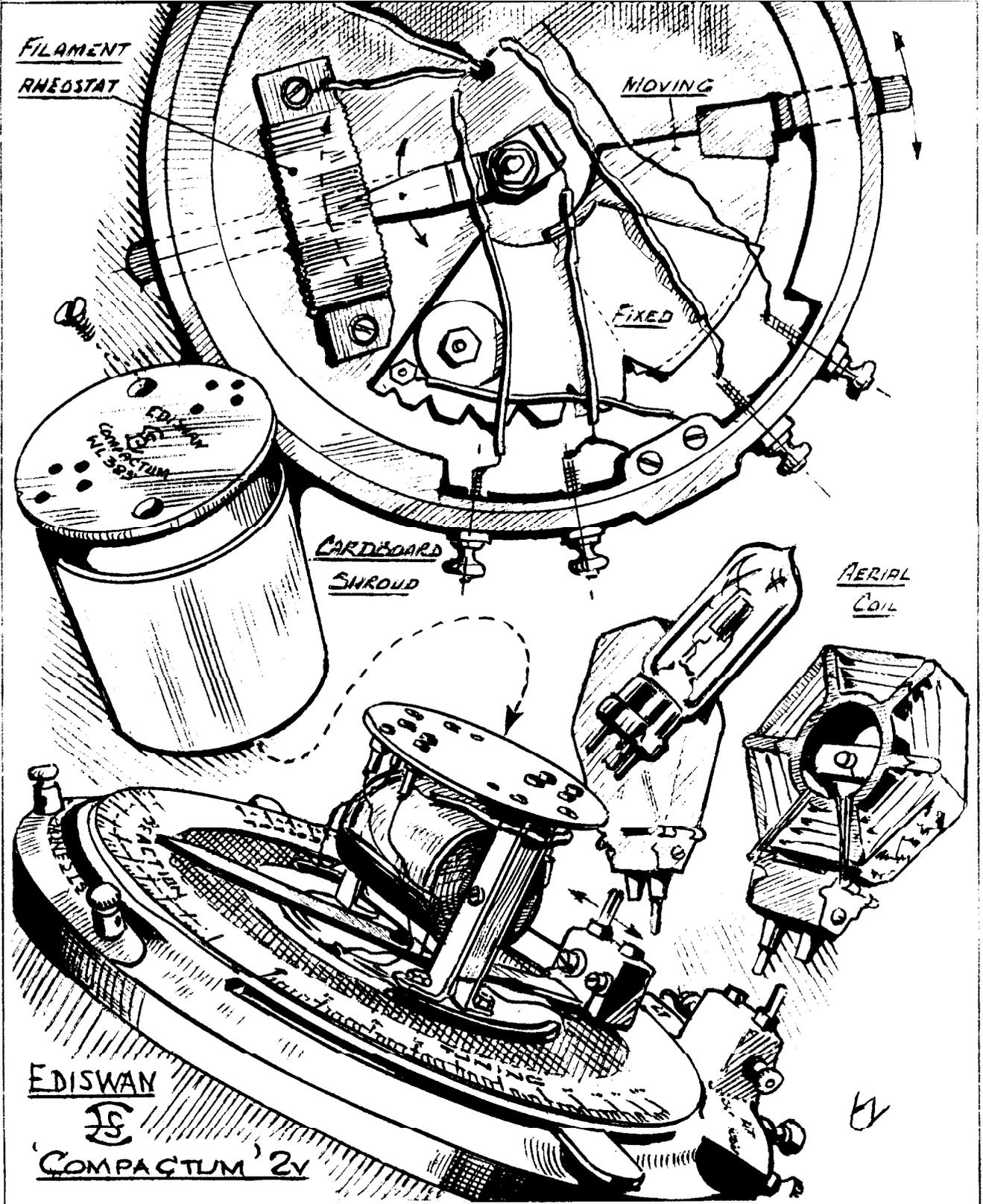


# VINTAGE WIRELESS



## BULLETIN OF THE BRITISH VINTAGE WIRELESS SOCIETY

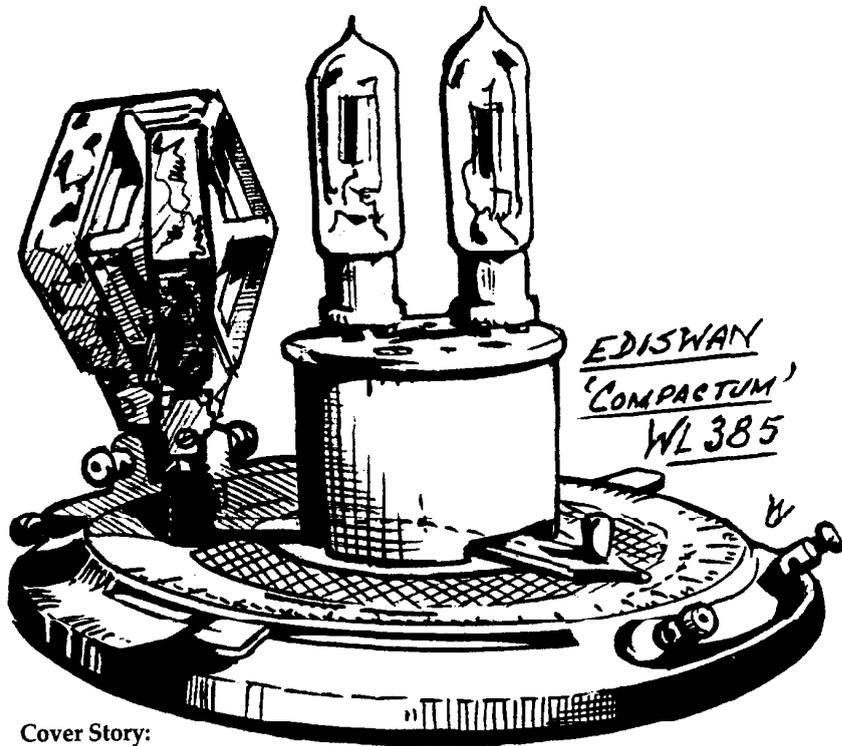
### BULLETIN OF THE BRITISH VINTAGE WIRELESS SOCIETY

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Editorial and advertisement enquiries should be made to the Editor, Robert Hawes, 63, Manor Road, Tottenham, London N17 0JH. Tel: (01) 808 2838. Editorial Assistant: Pat Leggatt.

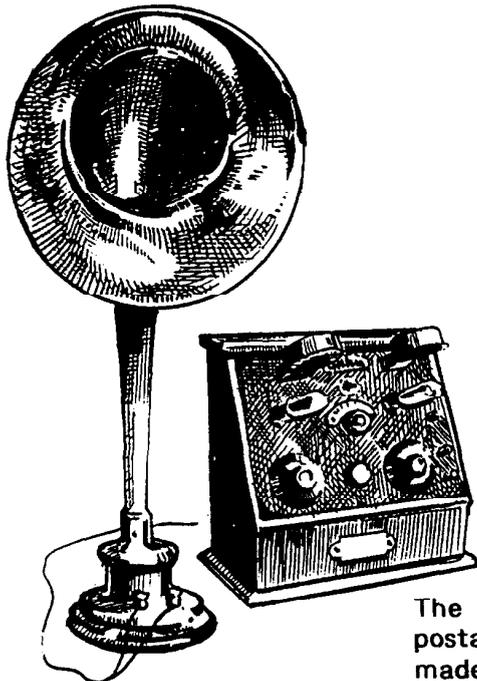
### BRITISH VINTAGE WIRELESS SOCIETY

Chairman: Pat Leggatt, Garretts Farm, Pankridge Street, Crondall, Farnham, Surrey, GU10 5QU Tel: 0252 850948.  
Treasurer: Desmond Thackeray, 7, Beech Close, Byfleet, Surrey, KT14 7PS Tel: Byfleet 41023. Membership Secretary: Gerald Wells, Vintage Wireless Museum, 23, Rosendale Road, West Dulwich, SE21. Tel: (01) 670 3667. Bulletin Editor: Robert Hawes, 63 Manor Road, Tottenham, London N17 0JH. Tel: (01) 808 2838.  
Committee Members: Anthony Constable, David Read, Ian Higginbottom, Norman Jackson, John Gillies.



