

BULLETIN OF THE BRITISH

# VINTAGE WIRELESS

SOCIETY



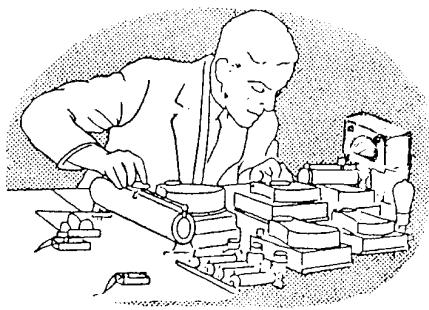
BULLETIN OF THE BRITISH  
VINTAGE WIRELESS SOCIETY  
VOLUME 14. No 4

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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, Garrets 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:** David Read, Ian Higginbottom, Norman Jackson, John Gillies, Rupert Loftus-Brighton.



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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.

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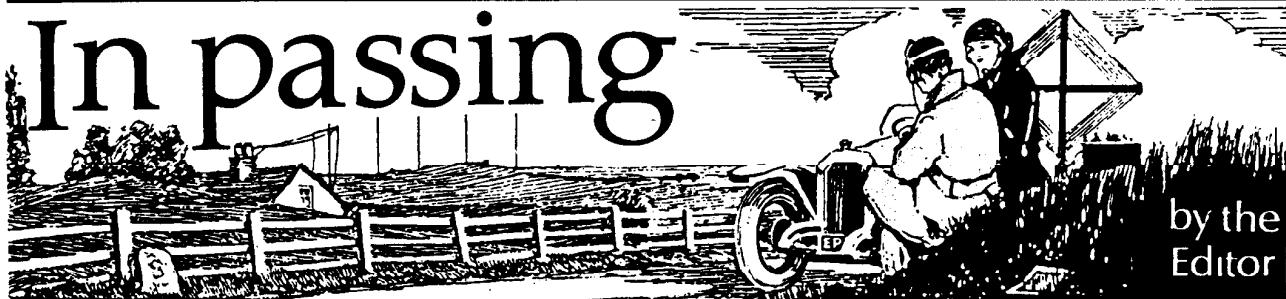
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# In passing



by the  
Editor

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

## Society meetings

Some of the dates for official main and regional Society meetings for 1990 have already been fixed. These include a new venue to cater for members in the South and South West of England, which is being organised for us by Geoff Williams of Cirencester. The new meeting, at Cricklade Town Hall near Swindon, will be on Sunday 25th February. Details are being sent out with this Bulletin and as we expect this to be very popular, members are asked to make early application for tickets, especially where stall space is required. As with all Society meetings, admission will be strictly for members only and entry will be by ticket obtained in advance. In line with our non-profit-making policy, stall and entry prices for the new meeting and the established ones have not been increased, despite rising costs. Two Seminars have been arranged for early in the New Year. The first is at Gerry Wells' Vintage Wireless Museum, Dulwich, London, on Sunday 18th February. The second is on Saturday 7th April at Telford, on the day before Charles Miller's "Radiophile" swapmeet at Shifnal, to which Charles and his co-organiser Ray Holmes have kindly invited Society members attending the Seminar. Those who can make their trip a long weekend are recommended to visit the nearby Ironbridge industrial archaeology museum and details of accommodation can be supplied on request.

On Sunday 20th May, our Southborough swapmeet, arranged as usual by John Howes of Tunbridge Wells, will be held.

June 17th is the date provisionally booked for our major meeting at Harpenden and this will be confirmed in the next Bulletin.

## Warning

Members are reminded that the 1990 subscriptions are due on 1st January for all members, irrespective of the date of original joining. Unless you pay up, this will be the last Bulletin you will receive: and remember that you must have current membership to attend the Society's meetings! You will

be pleased to hear that despite inflation and rising costs, we are again holding subscriptions at the old rate. Please help our voluntary officers save time and money by paying up promptly.

## More regional meetings?

The Society is anxious to arrange meetings in the North of England to cater for members who may not find it convenient to travel South, and we should like to hear from any members who would like to help. Our policy is to encourage seminars and other activities as well as swapmeets and the Society gives full financial support, organisational backing and insurance cover.

## Supplement

Members may like to know that extra copies of the Supplement, issued with the current Bulletin, are available from the Editor at a special price of £3 including postage.

### Contents: Bulletin of the British Vintage Wireless Society Volume 14 no. 4

#### Information: inside front cover

**In Passing:**  
by the Editor ..... 40-43

**Detecting the Difference:**  
by Desmond Thackeray ..... 44-46

**Tuning-in Vintage Sounds:**  
by Don Turner ..... 47

**Headlines of 1923:**  
contributed by Ray Herbert ..... 48

**Reviews, Looking Back:**  
by the Editor ..... 49

**Marcus Scroggie, obituary:**  
by John Narborough ..... 50

**Feedback:**  
Letters from readers ..... 51-52

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## Baird Exhibition

A special Baird Exhibition is to be staged in Glasgow next February and the organisers, Collins Gallery, 22 Richmond Street G1 1XQ, are seeking material including early television hardware, photographs, film and written material. After the static presentation, exhibition panels are expected to go "on tour" to schools, colleges and libraries.

## Duxford Society

We have received a Newsletter from John Brown about the Duxford Airfield Radio Society, which is associated with the Imperial War Museum and organises displays of communications equipment at the famous old RAF station not far from Cambridge which covers almost 70 years of aviation history in its exhibits. Information about the Radio Society can be obtained from John by sending an SAE to 74 Humber Avenue, South Ockenden, Essex, RM15 5JN, but specific response to individual letters may not be possible. Information about the airfield displays can be obtained by writing to Imperial War Museum, Duxford Airfield, Cambridge CB2 4QR.

## Marconi Works

We are grateful to Roy Rodwell of GEC-Marconi for pointing out a small error in the report of the International meeting in the last Bulletin. The Research Centre at Great Baddow which now houses the private museum was opened in 1937 and is not the site of Marconi's original 1899 works, not far away in Hall Street, Chelmsford.

## Museum project

The museum service of the town of Chelmsford where Marconi set up the world's first wireless factory and Crompton pioneered electric lighting development, is currently investigating the possibility of dedicating a new museum to its rich industrial history. The famous Writtle Hut, used in 1922 as Britain's first regular broadcasting station, may be reconstructed with original and reproduction equipment as an important part of the new museum.

● continued on next page



### Grandpa's set

BVWS member Dave Adams, who looks after the library at the Vintage Wireless Museum, London, has sent a picture of his grandfather, Albert Smith, with his crystal set in the early twenties. Dave remembers him as a kindly old man who always smelt of cigars (he passed one of his empty cigar cases to Dave who built a crystal set in it on which he tuned-in a celebrated Wimbledon commentary on a Fred Perry match). The wood-boxed set in the picture has not been identified and appears to have no aerial connection: it must have been in an area with a powerful signal! If any other members have early photographs like this, we would appreciate the loan of them for publication.

### The Bulletin

Contributions to the Bulletin are always welcome and we are anxious to cover a broad range of "vintage" wireless topics with the accent on original material. We should be glad to help with any rewriting authors may consider necessary.



### Sounds sweet

This photograph of a toffee-tin "radio", probably of the late 'fifties, has been sent by BVWS member Robert Brain, of Bideford, Devon. It is screen-printed and has knobs that turn but the "works" were eaten long ago. The earliest known item of this kind, sought after by wireless collectors, is a biscuit tin in the form of a sloping-panel crystal set with tin earphones that dates from about 1923. We know that there is a "wireless cruet", a tea-set decorated with pictures of 'twenties sets and horn loudspeakers, and several "wireless games". If readers know of any other early wireless novelties we should like to hear about them.

### Great Wireless

### Bores of today

number 2:

### The Artful Bodger\*

The inexperienced collector needs to keep a sharp lookout for the Artful Bodger, who is often able to fool even the experts. He it is who expertly sprays over the glassfibre patches in round Ekkos, cunningly applies transfers over telltale holes in modified crystal-sets, and even installs transistor bits beneath more vintage chassis. He's often expert and ingenious, and to be fair, some of his bodes may qualify as simply dodges. But he will bore you with his sales-talk of how "mint" his products are or his excuses ("Haven't touched it: that's how it came to me"). If only he were a little more honest he might be acceptable; which is more than one can say of his counterpart, the Artless Bodger, who spoils everything he touches but bores you with the fantasies of "restorations" wrought by his maladroit tinkering.

