary interest of the editor's. The many reproductions of vintage wireless advertisements impart an appropriate atmosphere to the periodical and, like the rest of the illustrations, are quite clearly printed. The publication consists, to a large extent, of material taken from vintage publications, mainly foreign, and translated into Flemish. This must provide a wealth of practical information for the Flemish vintage wireless enthusiast, that he might otherwise find hard to obtain.

The Belgian editor praises the BVWS Bulletin: we can wholeheartedly return the compliment. Retro-radio is an excellent publication, and Flemish readers can properly be proud of it. – **Translation and review by Eric Westman, BVWS.**

Eric Westman has also translated the following review of our BVWS Bulletin, published in the Magazine of the Belgian Society:

'The periodical "Bulletin of the British Wireless Society" is in its 12th year, and

although it numbers only 16 pages, the covers included, this is the finest (news)paper that you can find. In each periodical, one "Classic" receiver is taken in hand, a fine drawing of this set is resplendent every time on the front page. Thereafter the modern layout becomes noticeable, the page arrangement is splendid, the printing of the photos sublime.

Now the contents: as the "main course" the "Kensitas" coupon set of 1937 is written about, this receiver you could obtain against the exchange of a delivery-van-ful of cigarette-packet-covers, of the Kensitas brand.

Philip Taylor describes how you can repair a radio valve, "Dame Nellie" is once again having a good time as a singer and collaborator at the first official radio broadcast in England – besides a short article for and by home-made set builders. Alongside the "Radio" there is also attention given to "Television". This time the "Fultograph" is described. With this sender/receiver it was in 1928 possible to send photos by wireless, next you also find something about the 405/625 lines convertor of the BBC.'

Correction

The Editor apologises for the transposition of some paragraphs in Jim Forster's article 'A Ferranti collection' in the last issue. The five paragraphs placed at the end of the article, beginning consecutively 'The Collection'; 'Dr S. Z.'; 'The company's'; 'Dr Ferranti'; and 'From 1933' should have come after the first two paragraphs, ending '...not so'. After those five paragraphs should follow the three paragraphs beginning 'In 1956...'; 'The present'; and 'Assembling...'. Readers wishing to have a photocopy showing the paragraphs in the correct order should send an SAE to the Editor.

Letters to the Editor:

Letters for inclusion in the Bulletin should be sent to Robert Hawes, 63 Manor Road, Tottenham, London N17 0JH. Where possible, they should be brief, and we reserve the right to abbreviate if necessary.

THE VINTAGE WIRELESS BOOK LISTING

A listing to be published regularly, containing hundreds of out of print, old, and collectable wireless, television books, magazines and associated printed items, for sale. Send 2x18p stamps for next issue. We operate a free wireless book search service. We will always buy second-hand wireless and television books, magazines, trade catalogues, publications and associated printed items. Also wanted: service data, circuits and manuals (British and USA) for domestic receivers, communications receivers, test equipment, oscilloscopes, Govt. surplus wireless equipment

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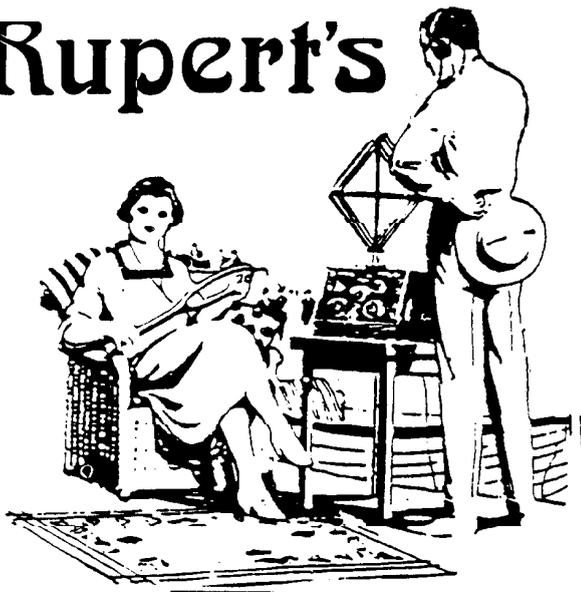
Made by Stratton and Co. Limited
in Birmingham between 1930-1940.

Also any original or photocopy
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Also by John Stokes: New Paperback Edition of 70 YEARS OF RADIO TUBES AND VALVES: A Guide for Electronic Engineers, Historians, and Collectors. N.Y.:The Vestal Press 1987. 248 pages. Profusely illustrated. Large format. Price: £12.95 (plus £1.50 postage)

(Postage for both books sent together only £1.90)

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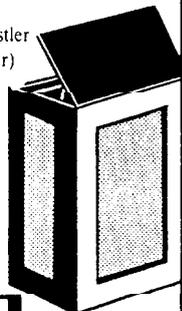
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