Cover Story:

The editor recently discovered the rare Ediswan 'Compactum' illustrated here in Norman Jackson's drawing. It appeared in the NARMAT show report of Wireless World of 19th September 1925, incorrectly described as a 'crystal' set, but it is a very simple two-valver. The base is of ebonite on which are mounted a two-vane tuning condenser, filament resistance, aerial and reaction coils and transformer and valveholders enclosed by a black cardboard tube. No other example has been reported to have been found, and further information is sought.

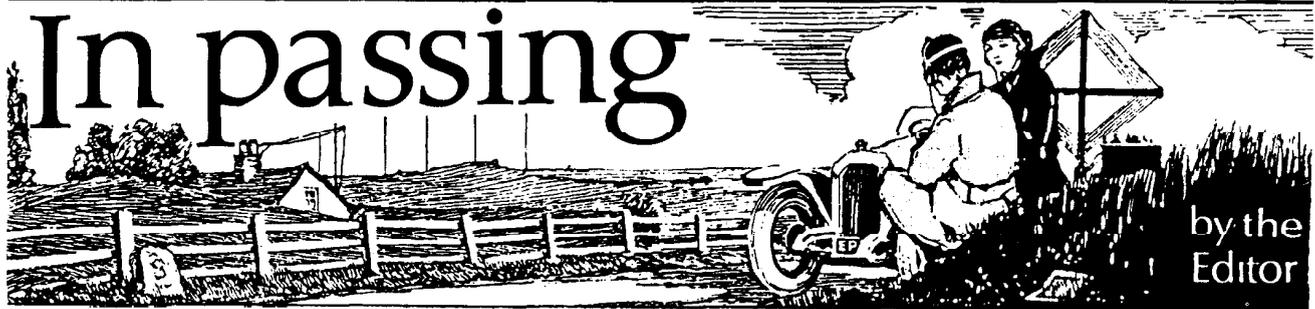


### WIRELESS POSTERS STILL AVAILABLE

An attractive set of three large wireless posters, designed by Norman Jackson, depicting the development of wireless equipment from the early 'Twenties to the late 'Fifties and illustrating a large number of important "milestone" receivers and loudspeakers is still available

The Special price to members is £4 per set, including postage is a stout cardboard tube. Cheques should be made payable to "BVWS" and sent with a clearly made out self-addressed label to Robert Hawes 63 Manor Road Tottenham London N17 0JH. Please allow 14 days.

# In passing



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

Our winter meeting at Harpenden is on 13th November and members are reminded that admission to the meeting will, as usual, be by ticket only and that their subscriptions must be up to date. Our membership year used to run from April to April but from January 1989 will be renewable in January. If you paid a subscription after April 1988 you will be 'paid up' until this December and in January the next subscription will be due. Subscriptions for all members are due on the same date, irrespective of original individual dates on joining. If you wish to attend the Harpenden meeting, you must have paid a subscription since April this year.

Arrangements for the meeting will be as usual. The event will open at 10am, although stall holders will be allowed in a little earlier for setting-up. Members are requested not to arrive at the hall too early, in order that congestion can be minimised. Members are further asked not to do any trading before the official 10am opening time, so as to be fair to all. We shall again have an auction in the afternoon, this time to be held in the entrance hall, where a 'booking-in' table will be manned all morning. There will be a special display and demonstrations in the ante-room where members will also be able to enjoy refreshments.

## International Meeting

A three day International Vintage Wireless Meeting will be held in London from 24th to 26th June 1989 to coincide with our normal Harpenden meeting, next year to be on 25th June. The international event will be similar in style to the meeting held in 1984. The American Antique Wireless Association (AWA) is already involved with us in the early planning stages and they expect to have a good response from their members. The meeting will be organised by BVWS chairman and vice-chairman Pat Leggatt and Tony Constable, who would be very pleased to hear from interested BVWS members and representatives of other vintage wireless societies wishing to

participate. The programme is not yet firmly fixed and all ideas will be welcome. Interested parties should contact Pat Leggatt at Garretts Farm, Pankridge Street, Crondall, Farnham, Surrey GU10 5QU. (Telephone: 0252 850948).

## For your Diary

Various dates for 1989 have already been fixed. These include the already mentioned Harpenden meeting on 25th June, to be preceeded by the annual Garden Party at the Vintage Wireless Museum, London on Saturday 24th June, which will be organised as usual by the Curator Gerald Wells. The winter 1989 Harpenden meeting will be on 22nd October. In addition, John Howes has fixed two dates for the swapmeet which he organises near his home at Tunbridge Wells: they are 21st May and 12th November. Dates of other official BVWS regional meetings will be announced in the next Bulletin.

## New USA Museum

Richard Brewster, BVWS member, who is president of the Pittsburgh, Pennsylvania Antique Radio Society, tells me that he is in the process of setting up a museum to honour the birthplace of Station KDKA, considered by many to be the world's first broadcasting station (if one discounts Fessenden's fiddle-playing using an HF alternator in 1906 and the musical items played over a primitive arc-transmitter by Dr Lee DeForest in 1910). It was set up by radio-amateur Dr Frank Conrad who 'broadcast' speech and music programmes from his garage in Pittsburgh in 1919 and was 'taken over' by Westinghouse. His old garage still exists and the Pittsburgh vintage wireless society plans to build a replica of Conrad's transmitter there as the centrepiece of the proposed museum. Richard is in the process of researching the re-broadcast that KDKA did with the BBC in late 1923 and would welcome any help.

### Contents: Bulletin of the British Vintage Wireless Society Volume 13 no. 2.

#### Information: inside front page

**In Passing**  
by the Editor ..... 14-15

**News: constructional**  
Ken Clark ..... 16

**Research/Workshop:**  
Desmond Thackeray  
and Tom Going ..... 17

**Collecting:**  
Fred Hay ..... 18

**Historical research:**  
Tim Wander ..... 19-20

**Book reviews**  
Robert Hawes ..... 21

**New Museum**  
Robert Hawes ..... 22

**Feedback**  
Readers' letters ..... 23

**Electrical Safety:**  
More readers' letters ..... 24-25



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## Baird Centenary

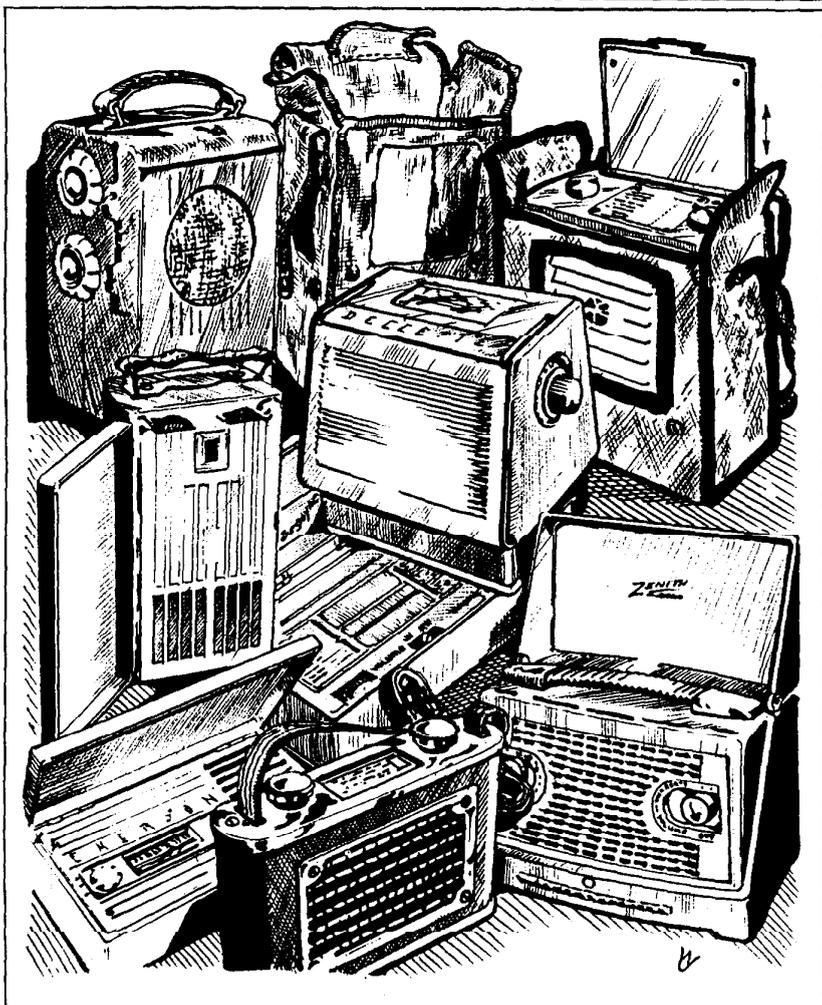
Ray Herbert, a member of the BVWS, who is also Honorary Secretary of the Baird Amateur Radio Society, which recently obtained a licence to transmit television signals using Baird's original call-sign 2TV, put the station on the air again on 13th to 14th August. It was to commemorate the centenary of the birth of Baird, whose station was the first anywhere in the world to be issued with such a licence. More than 160 radio stations in the UK, Belgium and Holland participated in the commemorative event, some of them operated by retired members of the Baird company, like Ray Herbert.