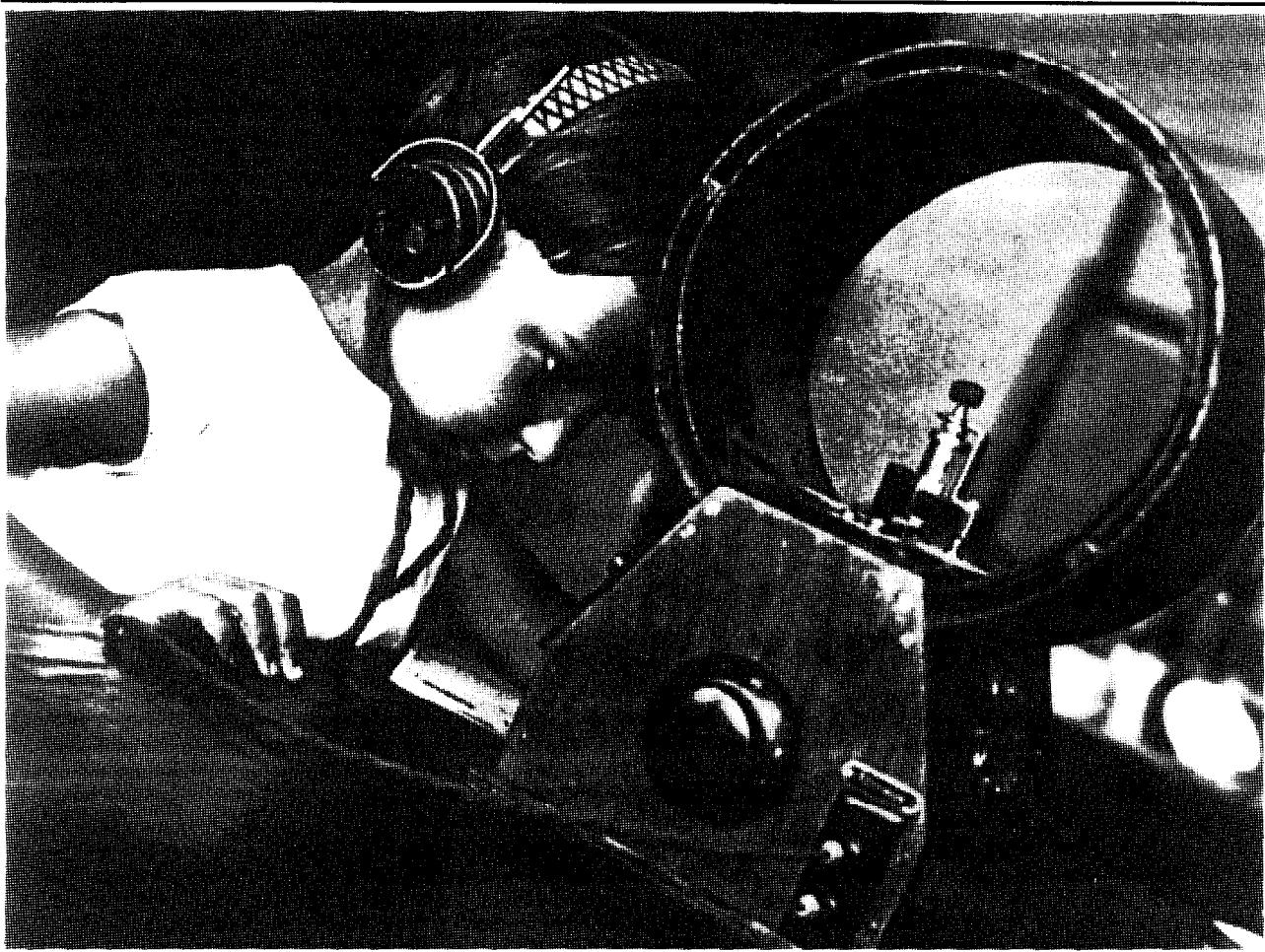
\*For Etymologists: "Bodge" and "Botch" are synonymous. A "Bodger" describing an ancient woodcutter who produced crude turnery on a primitive lathe, v.t. "Botch" mend clumsily.

Editor's Note: Characters depicted in this column are entirely fictitious and any resemblance to real persons is entirely coincidental.

### Saleroom report

Pre-Christmas prices at auction are often high, but a surprise at Christie's London December sale was that of an original but slightly tatty black Eko A22, which with premium and VAT went for £715. A black-and-chrome one with broken-off feet fetched only £38. Among earlier wireless items was a Reliance crystal set with the wrong detector and in only fair condition, which went for £44 and a BTH Bijou that was better although "got at" and raised £95. A Fada Neutrodyne five-valver with modified works reached £80, a poor V2 with replaced front panel was £223 and a mahogany-horned Revo speaker with a chip out of the cast base raised £180.

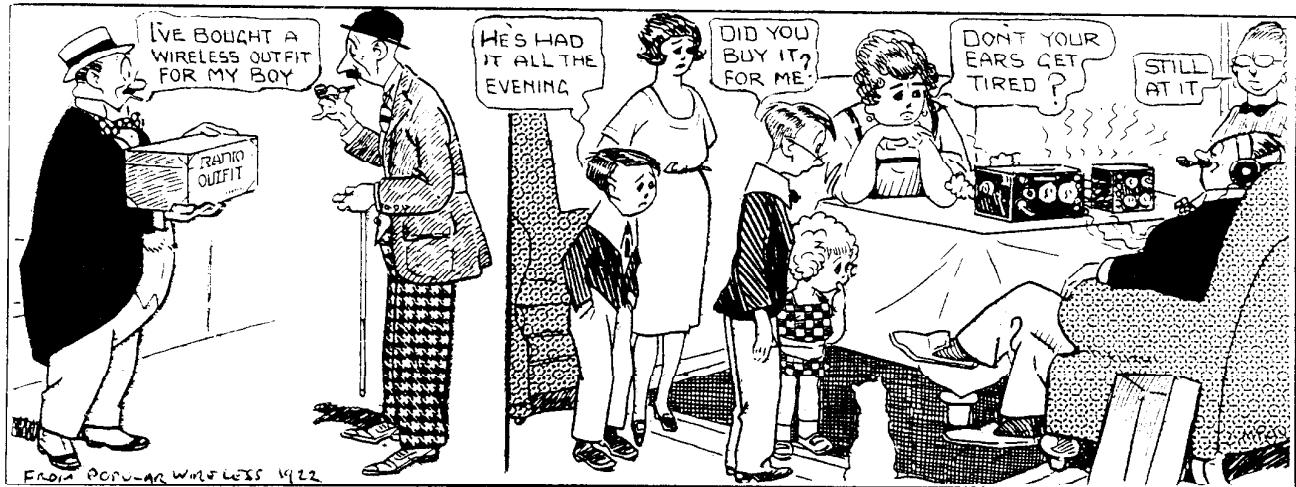
Robert Hawes

news, comment, continued **In Passing**

Courtesy: J. Paul Getty Museum and the Royal Academy of Arts

## State of the art: 1929

This striking photograph of a little boy tuning-in an unusual crystal set, taken by the celebrated Russian photographer Alexandre Rodchenko in 1929 (although the technology of the set seems earlier) appears in the "Art of Photography" exhibition at the Royal Academy of Arts, London — the first there to present photography as an art form in its own right, and marking the 150th anniversary of its invention. This Rodchenko picture is typical of his desire to depict man's need and ability to change his environment. Crystal-set enthusiasts will find the set illustrated of some interest. It is thought to be a commercially-made one and appears to have a huge "Butterworth-type"(?) tapped coil. And are those Dr. Nesper earphones the boy is wearing? Can any reader identify the set and its actual date? R.H.



## In Passing news, comment, continued

### Chairman's Notes

*Southern meeting:* A good number of us attended the BVWS Southern meeting organised by John Howes near Tunbridge Wells on November 12th. It was the usual pleasant gathering that we have come to expect with plenty of interesting items on the stalls. Our thanks to John for arranging this and for the contribution of 10% of the auction proceeds to Society funds.

*Harpden:* November 19th saw another big assembly at Harpenden with record attendance and demand for stalls. Society membership stands at 757, an increase of 93 on last year, and well over half of us were present. The first hour was very crowded, but people managed to get round nevertheless. Later the press eased somewhat and I think we all had an enjoyable day. The Committee are considering very carefully whether we need to think of revised arrangements to reduce congestion in the future.

As ever, our thanks go to Bob Hawes and his helpers who worked so hard to ensure everything went smoothly: to David Read and Ian Higginbottom for the very lively display on the 'Bakelite' theme; to Roger Snelling and Terry Kansom, with Ron Deeprose and Jim Butterworth, for conducting the very sizeable auction and thereby securing a further welcome contribution to BVWS funds. Thanks also to the hall staff and the caterers for keeping us comfortable and well-fed.

*Annual General Meeting:* The Harpenden meeting included the Society A.G.M. No nominations for new Committee members were received and the existing Committee were re-elected for a further year. Committee members do a lot of work to maintain and develop BVWS activities and this is done with great pleasure: but it was very gratifying this time to hear an expression of thanks from the floor for our efforts.

The Treasurer reported that Society finances were in a healthy state, as noted in his separate statement in this Bulletin. (If you would like a copy of the accounts, please send an SAE to the Editor.)

A point raised at the A.G.M. concerned publication of BVWS membership lists. We do not do this at present because some members are hesitant on security grounds to have their names and addresses published; but the Committee will perhaps consider

issuing a slip in a future Bulletin asking members to signify if they are willing to have these details published. Following this we might issue a list of those who do agree, omitting anyone who does not positively say they are willing.

*Seminars:* We plan two Seminars for the first half of 1990. The first will be at Gerry Well's Museum in Dulwich on Sunday, February 18th.

The second is to be held in the Midlands, in conjunction with Charles Miller and Ray Holmes' Radiophile meeting at Shifnal. Many of us will plan to attend this meeting on Sunday, April 8th and we intend to arrange a Seminar the day before on Saturday, April 7th at Telford in the same area. Charles Miller and I look forward to this as a welcome liaison between the Radiophile and the BVWS and it will be good to have a Society event more easily accessible to members living north of Watford! Ray Holmes, who organises the Radiophile meetings, is kindly helping with our Seminar arrangements also.

I hope members will come forward with offers of talks for these Seminars, quite soon please for the January date in particular which is not all that far off. Anything quite informal between 10 and 40 minutes will be welcome, on any vintage wireless subject that interests you: and of course we look forward to applications to attend just to listen and join in the discussions. An application form is enclosed with this Bulletin.

*Wiltshire Meeting:* Geoff Williams, of Cirencester, has kindly offered to organise a Society swap meeting in Wiltshire next Spring: another event for us to look forward to.

*On behalf of the committee of the Society, I should like to wish members a Happy New Year. Pat Leggatt.*

### From the Counting House

Inexorable growth in BVWS membership makes the Society increasingly viable financially. This improves the value in real terms that members get for their subscriptions, though I'm not expecting BVWS to be able to fund a facsimile catalogue every year. The Committee always has in mind that members unable to get to Society meetings deserve as useful a mailing as can be provided. So, not only an occasional facsimile distribution (some years since the last,

of course) but also free members' small ads, and commercial advertisements in the Bulletin charged approximately at cost. The Society is grateful to Brown Brothers for a donation towards the cost of the facsimile catalogue, and to one of its members for overseeing the printing. Auction levies and other donations also helped to make the bill an affordable one. In the event there were no financial hiccups, and the popularity of the catalogue means that there are now only a few left for sale.

There being no plans for unusual expenditure during 1990 makes it possible to hold subscriptions at the same level as in 1989, a gesture that members may appreciate in what, for the country, may well be a "tighten your belts" year. I think it may be that inflation will somewhat reduce Society assets, which will have to be topped up in subsequent years. While the financial statement for 1988-1989 can be obtained by any interested member sending me an SAE, there is little point in covering valuable Bulletin space with such arid material. It does however reflect an unusual aspect of that financial year, the moving forward of the subscription renewal date to agree with the calendar year rather than the financial year. Despite a certain expected apprehension, this was not much more traumatic than putting the clocks on an hour; though the production of a Bulletin Special Supplement in lieu of Bulletin 13:4 has slipped back somewhat due to shortage of man hours. While I may be able to dispose of a financial matter quickly, the Society often finds itself depending on the time available from its unpaid labour force, the Committee. So, please bear with us when there are hiccups in the system, and don't shoot the driver!

— Desmond Thackeray, Treasurer

### Scrapbook

This satirical definition from the 1949 Journal of the Engineering Society of University College, London, has been sent in by Dave Adams:

"A radio engineer is a person who passes as an exacting expert on the basis of being able to procreate with prolific fortitude infinite series of incomprehensible formulæ calculated with micromatic precision from vague assumptions based on debatable figures taken from inconclusive experiments carried out with instruments of problematical accuracy by a person of dubious reliability and questionable mentality."

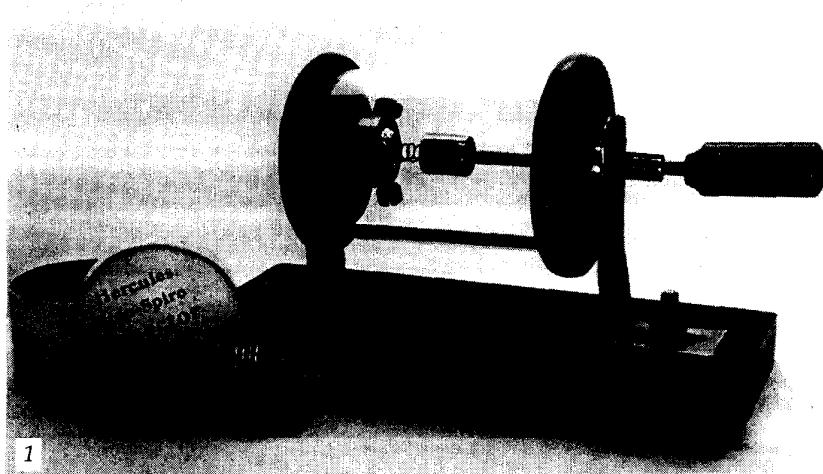
# Detecting: the difference

**Desmond Thackeray** tests some crystal detectors for sensitivity and reflects on the diversity of catwhiskers.

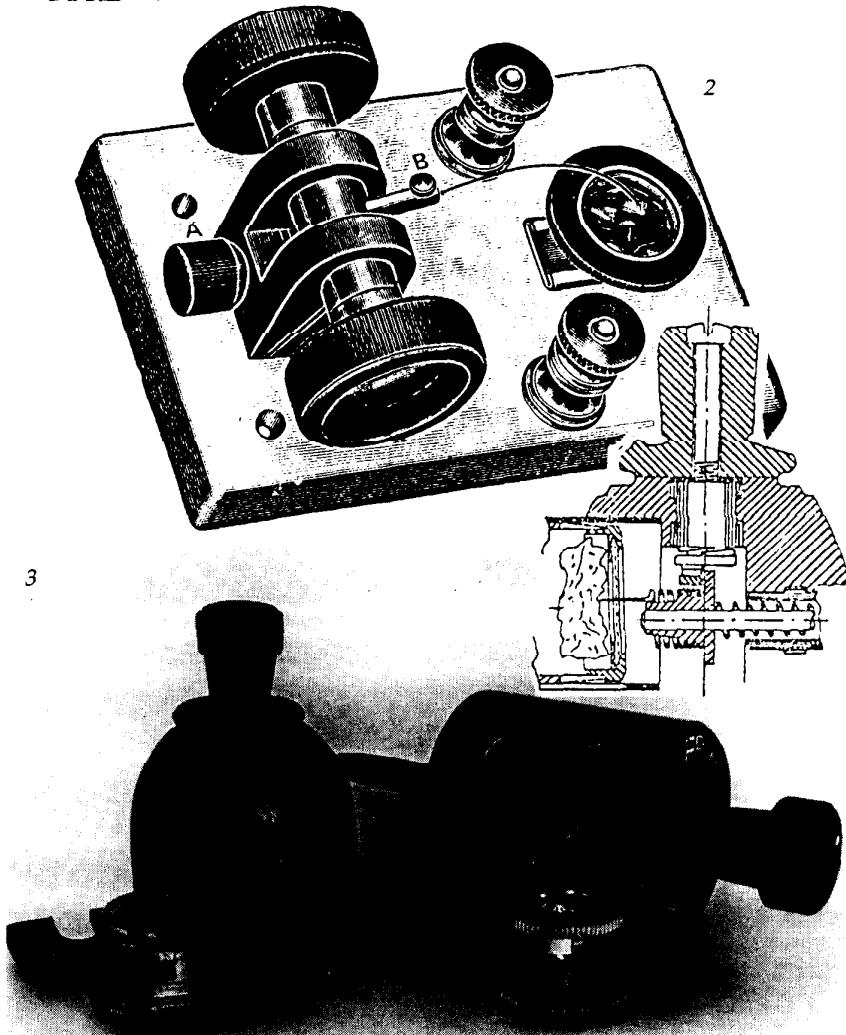
## The catwhisker

By far the commonest detector in surviving British crystal sets must be the simple combination of galena crystal and helical catwhisker (Figure 1). Frequently the mechanical arrangements for holding the crystal and manipulating the catwhisker are the simplest (and cheapest) practicable.

Yet a glance at early wireless magazines shows a proliferation of detectors of varying degrees of mechanical complexity and superficial styling on the market, together with a seemingly limitless number of different detector crystals. Even the humble catwhisker could be obtained preformed into such strange configurations as the triple helix of the *Hercules Step-Spiro* (Figure 1). In truth, the whisker wire doesn't even have to be helical; an effective arrangement in American detectors at one time was apparently the long whisker arched like the natural growths carried by *Felis Domestica* (Figure 2). In the German *Friho* the whisker is a short straight wire, and in the French *Excentro* (Figure 3), that I have, just a single-turn helix. These two rather similar detectors are distinguished from others by the cam-like mechanism which retracts the whisker and then rotates it to a fresh point on the galena crystal, finally restoring contact again under the supposedly delicate control of the external knob. In the *Excentro*, the whisker penetrates a piece of woven silk in order to steady it laterally, an unusual refinement in detector engineering; and a far cry from the unsophisticated pencil-lead contact of galena detectors in use in Great Britain before World War 1. The introduction of the light catwhisker is shrouded in the mists of time; but both straight and spiral forms seem to have been used in the USA by 1916, i.e. before the Americans joined in the conflict. Optimum hardness for the whisker-point seems to increase with the hardness of the crystal material through harder sulphides like pyrites, to the element silicon (which merited a tungsten whisker by 1940) and carborundum with its flat steel contact.