## Woolworths set?

Does anyone know whether Woolworths ever sold a crystal set of their own 'brand'? If so, have any survived? Please let the editor know if you have any information.

continued on next page (15)

## In Passing (continued)



The 'Personal Portable' receivers shown here (a drawing by Norman Jackson, reprinted from our issue Vol.13 no.1, in which David Read wrote about them) are: (top left) a set made under an American patent and unmarked except for the label 'Made in plant A Chicago', shown next to its canvas carrying-case; then (top right) the Hermes Tourist; then (left centre) the RCA BP10; and (centre) The Decette standing on top of the Burgoyne Playboy; and (bottom row left to right) Emerson 558, Romac 106 and Zenith 4E41.

### Correction:

Due to a typographical error several words were omitted from David Read's article on 'Personal Portables' in Vol.13 no.1 which gave the impression that the Pye M78F was designed for 'optional mains operation'. This is not so: the set was for battery operation only. The sentence (four paragraphs from the end of the article) should have read (omitted words in italics):

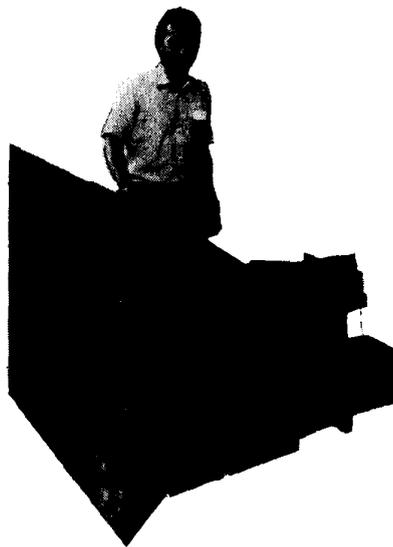
The Pye M78F at 147 cubic inches is the largest with its unusual design and larger speaker. *From 1950 the interest in absolute smallness gave way to larger speakers, more sensible battery capacity, and optional mains operation.*

### Magazines

The Vintage Wireless Museum at Dulwich recently received a batch of pre-war magazines from Mr D. B. Osler of Mansfield. There are about a hundred 'Popular Wireless' dating from 1923 to 1934, about twenty 'Wireless World' of later dates and a few others. They are in the care of Dave Adams because Curator Gerald Wells has no time to deal with them and they are in need of repair and reinforcement before they can be safely handled: he is proceeding with the task.

He is also working on an index, mainly, for the moment, of circuits and sets designed or reviewed by the magazine. (Does anyone know of the existence of

any indexes for magazines of this vintage?) Meanwhile, he would be very pleased to do his best to deal with members' queries and provide photocopies.

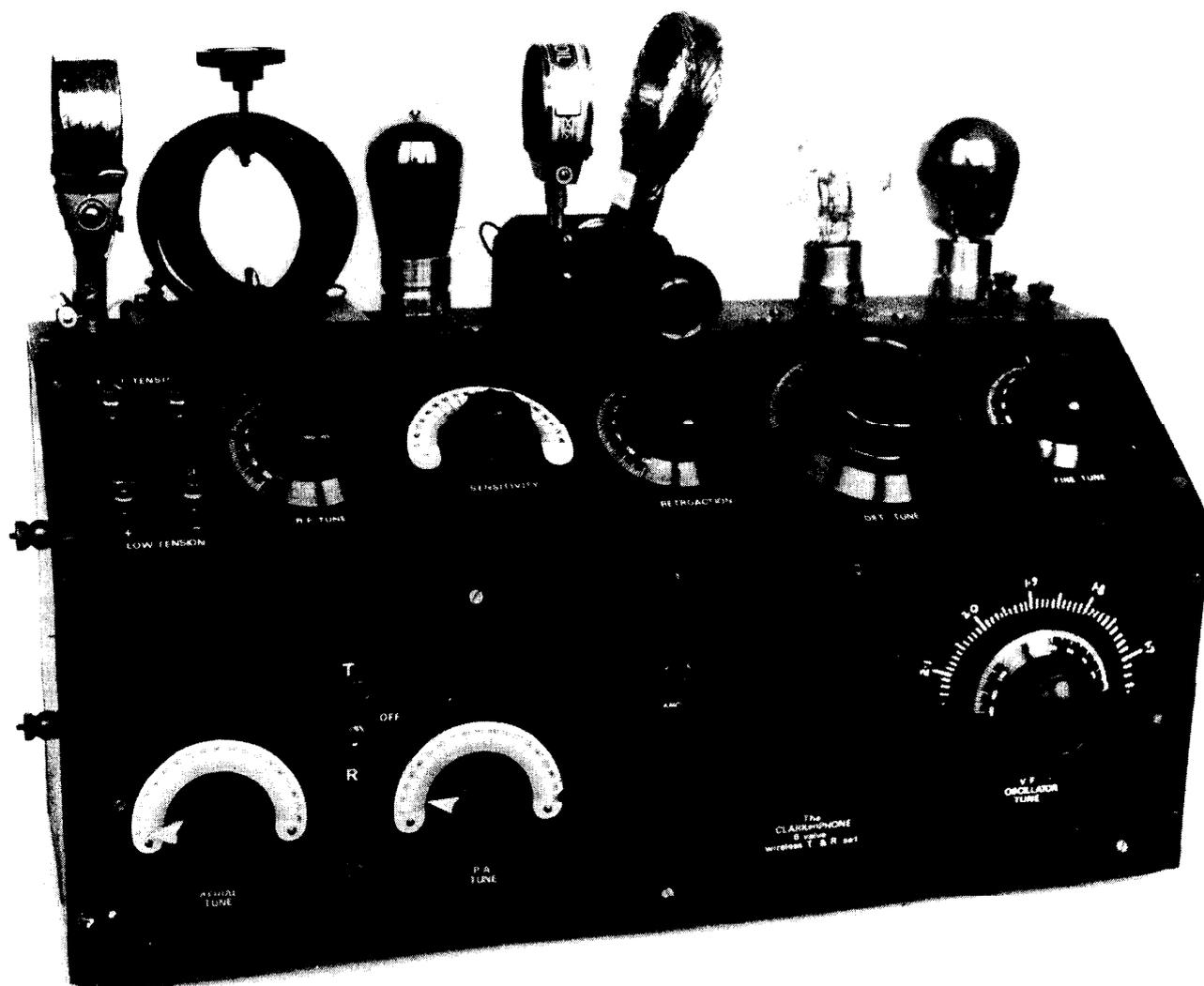


### Horn of Plenty

Members who attended the last Tunbridge Wells meeting organised by John Howes were delighted with the relaxed atmosphere and excellent 'home-made' catering, but also with the impressive vintage sound system which John had set up. The splendid sound which had both quantity and quality, came from the Voigt permanent-magnet loudspeaker unit and four-foot plywood horn with which John is pictured here. The horn was first sold in 1934 at £8, and the speaker with its high flux density of 18,000 lines/cm<sup>2</sup> and weight of 30 pounds cost £36. Voigt had to build a special magnetizing machine with a force of more than 20,000 ampere-turns to make the magnets. Such is the efficiency of the system that John was able to use a Lowther BSF amplifier with its single PX25 output to drive it, using only about a watt of its rated output into the horn. Hardly a horn for the average home, John borrowed his demonstration unit but would love to have a couple of Voigt corner-horns for his sitting room.