THE "ELECTRO" RADIOCITE DETECTOR

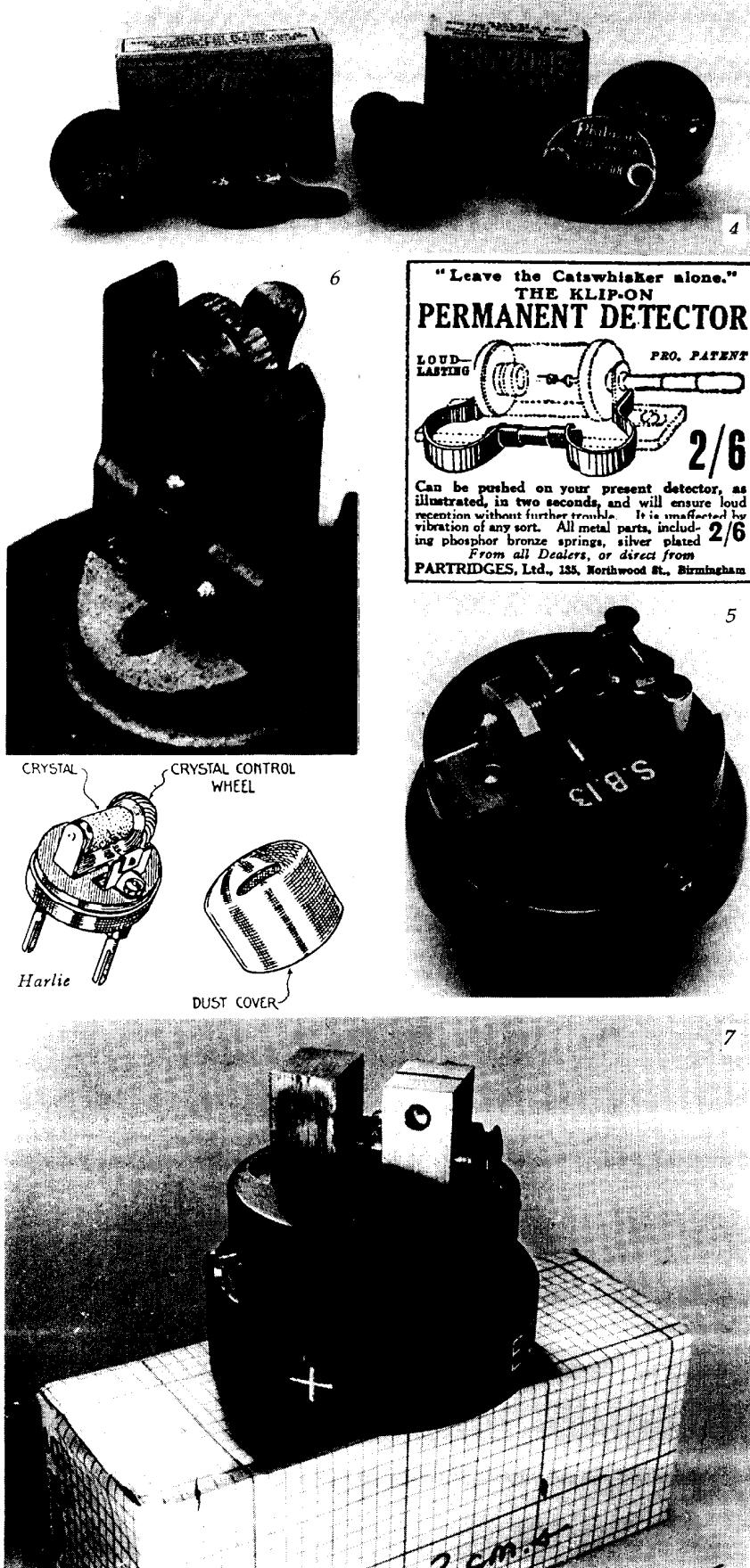


The more rugged engineering, allowed by the stronger whisker, permitted the construction of permanent and semi-permanent detectors like the pyrites *Erla* and silicon *Philmore* (Figure 4), in

principle not requiring readjustment and better able to withstand mechanical shocks. These were assets for crystal detectors in professional receivers as well, such as the pyrites

● continued on next page

## Technical Research



● continued from previous page

**SB13** (Figure 5), the silicon **ED16** (Figure 6) and the carborundum **ED78** (Figure 7), where the cost of more impressive engineering was not of prime concern. In thus introducing some of the more successful designs, I am in danger of ignoring a much greater number of ineffective and even useless designs that were inevitably invented, and presumably sometimes even marketed. One of the more inconvenient varieties, that of a *crystal with liquid contact*, was patented several times, with carborundum in 1906 and 1914, and even with two liquid contacts to titania minerals in 1908 (Figure 8).

Of course, in those pioneering days almost every detector showed some novel feature. In the case of *Murray-Johnson's galena detector*, thrown together to meet an urgent need (Figure 9), the porcelain insulator and the sewing needle were simply what came quickly to hand, out in Fremantle, W.A. (see *BVWS Bulletin 2*, p.26). A commonsense refinement for any detector design was a protective shroud, case or cap. However, in the *Grewol* (Figure 10), the detector is thereby made to look like an exhibit in a glass case. While in the *Carborundum Co detector* (Figure 11) the enclosed styling could lead to a complete loss of identity if the cosmetically attractive "*Red Indian*" (printed in blue!) wore away. Just a few detectors were designed to look like something totally different, as in the *C. W. detector* (Figure 12), which is superficially like a small bayonet-cap lamp envelope filled with pink floss but actually has a fragment of pyrites tucked into the cap. A more extreme example, made to look like a valve, is shown in Figure 13.

### Electrical Performance

I made some measurements of radio-frequency sensitivity on a few of the better samples of early detectors I have come across, in order to get some idea of their performance on small signals. The constant factor required in these measurements was to get 8 millivolts r.m.s. of audio signal across a 3000 ohm load. This would be a rather minimum level for broadcasting listening on headphones, though more than adequate for reading Morse transmissions. The RF voltage required at 400 kHz to produce this 8 mVolts of audio varied from 46 millivolts for a biassed germanium point-contact diode to 220 millivolts for an unbiassed pyrites detector. In the table, the RF voltages have been converted to decibels with reference to that required by the biassed germanium diode. Note

# Technical Research

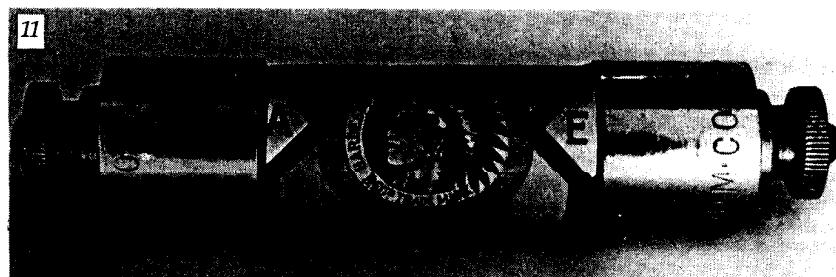
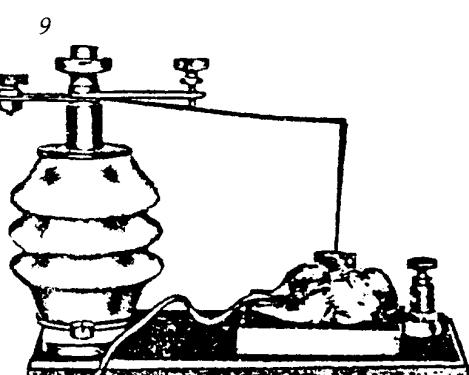
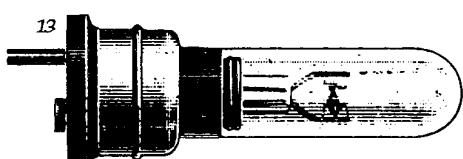
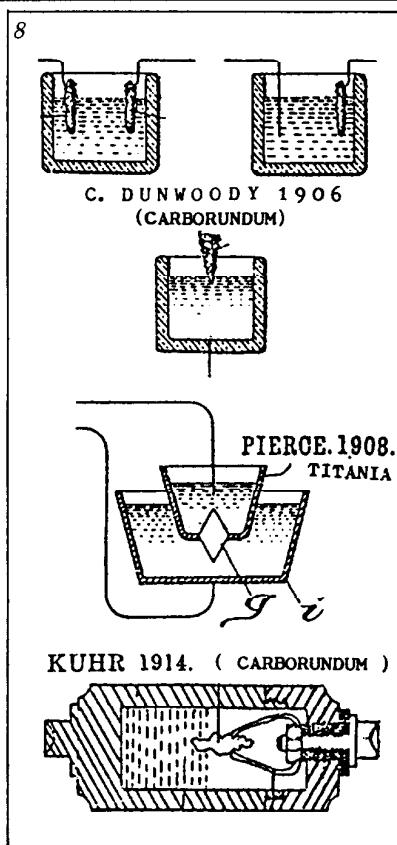
that the larger the value in the table, the worse the sensitivity.

Detector	Radio Frequency Signal In Decibels		
	Unbiased	10 microamps	D C Bias
Germanium (1N34A type)	5.1	0	
Galena (Excentro)	6.65	—	
Zincite-Tellurium (Red Diamond)	13.35	4	
Silicon (Philmore)	12.6	5.5	
Carborundum (Carborundum Co.)	—	6.2	
Pyrites (Grewol)	13.6	8.8	

It can be seen that galena (patience required!) performs about as well as the unbiased Ge diode, and that the use of 10 microamps d.c. forward bias brings several other detectors to similar sensitivity. Lack of bias inhibits weak-signal sensitivity quite drastically, over 9dB loss (more than 8x in RF power) in the case of the Red Diamond.

The original users of these crystal detectors would have had, at best, much poorer instrumentation. They could not have established quite so readily a relative pecking order for sensitivity in a situation bugged by the general irreproducibility of circuit conditions and crystal contacts. It would have been equally difficult to establish the general virtue of forward biasing. So, although it was necessary to select crystal samples that worked well as detector material, there is doubt as to whether early wireless workers ever selected with consistent success. Certainly many surviving early detectors and samples of crystal materials do not *now* work well; but it is important to distinguish between natural deterioration, such as the oxidation of pyrites surfaces, and original unsuitability, such as large cleaved surfaces of galena, or non-conducting crystals. The virtues of freshly-cleaved pyrites and microcrystalline-textured galena were certainly appreciated early on. On the other hand, the possibility of selecting suitable Carborundum with the help of an ohm-meter does not seem to have been reported in the threequarters of a century since Pickard improved Dunwoody's Carborundum detector and allegedly didn't get paid for it. Those early days of crystal detector work are probed by BVWS member Alan Douglas in a beautifully presented article on pages 64 to 67 of IEEE "Spectrum" for April 1981.

*Acknowledgements:* I am indebted to other BVWS members who have helped me with information, photocopied material and made hardware loans. And I would also like to acknowledge here, albeit belatedly, the friendly and most welcome criticism of AWA member Art Goodnow, alas now deceased, who fortunately dismantled some of my weaker opinions before they reached the public eye.



## Constructional

# Tuning-in vintage sounds

Part two of Don Turner's article on the construction of a device to inject a modulated signal into the aerial socket of a vintage receiver to give realistic results.

Members wishing to have a copy of the two circuits for the device published in the last Bulletin should send an SAE to the Editor.

### Do-it-yourself

It is quite possible to build something suitable using valve or solid-state design. Valve units are electrically robust and in keeping with the radio. Solid-state units can be very small, but this does seem a little pointless when they will be dwarfed by the smallest 'midget' set. To cater for all tastes I offer two circuits.

### Valve Signal Generator

The simplest possible method is to use a triode-hexode mixer valve - a giant British 4 volt looks good, but the 6K8 is the easiest to find in the junk box. The RF carrier is produced by the triode in the way the valve was designed, while the audio is fed to the signal grid so that modulated RF appears to the anode. No transformers are needed and fidelity is excellent in spite of the variable-mu grid. Modulation depth can approach 100% if wanted. My circuit has a few elaborations in that I have added a 1kHz oscillator for a tuning signal; there is additional AF gain as my cassette recorder gives only about 100mV output; and the cathode follower gives a low impedance output which allows many sets to be fed in parallel via a coaxial cable. The unit is well screened so it can double as an alignment oscillator.

The RF coils in the triode section are not at all critical - the Wearite P, Denco or Osmor types are ideal. Don't forget you want the Aerial or HF types, since superhet oscillator coils are designed to tune 465kHz above the broadcast bands. Set the current in the oscillator grid resistor to somewhere near the recommended figure ( $150\mu\text{A}$  in  $50\text{k}\Omega$ ) by inserting resistors in series with the grid, not the tuned circuit so that Q is

kept up. Those lovely coils used in the late 1930's and 40's Philips receivers should be fine if you can sort out the connections.

### Solid-state Generator

There are dozens of possibilities, but I prefer discrete components rather than IC's. The Colpitts configuration is very stable and requires only a single coil winding, but it will not give such a wide tuning range as tuned base or collector circuits. This does not matter if the unit is for demonstration purposes — somewhere in the Long or Medium bands should do. Modulating transistors is not as easy as it is with valves, since they are more transparent. FET's are better, but they are not so common and are short on power.

It is possible to modulate T1 and T2 only, via a transformer in the 12V line, but modulation depth is restricted. Quality is adequate and if you want the simplest, smallest device this might be suitable. About 3V r.m.s is available, but power is naturally low since the current to T1/T2 is only about 10mA.

More power and greater modulation depth up to almost 100% can be had with T3 added as shown in the complete circuit. With the choke I used (out of an old TV set) 20-30 volts r.m.s is present at the collector and about 4V at the choke tap. Such a massive output may be necessary, since a 1600kHz signal may be considerably attenuated by the capacitance of a longish length of cable with several sets hanging on the end.

For the oscillator, most coils seem to work and small ones from the TOKO range (stocked by Cirkit) should suit. My test model used a long wave OSMOR coil: the LW section used alone covered 185 to 235 kHz; and the coupling winding used alone covered 1100 to 1700kHz which includes the HF end of the MW band. Audio modulation is fed in via the transformer and, unless you achieve perfect matching, it is wise to think in terms of about 1 watt of audio power. This can come from the loudspeaker sockets of a cassette recorder; or an IC such as the TBA 820M or LM 380 (both from Maplin) can be built in.

### Construction and Use

The chosen unit should be well screened. The object is for the RF to come out of the outlet socket rather than be sprayed around willy-nilly. Both units can act as transmitters, but apart from being illegal this is thoroughly anti-social and to advocate its use might bring the Society into disrepute. Older sets may not themselves be well screened and may pick up broadcast signals on their internal wiring, so it may be necessary to tune the generator to a quiet spot in the band to avoid heterodyne whistles.

The low output impedance of the generator could severely damp the input tuned circuits of many sets. To avoid flattening the tuning, the generator should be fed to the aerial terminals via a series capacitor of 100 pfd or so. With frame aerial sets a coil or loop placed adjacent seems the only way.

### A Warning

Another reason for series capacitors in aerial, and earth, feeds is to avoid the risks inherent in common power supplies. If several battery sets are fed from common LT supplies, their aerial terminals should not be directly connected together, nor their earth terminals. Ignoring this precaution might lead to burnt-out valve filaments or input tuning coils, so all connections to aerial and earth terminals should be via isolating capacitors: about 0.01 ufd is suitable for earth connections.\* Similarly the chassis metalwork of AC/DC mains sets should never be directly connected together.