### 'Direct action Tuning'

The name of the author of the article 'Direct-action tuning' was omitted from the Bulletin vol.13 no.1 page 10 although it appeared in the index. It was by Geoffrey Dixon-Nuttall.



## A home-brew 'Vintage' Transmitter

by Ken Clark

I thought radio amateurs, like myself, in the Society might be interested in seeing the enclosed photograph of a home-brew 'vintage' transmitter-receiver I built for the Radio Society of Great Britain G5FS Trophy, which it won.

For use on the 80 and 160 metre bands, the set was built from components made between 1920 and 1932 and I have made a number of UK and European contacts on AM phone with it.



Ken Clark pictured with his more modern equipment

The receiver section comprises the top deck and sloping panel (apart from the variometer which serves as the transmitter output variable inductance). The transmitter is built on the front panel and baseboard. Each valve has its own rheostat, so combinations of different valves can be used: usually ancient pip-tops. An early mike is built into the panel and the set is very sensitive and is teamed with a 'Dragonfly' speaker. Output is two watts.

## Looking Back

From 'The Wireless World' April 2nd 1924.

### A Musician on Broadcasting

An interesting review of broadcasting from the musician's point of view appears in the March issue of 'The Choir', over the name of Mr George Dodds.

After relating his trying experiences when broadcasting for the first time, the writer gives some practical advice to singers unaccustomed to the silent and unresponsive microphone. 'Be natural' he says, 'sing as you always sing; the purest and best produced voices are those which give the best results. All shouters, forcers, hooters, squeezers and others of the ilk are horrid to "listeners-in", and if you will only sing naturally with easy and forward production, you can trust the BBC to send out good tone for you to your unlimited audience.'

The writer's concluding hint to listeners-in would comfort Captain Eckersley. 'If you do not get good results' says he, 'blame your own set 99 per cent, and the BBC 1 per cent for what is wrong.'

## Research/Workshop

# Headphones

Desmond Thackeray adds some extra notes to his recent two-part feature

Several readers of my article on headphones in Bulletin 12:4 have sent me useful additional information, for which I am grateful.

'IT'

Apparently the letters 'IT' can mean either 'Inset Transmitter' where the transducer is to be used as a microphone, or more generally 'Inset Telephone' where it may be used either as microphone or as telephone 'receiver'. Such dual use was the purpose of a balanced armature unit that readers may have seen marked 'British Patent 513,895' and illustrated in a TMC Catalogue, though the patent was in the name of the United States Instrument Corporation. I mentioned the use of a pair of ITBA5 units in surplus headphones; but they also appear singly as the receiver in the handset of the British Army field telephone type 'J'. I'd be interested to hear from any owner information on what insets were used as transmitter and receiver in the 'sound-powered' version 'H'.

S. G. Brown

For another 'IT' that I didn't mention, one can look in the S. G. Brown catalogue (ca. 1964 which still included reed earphones) for a miniature electromagnetic unit (presumably diaphragm armature though) ITE No 1 Mk11. Shape and size are reminiscent of the ANB-H-1 insets (of which more later). This catalogue, though bountiful in information generally, is misleading in an illustration that has been retouched artistically for reproduction perhaps, thereby altering the legend on the ITE No 1 Mk11 inset to ITE NV1 MN11. On the same page is also a fifth impedance variation on the inset receiver widely used as '4T' in Post Office telephones. The S. G. Brown version seems to be illustrated three times (almost certainly a purely cosmetic differentiation), the one offered for both transmitter and receiver applications carrying the symbols '4S' and '4042A' (yet another S. T. & C. coding?). S. G. Brown were also offering their No 2 M/C Inset, which at 3 oz weight looks to be a lighter version of the heavy moving-coil inset which I mentioned in my article, apparently incorrectly, as fitting into flying helmets. The correct attribution should be to fitting into headsets for really noisy ground warfare, such as tanks experienced.

Whether the Brown No 2 M/C unit is actually identical to the inset built into a bakelite flange marked 'G1/J' for service headsets, I cannot be certain from the illustration.

RAF 'phones

Such RAF 'phones as I have seen were, relatively speaking, LoFi, containing either traditional electromagnetic receivers with diaphragm armature, or the acoustically improved version that I mentioned which the GPO incorporated in handsets as '2P' for telephones, and also appeared in headsets with the legend '4035B'. Each of these three has its own case style, but the 'innards' are strikingly similar. Coil resistance in the Air Ministry 10/A13466 is as little as 10 ohms.

American 'phones

It now appears that Western Electric were not the only makers of the ANB-H-1 lightweight M/C insets that Bell Laboratories developed for the US armed forces in World War II. The Rola Company Inc. was another maker, Radio Speakers Inc. and 'UTAH' others still. What of its predecessor, the inset of inadequate 'Fi' that Bell (discreetly) do not identify. This may have been the high-impedance electromagnetic inset that Radio Speakers Inc. made for the same headband under the legend 'Recr R14' for the US Army Signal Corps. Or there was the 'R-2-A' made by the Connecticut Telephone and Electric Corporation, who also made the 'EE-8-A' field telephone. Does any UK reader possess an 'R-2-A' headset or an 'EE-8-A' (or even just the handset from one) from which one might glean further clues?

Popular Wireless, November 12th, 1927



A "Satisfied Reader" (Regent's Park) sends us the following unsolicited letter.

"I find 'The Complete Trouble Tracker' (given away with 'Modern Wireless,' now on sale) very useful—in more ways than one. My set broke down the other day and I thought I should miss hearing L.G.M., but your book helped me in the nick of time.—Yours gratefully, B. A. BOON (Regent's Park).

"P.S.—I heard Brazil the other night. Do I get a nut?"

# Transformer Restoration

by Tom Going

*Back from the grave – a successful rescue for damp and decaying transformers*

Many years ago, when pocket money was scarce, I found an old Philips monoknob chassis on top of a cliff in North Wales, where it had clearly been dumped at least a year before. The output transformer had been a magnificent specimen and to my surprise, all the windings on this and the mains transformer remained continuous. But the insulation resistance .....

Anyway, I decided on a plan of attack which might come in handy for other people. As is well known, the principle of vacuum impregnation involves filling all the voids in transformer windings with solid material with good insulating properties, which prevents moisture from getting in, and prevents arcing, 'tracking' or leakage currents flowing between adjacent windings. Some transformers use varnish, others wax, and Philips used to use a bituminous composition. In this case, if my transformers were ever to work reliably again, clearly I had: (a) to dry out the moisture, and (b) to fill all the voids with something to effectively replace any damaged basic insulation.

To cut the story short, I boiled the transformers in paraffin (candle) wax. The transformers were slung from a wire cats-cradle and lowered into a saucepanful of candle grease, heated up to 120°C. The heat was turned up to allow for the thermal mass of the large, cold transformers. In due course, keeping the wax at 120°C, the transformers began to 'fry' – just what was wanted: all the moisture vaporising and leaving them as steam, and also, pushing out all the air in the pre-existing cavities. After a time, the 'fish-frying' effect stopped – no more moisture left in the windings. Next comes the subtle bit. the transformers were left submerged in the wax until it began to skin over, and the temperature had fallen to 95°C. At this temperature, of course, the steam bubbles which had filled the voids in the transformer now collapsed, drawing in wax to fill the spaces.

*continued at bottom of next page (18)*

## Round the Collections



Fred Hay, a BVWS member who lives in Stockton-on-Tees, an ex-radio engineer who began collecting all sorts of items twenty years ago, has earned himself quite a reputation in his home county since he retired and began giving illustrated lectures to local organisations. He has a good collection of wireless sets of the 'twenties and 'thirties, and also has gramophones, phonographs, music boxes and electrical items, which he displays at small exhibitions. Fred is pictured here with just a few of his prized pieces including (back row) 1931 Ultra Tiger, Philips hand-painted disc speaker, Marconi V2 with Browns Speaker; (front row) Brownie crystal set, Gecophone junior and headphone distributor, morse-key, spark-coil, repeater coils, valves and other odd items.