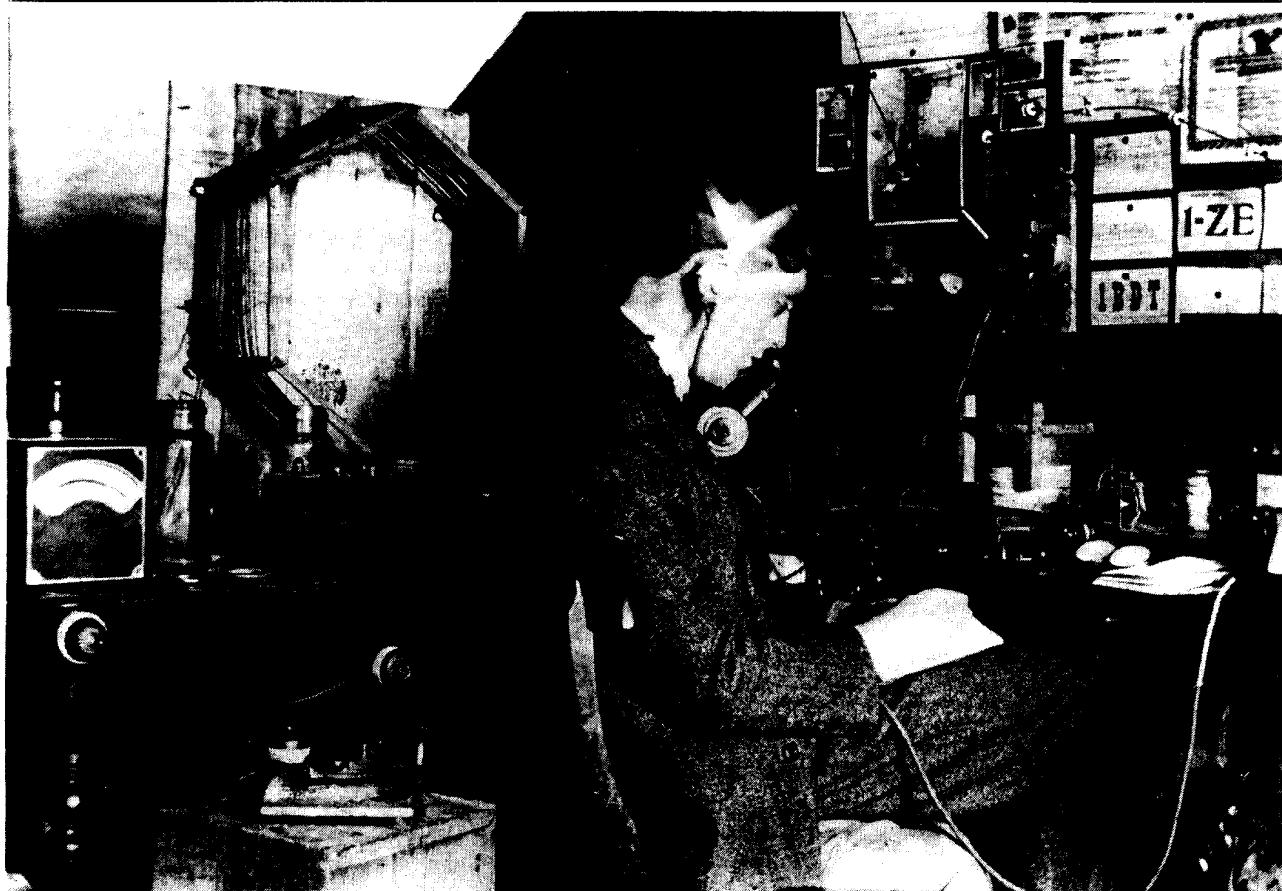
### Conclusion

You have probably gathered that the solid-state unit is not fully engineered; the reason is simple - I use the valve one!

One final note on programme material. I have a large collection on 78, LP, cassette and CD. It is a pity that copyright law makes it difficult for some demonstration tapes to be produced and maybe sold through the Society. Has anyone any ideas?

\* A future Bulletin article will go into the problems of common power supplies in some detail.

## History



## Wireless headlines of 1923

Say Herbert, an honorary member of the Society, has sent details of some of the early achievements of radio amateur Frederick Livingston Hogg of Highgate, London, who made the headlines in 1923.

He held the call-sign G2SH and was one of the small band of radio amateurs who were banished to the wireless wastelands below 200 metres resulting from the increasing demands of the broadcasting stations for more space in the medium waves. In later years he founded the well known company Livingston Laboratories but in 1923 at the age of 18 he made the headlines by accomplishing two-way telegraphy working with the USA on 12th December, becoming only the second person in this country to have achieved this distinction.

A further record was described in the 17th December, 1923, issue of the London Evening News — "It is claimed in a Reuter telegram from Toronto today that the amateur wireless record was broken yesterday when an amateur station there conversed with an amateur station at Bishops Road, Highgate, London, operated by Mr F.

L. Hogg. A wavelength of 100 metres was used. This is said to be the first time that communication has been obtained between amateur stations in Toronto and Great Britain".

In 1928 he erected a broadcast station at Akureyri on the North Coast of Iceland and later that year joined the Baird Television Development Company at Long Acre where he worked on the first television receivers and also developed a system for projecting a picture on to a 2' x 3' screen.

Hogg wrote to the wireless Press in 1924 complaining that while amateur researchers were being encouraged in many ways, including subsidies from government, and allocation of wavelengths, there was a "poor state of affairs" with regard to research in England. He pointed out that permission to carry on tests had been obtained only with great difficulty and added: "Amateurs in this country have almost certainly done far more real and successful research than in any other country. If something is not done at once England will, as usual, be left behind, instead of leading the world, as she can, given the necessary facilities and encouragement".

In the photograph, can be seen Hogg's somewhat "Heath Robinson" set-up, mostly home-made.

*Cutting from 1923 newspaper*

### JAM-JAR WIRELESS!

#### Amateur Who "Talked" with Canada Quite Content to Make own Devices.

How a Highgate amateur "talked" by wireless to Canada was revealed yesterday in an interview.

Mr. Frederic L. Hogg, of 37, Bishop's-road, Highgate, said that, working on a comparatively low wave length, he kept up communication with Toronto by Morse code for two hours.

Among other messages Mr. Hogg relayed one to Dr. McMillain, leader of the Bowdoin exploration party, who are "frozen in" 11deg. south of the North Pole.

Mr. Hogg, who holds a transmitter's licence, was once "flabbergasted" at getting into touch with the State College, New Mexico, 5,000 miles from Highgate. He did that on a two-valve set a little more powerful than the average.

He scorns ready-made devices. His "den" consists of sugar boxes, wires and jam-jars by the dozen. The handle of the lever regulating a dynamo is nothing more than a decapitated sauce bottle!

## Reviews, Looking Back

### Record Review

by Robert Hawes

"The Day War Broke Out", musical and mirthful memories of the second world war, double cassette, album and CD at around £8.50 EMI nos EM31 (disc), TCEM1341 (cassette) and CDP 7 928962 (CD).

Taking it's title from the classic Robb Wilton "Home Guard" monologue, the collection ranges from the hilarious and the (now) oddly unfunny, to the cloyingly sentimental, the spiritually uplifting and the occasionally sardonic wireless entertainment that kept listeners going in their air raid shelters as the bombs rained down.

Any wireless enthusiast who lived through those days will welcome this collection, and younger folk will recapture some of the ambience of the time if they can manage to play the recording via the pickup sockets of a thirtyish set. It has not been over "processed" and retains some of the authentic hiss of the day, is monophonic and unsuitable for the entertainment of bats.

It includes details of how Arthur Askey and Richard Murdoch blacked out their flat at the top of Broadcasting House, Cyril Ritchards as "One of the Whitehall Warriors", patriotic and jingoistic songs like "There'll always be an England" and "Lord Haw Haw", the now innocuous naughtiness of Max Miller and George Formby and lump-in-the-throat ballads like "A Nightingale sang in Berkeley Square" delivered by Hutch, and "That Lovely Weekend" by Geraldo and Dorothy Carless. Tear-jerkers like Gracie Field's "Wish me Luck" and Vera Lynn's "White Cliffs of Dover" are there too, alongside the artful juxtaposition of Noel Coward's coy comment on the munitions shortage "Could you please oblige us with a Bren Gun?" and his awfully over-the-top "London Pride" and his camp "Don't lets be beastly to the Germans". Tommy Handley and other catchphrase pioneers like Cyril Fletcher are there too, and the original Lale Anderson version of "Lili Marlene" which was possibly the only tune of the times popular with both British and German troops. Altogether a bumper compilation of the sentiments of those times of the stiff-upper-lip, and the "Keep Smiling" motto.



Robb Wilton as Mr. Muddlecombe, JP.

### Looking back

From 'Wireless World' January 18th, 1928, Editorial:

#### Grouses for 1928

A reader who writes to us in the Correspondence Columns of this issue asks 'Why not start the year well with something other than a grouse?' and he details a list of some of the good things which have come our way in the past year, and is kind enough to suggest that we have to thank the columns of *The Wireless World* for some, if not all, of these.

We like the spirit of thanksgiving which has prompted the writing of the letter, but we do not recommend to our readers the hint conveyed that we should give up grousing in 1928. There always have been and probably always will be, things in the world of wireless which require to be put right. Some are just common grievances of the individual, but many of them are important enough to affect the interests of our readers collectively, whilst there are yet others which may not appear at first to be of real importance to any section of the community, but which may nevertheless rank as matters of principle which call for remedy.

As an example, one may take the establishment of a station for Empire broadcasting. Here one may say that no great hardship was suffered by any section of the community through the neglect of any attempt to establish such a service, but nevertheless it was a matter of national importance, and we believe that our efforts contributed in no small way to bringing about the establishment of the experimental station at Chelmsford, which we hope is to be the forerunner of an Empire system.

We trust that our readers will not hesitate to bring to our notice grouses for 1928 as they did so effectively in 1927; we will do our part in assisting to eliminate the causes as far as it is in our power to do so.

From 'Wireless World' February 15th, 1928, 'Editor's Mail':

#### Grouses for 1928

Sir, - This year a determined attempt should be made to have the morning weather forecasts issued at an earlier hour than 10.30. I am under the impression that the Air Force sends them out at 8 o'clock in code. If this is so, it is surely not beyond the wit of man to decode and issue them by 9 o'clock. The advantage to agriculturists, for whose welfare the Government professes itself to be solicitous, and to country dwellers generally would be immense. It is difficult to believe that something could not be done if the question were taken up strongly. S.F.W. - Berwickshire.

From 'Wireless World' February 15th 1928. 'Editor's Mail':

#### Power of Continental stations

Sir, One heard a good deal some time ago about some convention or other which was doubtless founded at terrific expense to control from Geneva (they always go to some beautiful and expensive place . . . never Wigan!) the wavelengths, etc. of the various broadcasting stations.

Is this still operative? If so, why is Germany allowed to have such tremendous power that we are practically compelled to listen to their excellent orchestral concerts?

A trip round one's dial, even on a 2-V-2, is most disheartening, Germany, degrees of 5GB, groans and whistles, Germany again, more German stations, still more, Oslo, Glasgow blotted out by yet more German stations, heterodyne whistles, Manchester bleating through a terrific wind, more German stations, London distorting like anything every two minutes, Cardiff like a voice in the wilderness, groans, whistles, shrieks, heterodyning, Germany again, yet again, Darling get the bally gramophone!! Why, oh why, are we egged on to spend hard-earned pennies on such disappointing stuff? Years ago we could count on all the British stations . . . a log of mine for 1922 proves this . . . but now the safest course would be to listen to 5XX on a crystal. Even then 5GB is always in the background.

Oughtn't Geneva to see to it?

D. R. ROBERTS, Wellsbourne, Warwick. January 17th. 1928.

## Obituary

### Obituary

#### Marcus Scroggie: 1901-1989

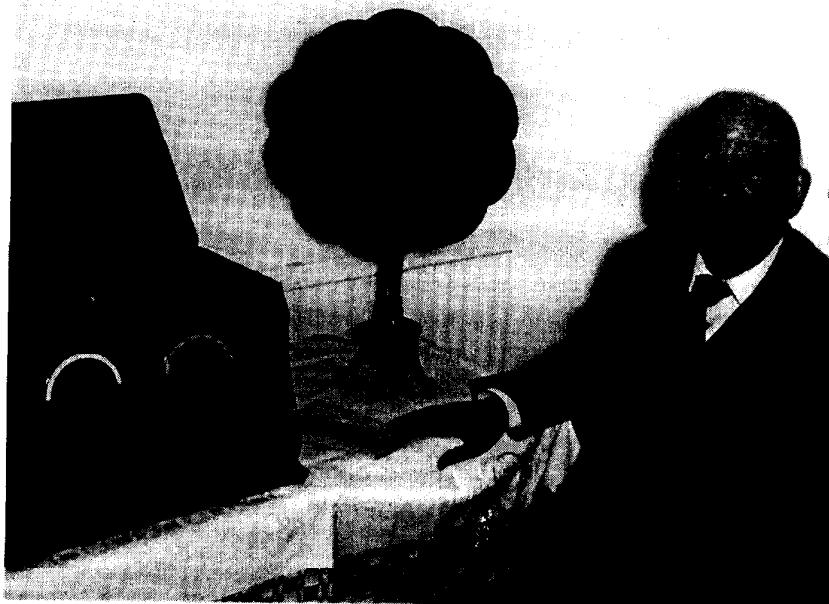
by John Narborough

Many professional engineers and BVWS members will have been saddened at the death of one of the grand old men of technical authorship in the radio and electronics field. Marcus Scroggie, who was 87, had, despite failing health, maintained an active involvement throughout his retirement in electronics, musical and church matters. He had only recently completed some autobiographical notes on his long career, from which these details are taken. He leaves a wife and three daughters.

The son of a Scottish clergyman, Marcus was born in 1901 at Leytonstone, Essex, but returned at an early age to Sunderland where visits to local industries as a schoolboy decided his career. In 1917 the family moved to Edinburgh, where after qualifying for university, he began his electrical engineering degree course in 1919, also joining the Institution of Electrical Engineers as a student member. During less absorbing lectures, he often spent his time reading John Scott-Taggart's book on "Thermionic Tubes", laying the foundations of his studies in radio, which then occupied most of his annual vacations.

Graduating in 1922, he stayed a further year to study advanced physics, also becoming a member of the Edinburgh and District Radio Society, with the call-sign 5JX. His was the second transmitter in Edinburgh, and the second in Scotland to communicate with North America. Requiring a high-voltage supply for his transmitter valves with only low-voltage DC mains available, he designed a "DC Voltage Raiser" which formed the subject of his first technical article published in Wireless World on 15 August 1923. He was to contribute articles to this magazine, many under the pseudonym "Cathode Ray", for nearly sixty years afterwards.

After University he had practical engineering experience and then, hoping for a job at the new Edinburgh station, applied to the BBC. He was offered a position involving Sunday working, which at that time was considered unacceptable to devout churchgoers, so he declined. Moving South in search of work, he joined the Creed Telegraph Co. in Croydon, and after a few months went to Burndept Wireless Ltd. as chief laboratory assistant. This opportunity arose through an interview with John Reith at the BBC, procured for him by a relative of Reith's who had been a student at his father's Bible classes. Reith seemed brusque and severe, and



did not offer Marcus a job, but he did ring up Frank Phillips at Burndept (one of the original BBC constituent companies) who engaged him. By 1928, when the company had been reorganised to escape financial difficulties, Marcus was Chief Engineer of Burndept Wireless (1928) Ltd., designing a new range of production models. Of these, Marcus was especially pleased with the first in the series, the "Screened-Four", incorporating the new Marconi S625 Screened Grid Valve. This was one of the first commercial designs marketed, and perhaps the first to be designed, to exploit the characteristics of Capt. H. J. Round's new valve. Marcus recalled conversations in Round's office at Marconi House during the development of the screened valve, and remembered Round as one of the untidiest workers he had ever seen, the office ankle deep in file folders, gramophone records and other clutter.

The photograph above, taken recently, shows Marcus listening to my "Screened-Four", some sixty years after he designed it.

Another notable Scroggie design was the "AC Screened Seven", which in 1929 won a Wireless World vote as the most popular Radiolympia exhibit in its class. At about this time Marcus witnessed one of J. L. Baird's experimental television demonstrations but was unimpressed and reported (correctly) that the system had no potential for broadcasting. A similar approach to Burndept with a view to manufacturing the "Fultograph" was also viewed without enthusiasm.

Despite Burndept's "Rolls-Royce" image, by 1930 financial problems and a severe loss of reputation due to the

use of a batch of faulty Mullard inter-valve transformers in the "Mark 3" portable set (each of which broke down after a few months use), had made the company's position hopeless and with the Depression looming, Marcus was warned that he would soon be without a job.

After a short period with a rival firm and the publication of further technical articles, Marcus resolved to become self-employed and to take on consultancy work, which later included the checking of Plessey's "Defiant" receiver designs for the Co-Op. His first published book was "Television" in 1935, followed by the two books by which he is most widely known, the "Radio Laboratory Handbook" and his revision of Sowerby's "Foundations of Wireless", which have remained in print through nine and ten editions. His six other titles include "Second Thoughts on Radio Theory", "The Electron in Electronics", and "Phasor Diagrams", an attempt to rationalise the careless habits of electrical engineers with AC circuit conventions, which sadly for him were too well established for reform!

In the mid-1930's he established his private "Elstree Hill Laboratory" in Bromley, Kent, pursuing among other things an interest in radio direction finding. Before the war he had been spoken to by R. A. Watson-Watt at the IFF, who had shown an interest in his work; when the war broke out he was offered a job in the RAFVR, and later in the RAF, working on "RDF" which later became known as RADAR. Marcus had already discovered through his own experiments that it was possible to use the VHF TV signals from Alexandra Palace to detect aircraft

• continued on next page

## Feedback

### Letter

*From Ray Whitcombe*

### Leak, Pye, Mullard

I was saddened to hear of the death of Harold J. Leak, the audio pioneer (Bulletin Vol. 14 no. 3), but the short note did not do him justice. He was my first employer from 1961 to 1968 as an engineer in the company's design laboratory before I went to Bush/Murphy.

The company was founded in 1934 and was involved in public address and "contract" work. After the war, the company expanded, their early products being for GEC but soon they departed from contract work and began producing the famous TL12 amplifiers. He was a much respected personality in the audio field, a member of the British IRE and of the BSRA where he was a frequent speaker. His "circle" included people such as Baxandall, Moir, Sowter and Arbib and he was a much-travelled man. He was well up with the trends of the industry, and pushed the development of the transistor in audio, a project in which I was closely involved (by that time he was doing little design work but concentrated on guiding his development team – sometimes against their will! But it all turned out alright).

His contribution was the introduction of a low-distortion amplifier system for domestic use and later the serious exploitation of the FM broadcasting system for domestic Hi-Fi, with the introduction of the Through-Line I tuner, and then the development of the first really new concept in dynamic loudspeaker design in his "Sandwich" system. Perhaps his last innovation was the Hi-Fi transistor amplifier in 1964: he was the first "quality" manufacturer to take the plunge and move away from valve equipment: for many a great and continuing sacrifice. Of course, these developments were not entirely due to HJL himself but also to employees of the company of which he was helmsman.