*continued from previous page (17)*

good insulation by modern standards. At the very least, with single-pole switches, ensure that both switch and fuse are fitted in the *live* lead of the mains supply, and not in the neutral – but I digress.

The wax treatment certainly worked in this instance, and it might be expected effectively to kill the potentially corrosive effects of salt on fine copper windings, as well as displacing moisture. But if you can't be bothered to do all this, do at least dry the transformer in the airing cupboard for a week or two before using it – you may save yourself an expensive burn-out.

After this, the transformers were removed and the excess wax wiped off. Surprisingly, after all this, they were found to work perfectly well, and ran for several years in a small amplifier without trouble. Naturally, transformers originally impregnated with bitumen or wax are highly flammable; and should always be fire protected with heat-sensitive (thermal) fuses set into or close by the windings. In addition, double pole switches, anti-surge fuses and earthed metal-work are really the ideal, especially when using some of these old transformers. Remember, sixty-year old mains transformers are unlikely to have really

• **Footnote** *Since writing this, I have read of an interesting method of drying out transformers *in situ* in apparatus, due to John J. Nagle K4KJ. Since it is the voltage stress across poor insulation which is so damaging, he recommends feeding the *primary* of the damp transformer with two to five volts AC, and loading all output windings with temporary short-circuits. The voltage stresses are thus minimal, but the currents in the windings can be adjusted to normal, or slightly above, by controlling the primary voltage. The resistance losses will soon bring the windings to a comfortable warmth, and drying out will proceed. I have not tried out this method myself.*

## Historical Research



Operator in screened room



The room for phonographic reception in the laboratory of the Society of Radio-Electrique were registered the voice of Madame Melba in the course of the experience of telephony without wires for the Daily Mail on 15th June 1920.

# Dame Nellie Melba: the final answer

by Tim Wander

Some months ago I asked whether any member of the Society could shed light on the possibility that Dame Nellie Melba's famous broadcast from the Marconi New Street Works in Chelmsford on 15th June 1920 was recorded – somewhere in France.

An excellent piece of detective work has led Alan Douglas from across the big pond to provide the answer complete with photographs.

Was Dame Nellie Melba's broadcast recorded? Yes! Alan writes:

"The reception and recording of Melba's broadcast was reported in the journal *Radioélectricité* for July 1920. It was done, not at the Eiffel Tower, but at the factory of SFR, Société Française Radio-Electrique, in Levallois-Perret, a northern industrial suburb of Paris. SFR had been founded in 1920 by Emile Girardeau and was probably the foremost radio company in France, manufacturing everything from small components to 200kW alternators.

SFR's engineers set up three receivers: one using their normal antenna, one using a small "loop" (frame aerial) and a third using neither antenna nor loop. It was this third apparatus that fed a phonograph recorder. The recorders were normally used to receive high speed (or gramophone) commercial radiotelegraphy, for later transcription by typists at a lower rate.

The apparatus shown in *Figure 3* was all made by SFR. The left-hand unit was probably an RF (HF) amplifier and detector; the centre one was a heterodyne generator of 200 to 2500 meters; while the right-hand box was a three-stage audio (LF) amplifier."

The following is a translation from the article in the journal *Radio-Electrique* – many thanks for the translation from John Barber, (a little modified by myself.)

*continued on next page (20)*

## Historical Research



*continued from previous page (19)*

### "A 'World-wide Concert by Telephone without Wires':

"All the press have recorded the success obtained by the 'world-wide' concert organised on the 15th June by the Daily Mail, where the voice of Madame Nellie Melba, the famous opera singer, was being transmitted into space by means of the telephone-without-wire and was heard by many listeners in Paris, Berlin, The Hague, etc.

"With some of our colleagues of the Daily Mail, Le Matin and L'Oeuvre, etc., we gathered at seven o'clock on that evening at Levallois, in the Laboratory of the Société Française Radio-Electrique, who had offered its help in demonstrating this interesting experiment.

"Three reception devices had been installed at Levallois: one of them relied on an antenna, a second on a reception frame (aerial) of small dimensions, the third comprising neither antenna nor frame, that stood complete on the corner of a small table.

"Madame Melba was singing in Chelmsford, near to London, in front of the microphone of a wireless set. Firstly there was a solemn voice which announced slowly the programme, then came the first chords from a piano and finally rose the clear and pure voice of the opera singer, which began with an impressive trill.

"The results have been judged excellent by the listeners and we would do no better than to cite an extract of the account of one of them, M.G. Ward Price, correspondent of the Daily Mail, who translated in these terms the opinion of the people present:



*Phonographic recording of telegrams at 100 words per minute.*



*The box for phonographic reception.*

*"We have heard the voice of Madame Melba, yesterday evening in Paris, not in the ordinary telephone earpieces, but rising high and clear across a large open air yard.*

*"The Société Française Radio-Electrique had fixed an aluminium bell (trumpet) on a resonant amplifier; from this trumpet the voice of Madame Melba left so clearly as if she had been rendered by a gramophone. I heard what was said almost as well as if I had been listening to the voice on the telephone from London.*

*"When to the chords of 'God Save the King' the concert ended, we were surprised to hear a second time all the pieces that had been sung by Madame Melba. Whilst we were listening to them they had been recorded by a special gramophone which was normally used for automatic reception of wireless and telegraphy signals. The devices of the Société Française Radio-Electrique were sensitive enough so they had been able to function without any frame antenna.*

*"This world wide concert which seemed to us a marvellous experience, will become without doubt tomorrow an everyday application. The human voice, propagated across space will be received by thousands, kilometres away by means of sets which will be contained in small furniture without external mouth pieces. Everyone will be able then to invite his friends to come and listen in his lounge to the first renditions from Covent Garden, the Monnaie or from the Scala de Milan."*

Remembering that this was written in June 1920, I feel that the last paragraph is very prophetic.

Editor's note: There is an ambiguity about the use of the terms 'Phonograph' and 'Gramophone'. In Britain, 'Phonograph' has come to be used to describe machines playing cylindrical records, as distinct from machines playing disc records which are termed 'Gramophones'. In the United States, both sorts of machines are commonly described as 'Phonographs' with the appropriate prefix 'Cylinder' or 'Disc'. This also applies on the Continent. (Inspection of the French photographs in this article shows that the machines used in the Melba recording were in fact disc machines although described in the original captions as 'Phonographs'.)

## Vintage Vision: Book Reviews

### Book Review:

*'Sermons, Soap and Television', memoirs of John Logie Baird, published by the Royal Television Society, Tavistock House East, Tavistock Square, London WC1H 9HR, and obtainable from them at £4.75 post paid.*

Despite the plethora of books published about Baird in recent years, the man still remains something of an enigma. Was he simply a mad inventor who should have stuck to selling soap and patent socks instead of trying to fight big-business technology with his schoolboyish apparatuses in the race to make television a reality? Or was he a brilliant innovator, well ahead of his time but handicapped by lack of resources, who was too ingenuously unsuited to deal with the humbuggery of boardroom politics and fell foul of the Old-School-Ties of a blinkered and oddly malevolent establishment?

Getting on for half-a-century after his death, the arguments over Baird's life and work still simmer. Despite all his detractors, he still survives in the public mind as the man who 'invented' television, which only goes to show that while truth may be stranger than fiction, myth is often more believable and certainly more powerful than fact.

Baird's many biographers could be polarised as those who would claim to deal with cold facts and those whom the former regard as romanticists. Truth perhaps lies somewhere between the two, for while the romanticists might be accused of extrapolating rather too much from the facts, the factualists might often be guilty of the kind of partisan selectivity and creative juxtapositioning of data which comes from ignorance of their own cultural bias.