I should also like to comment on the "Black Box" article (14:3). Firstly, I do not think Pye would have been disadvantaged by distance from Wrotham and AP; what large manufacturer would be dependent on off-air transmissions to develop products? Another point in the article was the de-emphasis of the tuner which was also a feature of the Through-Line I: it was thought that the listener, having had to put up with a lack of treble on AM would appreciate a little *too much* on FM!

One final point: What about the Mullard name? It was "assimilated" by Philips last year: a very sudden decision since much Mullard literature had to be overprinted Philips. Why no comment in the Bulletin? Mullard was in radio from the early days, merging with Philips in the 20's. They were happy to retain the name until 1988. Perhaps us Brits are not proud of our heritage any more?

### Letter

*from Dr. C. Milego-Pertierra*

### Leak and Hi-Fi

I was sorry to learn that Mr H. J. Leak had died back in the 1960s, when I was working for BBC External Services, London, I interviewed him. Rumour had it that his business was going to be taken over by a well-known Japanese firm of electronics.

Since I was the proud owner of his original Varislope 2 Stereo pre-amplifier and an FM Trough Line 3 tuner, with the then famous Leak Stereo 20 power amplifier, I thought I was capable of 'talking things hi-fi' with the great man himself. How wrong I was! He refused any interviews on the subject.

I persisted, and by April 1970 Harold the King of Hi-Fi (now safely retired in Jersey), agreed to see me. By then I also had his latest Stereo 30 Plus and another pair of Sandwich loudspeakers (all this I have kept to present day). When I remarked about the seemingly total absence of *any* sort of hi-fi equipment in his home. Mr Leak exclaimed: "-Well, the last thing I want is music blaring out . . . however good the reproduction!"

In fact, I learnt that, so anti hi-fi in his domestic life was that pioneer of the British electronics industry, that it took several weeks of continuous pleading by his daughter, Jane (then aged 17), before he allowed any of his own equipment to be installed in her room. May he rest in peace, and in the silence of the pre-ghetto blasters era.

### Letter:

*from John Brown*

### Autotrope radiograms

I have not seen any references to the Autotrope radiograms in any publication for many years. These sets were made in a small yard off Conduit Street, and later in a factory in NW London, somewhere in the Stonebridge Park/Wembley area, c.1937. It was something of a hobby for Sir Norman Watson, linked with Heston Aircraft, and the sets must have been the most expensive of their time. Hand built in

magnificent cabinets designed by Robert Lutyens, and with a remarkable record changer designed by Bowyer-Lowe, which played up to a dozen 78s, turning them over to play the second side, and with remote control, these sets were for those who did not ask the cost.

Installations included Loughborough Castle, home of Earl and Lady Beatty, many large country houses and several yachts. I recall that in the SS Braemar, the record-changer was mounted in a large gimbal with a counterweight of about 100lbs to allow operation at sea. Maybe these sets are still working, or remain as just furniture, which may account for absence from the Vintage Wireless collections. Perhaps some reader can shed light.

Certainly some of the record-changers went into early Juke boxes used in some Mayfair and West-end pubs, their polished oak and plate glass construction contrasting with the Chromium Bazz of the American monsters which later ousted them.

### Marcus Scroggie:

*continued*

at a range of several miles, and had written to the War Office about it. In the RAF he now learned that the "Chain Home" transmitters had been set up following long-standing research on this principle, and eventually he became Officer-in-charge of the station at Pevensey in Sussex. Decades later he would return to the area in retirement at Bexhill-On-Sea, where my parents met his wife, leading to a privileged acquaintanceship of some nine years.

A technical author of Marcus Scroggie's standing needs no greater memorial than the books which he leaves behind him; his economy of language and clarity of expression, and a certain punctiliousness not always shared by other writers, have brought him the only critical acclaim that really counts: the widespread sale of his many editions and a special status among the older readers of Wireless World. Not always did he treat his subject too seriously: anyone who has a copy of Wireless World for December 22 1933 may peruse his "set review" for the "Thermo Superjet Three", and there was often a friendly rivalry with other contributors such as the outspoken and individualistic "Free Grid". So farewell, Cathode Ray, whose writing has informed and educated so many engineers and amateurs; it will be long before the name of Scroggie is lost from the memory of the electronics (and Wireless!) world.

## Feedback

### Letter

from John Stokes, New Zealand

#### The 5-triode portable

Ian Higginbottom in his article The Rise and Fall of the Five Triode Portable (p.35, Sept. issue) refers to the great popularity of the British portable during the late twenties and early thirties, but I do not agree that this indicates the portable was a peculiarly British concept.

Certainly he is correct in expressing surprise at *Wireless World's* assertion (5 June 1929) that there were no foreign portables at that time. *Wireless World* seems to have been misinformed about the matter. My findings are that in America the portable rose a little earlier than in the U.K. but fell a lot sooner, and more quickly.

Portables first appeared in the U.S. as early as 1924 and by 1925 there were many different makes on the market. *Radio News* published in August 1925 a 'First Annual Portable Radio Set Directory' in which 22 are listed (not all true portables in the sense that they did not all contain aerial, speaker and batteries). Although portable radios never achieved the same degree of popularity in America as they did in Britain during the period under discussion, they never entirely disappeared from the market. It was not until the introduction of 1.4-V valves and the advent of mains/battery operation nearly a decade later that portables ever became popular in the U.S.

Incidentally, so thin on the ground had American portables become by the late 1920's that one large department store resorted to importing British portables during 1928 and 1929.\* Could this have been the reason for *Wireless World's* comments?

\*See details see p.22 of this writer's *The Golden Age of Radio in the Home*.

#### Ultra information?

Although Ultra was a famous name in radio for many years, very little information seems available on the early days of the company. Gordon Bussey, who is researching for a book on manufacturers, is seeking photographs, articles, ephemera and references regarding Ultra. He can be reached on 01-660 2240.

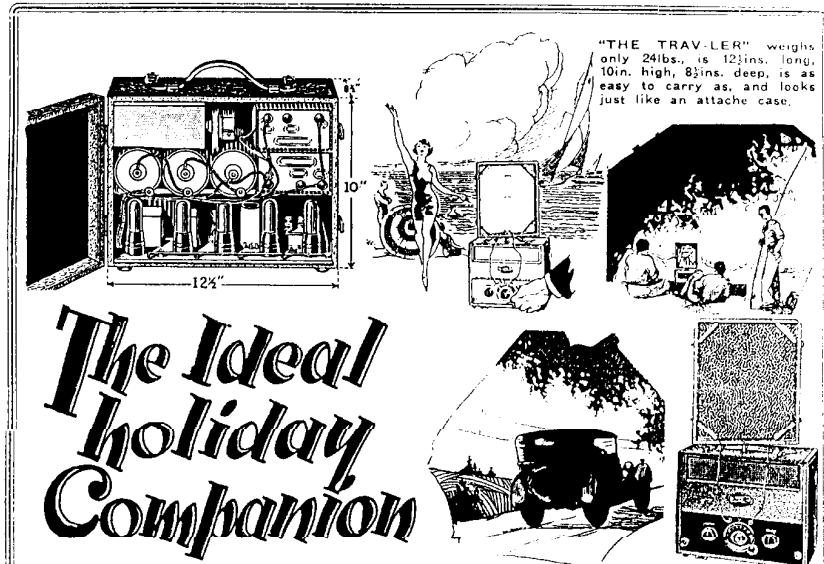
#### Letters to the Editor:

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.

Eight

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THE WIRELESS WORLD

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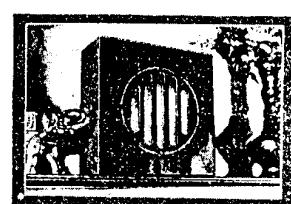
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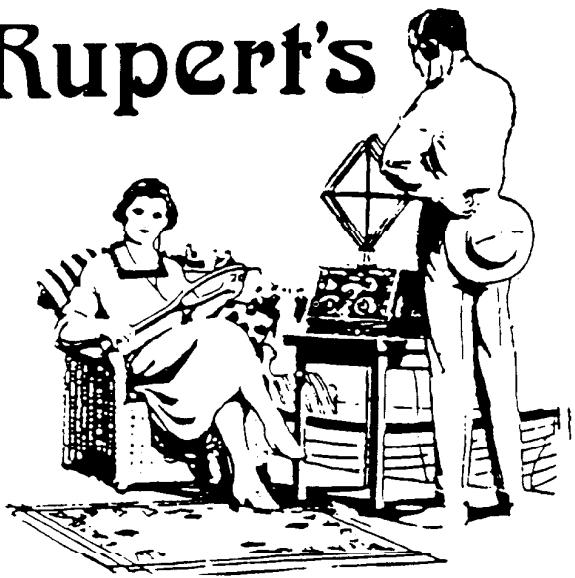


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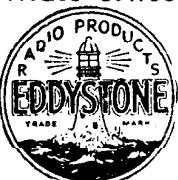
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