In the case of Baird, we are now lucky to have a third avenue of research: a contribution straight from the horse's mouth, for his own unfinished autobiographical notes, written while recovering from a heart attack in a nursing home, five years before his death, have now been published for the first time. They make fascinating reading and help to adjust the pictures we have of him: firstly as crudely defined as his early 30-line images,

then as cruelly critical as the modern camera can make it, but now perhaps analogous to the three-dimensional image he actually demonstrated in 1928 (one of the 'firsts' he established which even now has not come to fruition.)

Baird's own version of his life and work adds an important dimension of humanity. We've had the mad inventor and the inept businessman images, and now we can see that whatever his shortcomings, Baird was a sensitive and intelligent man of great wit with a well-developed social conscience and a sense of fair play, who stuck to his doomed mechanical television system mainly because mechanical engineering rather than electronics was his educational upbringing and because he lacked specialised resources. He was understandably bitter at the way he was treated but when he saw that he was beaten he was not sour, but rapidly caught up with developments and went on to develop new ideas. If he didn't actually invent television, he certainly did more than anyone else in those early days to establish it as a practical possibility in the public mind,

at a time when the notion of 'seeing by wireless' seemed as far-fetched an idea as those of Baird's contemporary H. G. Wells, whose science-fiction books had fascinated him from boyhood.

What really is an *invention* anyway? It is always a question of definition, and quite often merely defines a point at which a series of ideas come together: a summing up of a process rather than an isolated event.

In this sense, nobody can claim to have invented television, and Baird has as strong a claim as anybody to have been the first person to transmit a true image (as opposed to a 'shadow') by wireless. As he says in the biography, even Marconi saw his first television picture in Baird's laboratory.

All this and more can be found in the newly-published biographical notes, written in a style which reflects the keen observation and gentle humanity and sometimes the caustic wit of a man who has been much misunderstood.

Incidentally, it is nice to note that the BBC, much maligned by Baird for the way they treated him, have made amends for it somewhat, by putting up the money for the publication of this book. **Robert Hawes**

*Footnote: The biographical notes were never completed or revised by Baird, so that there is occasionally confusion over such things as accurate dates. He says, for instance, that the BBC actually transmitted his television pictures in 1926 and that when 'someone up above' stopped the experiment he then obtained a licence to set up his first station and make his own broadcasts. This sequence of events is, of course, incorrect (it happened the other way round) and has since been re-quoted ad nauseum. A revised version of the biography with footnotes would be useful, although there are a few in the present edition, together with some fascinating well-captioned illustrations.*

### Books:

Two new books which may be of interest to members have just been published by the Royal Television Society, which it is hoped to review in the next issue. They are: *'The Story of Scophony'* and *'The Evolution of the Domestic Television Receiver'*.

*'The Story of Scophony'* is by Thomas Singleton and is available from the Royal Television Society, Tavistock House East, Tavistock Square, London WC1 9HR at £5.75 post paid. The book traces the development of the Scophony system of television and tells the story of the men who made it possible, led by Solomon Sagall, an extraordinary entrepreneur and the team of physicists and research engineers he gathered together, first in Soho and later at Thornwood Lodge in Kensington and finally at Wells, Somerset. It is a story of high technological endeavour and achievement, offering great promise but flawed in the end by intrigue as the high stakes race to launch high-definition television in the 1930's began.

*'The Evolution of the Domestic Television Receiver'* by Peter L. Mothersale, describes how the domestic set has evolved from one employing, typically a nine-inch picture-tube and some dozen or so valves and operating at a fixed signal frequency at 45MHz, to a 26-inch colour receiver with remote control, teletext and tape-recorder inputs, operating on both VHF and UHF. The notable steps in the evolution of the domestic receiver are outlined, together with the technological system changes that influenced design. Future design is also discussed.

## Vintage Vision: Museums

# A new Museum of the Moving Image opens in London

by Robert Hawes

I was privileged this month to be invited to the opening by the Prince of Wales of the new Museum of the Moving Image on London's South Bank, the world's largest museum entirely devoted to cinema and television. Built under the arches of Waterloo Bridge at a cost of £10 million by private sponsorship, it is planned as an interactive and ever-changing exhibition of the history and development of the moving image from the shadow-play of 5,000 years ago, via the optical toys of Victorian times, through the magic of cinematic art to the latest technologies of television. It is an immense tribute to the originators of the project, Leslie Hardcastle and David Francis, and it demonstrates most beautifully the modern concept of a museum in which the visitor can enjoy 'taking part' rather than being a passive spectator.

Comprising fifty exhibition areas in a cleverly convoluted space of 3,000 square metres, the museum employs elaborate set pieces, actor-guides, 72 laser vision-players and working models to bring the exhibits to life. It has more of the atmosphere of an end-of-the-pier funfair than of the fusty old mausoleum-style museums of the past, yet is equipped to serve the serious student and researcher as well as the casual visitor seeking an entertaining introduction to the subject.

Those interested in the history of *television* may have some reservations, however, although it is fair to say that these are early days for the museum and that constant development is envisaged.

Since this is very much a 'designer' exhibition, the historical artefacts seem to be rather subservient to the overall presentation ideas, so that the presenter appears to get more of the limelight than the things presented.



*Baird with his early television apparatus, a replica of which is on show at the new museum. (Inset is a Televisor which is also on show).*

(A common feature of contemporary television, cinema and theatre productions, in which the director and the designer often receive more attention than the author and even the actor.)

This will not perhaps suit people who are anxious to study actual original objects rather than working replicas, photographic blowups, artistic reproductions and theatrical tableaux. That is not to say that original objects are absent: there are some very important examples, but as with most other museums, MOMI show only the tip of an enormous iceberg of objects buried in warehouses.

In the case of the *vintage television* display at the new museum, one might say that it seemed a bit like the designer sandwiches at the launching-party: a marvellous confection of tasty titbits for the peckish dilettante rather than a bellyful for the starving student.

But there are special facilities for the serious visitor, and, as I've already said, the intention of the organisers, who are extremely receptive to ideas and assistance, is for an ever-developing show. I hope to offer them a project myself and expect that others in the Society will also have suggestions to offer.

The present 'vintage' display includes an automatic quadruple-screen audio-visual presentation, an interesting reconstruction of Baird's early apparatus, the first commercially-produced televisor, the first 'video-disc', a prototype Emitron tube, a model of a studio and a good selection of novelties and ephemera. There is also a rather pointless corridor of post-war receivers, all of which had been disembowelled of their 405-line chassis and were displaying part-coloured 625-line images, hardly giving young visitors an idea of what their parents got so excited about. (It would not be difficult to simulate 405-line and even 30-line pictures with some of the typical faults of the times in a way that would be reliable enough for continuous presentation).

Visitors interested mainly in the history of television technology may feel that, since MOMI has adopted the title 'museum', there is at present a disproportional amount of modern technology on show, even though it is mostly used as an aid to presentation of history.

*continued at bottom of next page (23)*

## Feedback

### Letter

from Eric Westman

#### The Thunderproof Telegraph of Professor Loomis

An extract from *Chambers's Journal*, October 1878:

'The ordinary telegraph being liable to be affected by thunder-storms, Professor Loomis of Washington proposes an aerial telegraph, by which signals may be transmitted through a system of suspended kites; on the theory that currents of electricity, generally in the same plane, exist continually in the air at certain distances from the earth. These currents could, he thinks, be made to take the place of the usual suspended wires. He is said to have reduced this idea to practice, and to have communicated with an assistant at a distance of twelve miles; his only apparatus being two kites held by fine copper wires, in lieu of the usual string. Each kite was flown to a certain altitude; and when a message was transmitted by means of an ordinary instrument by the Professor, it was carried upwards by the copper wire to his kite, was thence conveyed by the natural current of electricity to the other kite twelve miles off, and thence by the wire of the latter to the operator at the other end. Should practical results on a large scale follow late experiments with kites telephones and phonographs, the present system of conveying telegraphic messages will probably be quite revolutionised.'

Professor Loomis's aerial telegraph would also be affected by thunderstorms, so it would be of no advantage in that respect. Besides, who would want to be at the end of a copper wire holding a kite in the sky during a thunderstorm? Still, it was another tiny step along the road to radio.

### Letter:

from David Thompson

#### A Record?

Browsing through the Mullard valve replacement guide for receivers marketed during 1933-49, I noticed that H. Hacker and Sons made a monstrous radiogram - the 'Ether Express' - containing 17 valves. Was this a record?



### Letter

from Paddy Clarke, RTE Broadcasting Museum, Dublin.

#### What is it?

In a recent television documentary about World War Two, Hermann Goering was shown collecting for presents for the German troops I was interested to see that the collection-boxes being used resembled miniature wireless-sets.

Has anyone any information about these money-boxes?

### Letter

from Desmond Thackeray

#### Information please

Since early multimeters have survived tolerably well, I thought it would be of general interest to write about what was available to the modest purse around 50 years ago. But I haven't come across much in the way of literature, no manufacturer's leaflets for example, and *Electradix* meters seem equally shy, no *Dix Mipanta* or *Onemeter 'B'* have been seen. Does any member have anything relevant here, or know about rarer items I haven't even heard of? I've not even seen a *Pifco* catalogue, if indeed there was such a thing, which might reveal how many different models they sold. In total, no doubt the multimeters proper were vastly outnumbered by watchcase battery testers, of seemingly countless makes and often crudely constructed. I think that these would be better not written about, or members would find themselves ploughing through a list about as fascinating as *Beachcomber's 'Directory of Huntingshire Cabmen'*. But I'd be grateful to hear more about small/cheap multimeters proper, from *Amphon* and *Avo* onwards to *Telsen* and *Wearite*.

### Letter

from Frank Brittain

#### Emor Globe

The writer of the article on the Emor Globe receiver (Vol. 12 No.4) asks how the name came about. It is a backward spelling of the name of the owner of the company Mr Rome. It is understandable that there is a lack of information on the sets as sales were very small and the company existed for only two or three years at the most. The set was exhibited for two successive years at the National Radio Exhibition.

## A new Museum

continued from previous page (22)

Without doubt, the new museum is a considerable achievement which demanded no public funding and which breathes a little fresh air into the Victorian mustiness of our traditional public institutions. But in welcoming it and applauding its patrons and contributors as well as the people who brought it into being it would be wise to keep a wary eye open to ensure that the old Piper Principle does not ever creep in here, and allow the sponsors to take over the show.

It is a marvellously imaginative project which has already become an essential place to visit for both children and adults seeking an entertaining introduction to the history of the moving image, a useful addition to London's tourist attractions, and a most important resource for students and researchers.

Despite our reservations about the vintage television display, the museum is highly recommended to members of the Society, who are urged to put it high up on their list of vital places to visit when in town.

*A tour of the museum takes about an-hour-and-a-half, but most visitors will find it so interesting that they will hardly be able to take everything in during a single visit and will be likely to want to return regularly. They can expect to find regular changes. Open daily, admission costs £3.25 with concessions for children, students, senior citizens and other groups and there is wheelchair access throughout. Further details can be obtained by telephoning 01-928 3535.*

# Feedback: Electrical Safety

Letters:

## Electrical Safety

*Editor's note: The following is a selection of letters in reply to that by Chas. E. Miller, published in the last Bulletin. He challenged warnings from other correspondents about the safety of AC/DC 'live chassis' sets, resistive line-cords and mains transformers. All letters received were in opposition to his views. Much space has now been given to the topic and the subject must now be considered closed, except perhaps for any practical safety suggestions that might be thought important.*

### Electrical Safety (1)

from David Dolby Jones, HM Senior Electrical Inspector (of Health and Safety), HSE:

You invited comments on electrical safety following Mr Miller's letter on mains equipment servicing.

Readers may choose for themselves how they conduct their leisure activities in the home but some may choose to reflect on what is required in the work environment where the Health and Safety at Work Act 1974 is the criminal law. In that environment there would be little sympathy for the recommendation not to use isolating transformers. The standard advice which has been long established, and which the responsible professionals in the trade adopt, is to use a number of measures including isolating transformers and a non-conducting or 'earth free' environment.

There are at least two publications on electrical testing available. One is by the Radio, Electrical and Television Retailers Association (RETRA) Ltd and the other is by the Health and Safety Executive - publication no I15(G)13.

The enclosed illustrated article appeared 22 years ago in a booklet called 'Accidents'. This booklet was published quarterly by HM Factory Inspectorate Department of the Ministry of Labour (to whom acknowledgement is made). The particular accident shows that even with isolating transformers the skilled worker needs to be smart enough not to connect more than one equipment to each transformer output.

Reversed leads cause electric shock

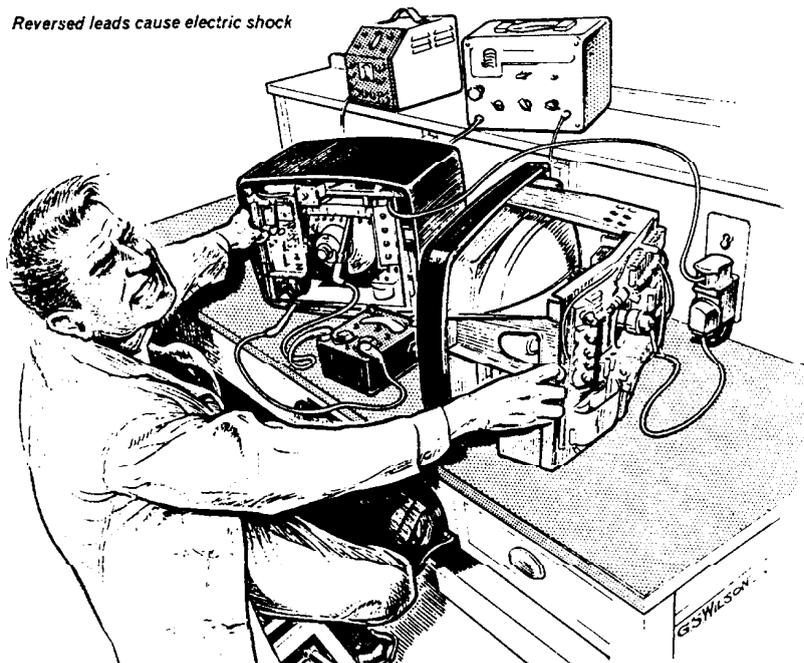
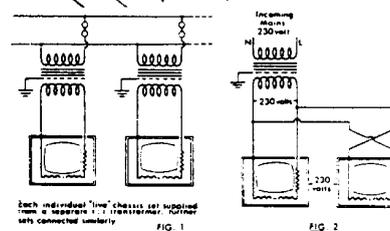


Illustration courtesy HMSCO

Finally, let no-one doubt the hazard from domestic 230 volt/240 volt mains. The majority of fatal electric shock accidents reported to HSE are at this voltage and even in 1988 we find that deaths are still occurring, many of them to electrically trained chaps who really did know better.

from 'Accidents':

'In the testing of universal AC/DC radio, tape recorder and television set chassis, there is an additional hazard to those normally encountered in other types of electrical testing processes which is well known to electronic repairs staff. It arises from the fact that in sets of this type one of the two conductors in the mains lead cable is directly connected to the metal work of the chassis, and so, if this conductor is inadvertently connected to the live side of the mains, instead of to the neutral, the whole chassis becomes live at 240 volts to earth. Thus, if the set is plugged into the mains the wrong way round, it becomes a hazard with respect to any conducting floor, nearby earthed metal work, or other radio or television chassis correctly connected to the neutral. For this reason radio and television workshops are constructed as 'earth-free' areas. The floors are made of wood, or covered with rubber mats or plastic floor cloth, test benches are of wood, and the usual metal-cased switches, plugs etc are replaced by a type constructed of insulating material, while cable connections can be of tough rubber or PVC sheathed cable protected, where necessary, by plastic conduit. In addition the 240-volt AC supply to chassis under test is made through double wound 1:1 isolating transformers. In the majority of such workshops these precautions are considered to fulfil the requirements that a test process shall be "so worked and such apparatus so constructed and protected and such special precautions taken as may be necessary to prevent danger" and to invoke the application of the



fourth exemption of the Electricity Regulations\* which then permits of the necessary exposure of live conductors and terminals for test purposes. A typical arrangement of the methods usually used is shown in Figure 1 below. This represents what is generally accepted to be the most suitable system for minimising the risk. The scheme must be strictly adhered to, however, as the following accident illustrates.

The foreman of a large radio and television repair workshop was engaged in tracing a fault on a television chassis. A junior member of the staff reported to him that he was having difficulty in tracing the source of an intermittent fault on another chassis. The foreman told him to bring the set in so that he could keep it under observation while he continued his own work. He connected the second chassis to the isolated supply outlet terminals to which the first set was already connected. Unfortunately he reversed the leads when connecting the second set as shown in Figure 2, thus there was full mains voltage between the two chassis, and so, when the transient fault recurred on the second set, the foreman received a 240-volt shock from hand to hand when he reached over to adjust the second set with his left hand while his right remained on the first. (See illustration) He was paralysed on contact but was able to shout for help. Before other workers could reach him his violent struggles had caused him to fall off the chair on which he was sitting. As he fell he pulled a television set over with him. It landed on his face and caused severe bruises.

## Feedback: Electrical Safety

*continued from previous page (24)*

### Electrical Safety (2)

*from Don Turner*

I am sorry that Chas Miller has misunderstood the points that I was trying to make in my note on electrical safety. It is indeed self-evident as he says, that live chassis (or whatever term you prefer) apparatus can be intrinsically safe when correctly designed. Modern TV receivers are a good example. There is however a deal of difference between the constructional techniques of the 60's 70's and 80's and those to which I was referring i.e. pre, post war up to (say) 1950 these being the ones most likely to be of interest to members.

As I said, British and European designs for 200-240 Volt supplies can be repaired and maintained to a safe level even though this is below modern standards. In the case of American and other receivers designed for 110 Volt supplies I consider that it is just not possible to make these safe for use by the public at large.

Chas Miller's contention that danger can be avoided by correct connection is just not tenable. What is the inexperienced user to make of the great variety of colour coding in the line-cord (mains flex)? Many American receivers make no distinction between conductors and other countries use colours totally at variance with British practice. It is true that experienced engineers under workshop conditions can work without an isolating transformer or RCD but there are unexpected risks even then. Try touching the chassis immediately after switching off where the receiver switch is single pole and in the neutral line as in many American midgets!

The Editor's note regarding those brought up on modern apparatus working at (say) 50 Volts is particularly apt.

I am sorry, but I am not prepared to compromise: I advocate the use of an isolating transformer or as very much a second best, a 30mA RCD.

Similarly I do not modify my comments on AC only sets. Many of these elderly transformers have little better than cardboard as insulation material and the enamelled wire, where used, was of very variable quality even when new, as I well remember from my apprenticeship days.

Chas Miller's dissertation on resistive line cords is factually correct but there are safety problems. The asbestos core should not present a hazard as he says, but *only if left alone*. Attempts to modify, repair or re-terminate a cord could displace fibres and constitute a risk. I have been mulling over an idea to soak the section to be worked on with WD 40 whilst work is in progress but others may like to give their views on this.

Two final points: there have been several cases brought before the courts where liability for unsafe construction or repair has been established several years after the event and just remember that children do investigate and operate elderly radios. That alone should be salutary.

### Electrical Safety (3)

*from R. Whitcombe*

**Having read the recent correspondence on safety, in the Bulletin, I feel that I have to add my comments.**

I have been a design engineer in the domestic electronics sector for many years, although now I am on the industrial side. Previously I was very much concerned in the safety and reliability of radio and television products.

Nowadays, electrical equipment, and installations, have to be constructed to a very high safety standard, and in fact have to comply with the requirements of the various 'Test Houses', e.g. in the UK - B.E.A.B., before they can be offered for sale. All 'live chassis' equipment has to be double insulated, and the user must be physically prevented from easy access to internal parts, moreover any equipment operating on a two wire mains system (i.e. no earth connection) has to be treated as live chassis. Other requirements are that a wooden cabinet is *not* considered an insulator - and thus internal chassis parts have to be insulated from the wood, also all live wires - etc - have to be shrouded and mechanically secured so that there is no possibility of contact with the 'outside world' in the event of a joint breaking, again all components have to be fire retardant - properly fused etc etc *ad infinitum!* Still there are accidents.

Well, obviously, any vintage set was not made to these standards - so is it dangerous? I, myself, believe in a high safety standard - but also that we are getting paranoid about it. This is a hazard in itself because it is easy to take the attitude that such-and-such a product is so safe that one need not worry any more. Safety must include such things as common sense and education. Don't cross the road just because the little green man says so - look first. Don't operate your hairdryer in the bath just because it is B.E.A.B. approved!

A 1930's (or even a 1960's) radio is not as safe as a modern one - neither is an Austin 7 as safe as a new car - but both are perfectly safe if used within their limits, and properly serviced.

Anyone engaged in restoring old equipment should ensure that all insulation - especially mains - is in first class condition and *clean*, or is replaced. Metal chassis of AC sets must be earthed via a 3-pin mains plug - and if possible a low value fuse included in the live connection. (Perhaps in the plug itself if you can get a 1-amp fuse to fit). Also check for fire hazard - heater sleeving and deposits of 50 years of wax and dust may be 'tinder'. Please note that cleaning can also work wonders for the 'Q' of RF circuits!

The user(s) must also be 'educated'. If your own family that may be easy - but if you are restoring a bit of 'Art Deco Plastic' for a lay collection it is very important for all our reputation. We don't want any accidents associated with the BVWS.

In the hands of the non technical such things as line-cords and AC/DC chassis may pose a hazard, as may a less than perfect mains transformer. If you are involved in such an installation insist on correctness - be a 'Murphy Dealer'. It may be advisable to fit an external isolating transformer - or earth-leakage contact breaker plug (RCCB) and above all educate the user - i.e. good ventilation - position away from the reach of small children and pets, and switch off when not in use - very important this last one!

I could go on ad infinitum - but I am sure others will also want to add their comments! I hope this subject will be taken seriously - we don't want vintage equipment to get a bad name or be outlawed on safety grounds.



Membership of the British Vintage Wireless Society is open to people who are interested in researching the history and technology of early wireless and television and preserving apparatus. The Society's Bulletin is issued free to all members, who are entitled to ask for "small-ads" to be inserted free of charge. Larger "display" advertisement spaces may be granted when space permits on application to the Editor, at 63, Manor Road, Tottenham, London, N17 0JH. Tel: (01) 808 2838. Rates will be sent on request.

# 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.

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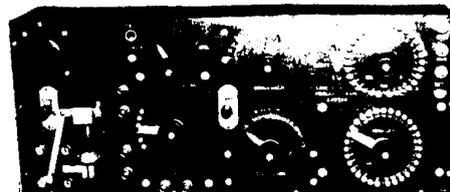
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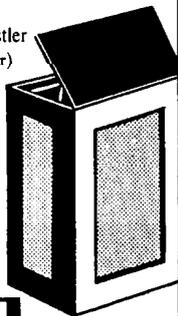
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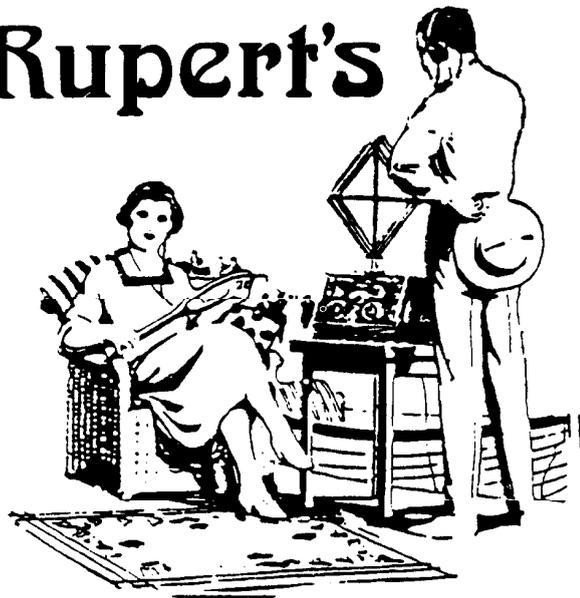
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