

# BULLETIN



# BULLETIN OF THE BRITISH VINTAGE WIRELESS SOCIETY

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## From the Chair

We are now well into the year. The new committee and the Emergency Committee had their joint session at the Vintage Wireless Museum on May the 2nd (see the report by Dave Adams). The first thing in order was a vote of thanks: to the Chairman, Geoffrey Dixon-Nuttall, to the Deputy Chairman, Gordon Bussey, who also took it upon himself to act as Emergency Editor, with Carl Glover as the Interim Production Editor (he has now taken over the full Editorship), to the Emergency Treasurer, David Read, who has done sterling work to maintain the Society's database and accounts. (We are lucky that we have been able to retain him as our Treasurer on the new committee.), but in particular to Tom Going for the unenviable task of organising the election with the Electoral Reform Society. The wizardry of the results was reported in the previous Bulletin. I am sure that for full understanding the minimum requirement is a degree in mathematics. After a final adieu and a glass of 'bubbly' the Emergency Committee took its leave. I am sure that even the most unobservant member cannot fail to have noticed the face-lift of the Bulletin - the fruits of the cooperation of Gordon Bussey and Carl Glover during the 'emergency period'. The new look represents a dramatic break from the Bulletin's tradition both in style and lay out which had evolved over a number of years. In fact, one can only admire the hard work by succeeding Editors



when surveying the Bulletins produced over the years, from the first one issued in June 1976. Changes had to happen after the sad death of Norman Jackson whose illustrations graced the Bulletin from the beginning. We are planning to publish in the near future a booklet celebrating his art work. It is interesting to note how the same authors occur over and over again. I believe that it is fair to say that our Society's publication has been kept afloat by a small band of very dedicated individuals.

Any committee knows that the most important organ of the society is the journal as it is *the* instrument that gives character and cohesion to that society, quite apart of course from its role of disseminating information and knowledge. It is our intention to get the BVWS membership fully involved with its Bulletin. So please give us your suggestions for further improvements. Even better, start sending us your articles so that the Bulletin will truly reflect the membership at large.

As Chairman, too, I want to be fully accessible to the membership. I hope to be able to insert in a future issue a Questionnaire about things you would like to see the Society do ranging from swapmeets to social events such as an annual dinner. Perhaps we should find ways of involving our partners a bit more in our activities. In the meantime, let me have your thoughts on this matter. Start writing now!

Willem Hackmann

Thanks to 'The Setmakers' for use of Alphan chair photograph

## Vintage Radio in the West

'Vintage radio in the West' is a new information leaflet just published by five BVWS members who all have vintage radio-based attractions in the West Country. Three museums, a vintage radio shop and a second-hand bookshop specialising in radio & television are all within an easy drive of each other, and would make an extra special day out for those planning a holiday in Devon or Somerset.

The first recommended stop on the leaflet is Patrick Cook's Orchard Mill Museum at Williton, Somerset, where you'll find his vast collection of vintage bakelite and other plastics (including radios and TVs), displayed within the setting of a beautiful 17th century watermill. There is also a shop, a licensed Georgian tearoom and B&B accommodation. (Admission £1.50 adults, £1.00 OAPs and children. Open, 10am-5pm. Closed Mondays & Wednesdays. Telephone 01984 632133).

A few minutes drive away you discover the twin masts of Washford Cross transmitting station which in 1933 began sending out the BBC's West National and regional programmes. The original Art Deco building remains, and while most of the interior has been turned over to 'Tropiquaria' (a hands-on reptile hot-house where you can make friends with snakes and tarantulas and be stared at by an aquarium full of interested fish), the real purpose of your visit will be the display 'Wireless in the West'. This permanent exhibition is mounted by Neil Wilson and is devoted to telling the fascinating technical history of the transmitting station. Also on show is a collection of receivers dating from the 1930s onwards, all accompanied by original film and sound recordings from the golden age of radio. (Admission £3.75 adults, £3.30 oaps, £2.50 children. Open every day, 10am-6pm (last entry 4.45pm). Telephone 01984 640688). Turning South and crossing the border into

Devon, after half an hour you enter the ancient town of Bampton. The Museum, owned by Jonathan Hill, is housed in the old bakery in the main street and features hundreds of radios and telephones from his private collection showing their development through the ages right up to the present day. You will also see a selection of televisions from the 1930s onwards and a recorded sound display spanning cylinder phonographs to CDs. Tearoom with courtyard tables next door. (Admission free. Open Thursdays and Fridays, 10.30am-4.30pm (closed for lunch 1pm-2pm), and Saturdays 9am-12.30pm during Easter and the Summer Holidays. Other times to suit, by appointment. Telephone 01398 331532). The fourth stop, Tiverton, is a pleasant 15 minute drive from Bampton down the beautiful Exe Valley to where Len Kelly runs his second-hand book business at 75/77 Chapel Street. Specialising in old and out-of-print books and magazines on early wireless and television. Len also has a good stock of books on gramophones, hi-fi and audio. (Visitors are welcome by appointment. Telephone 01884 256170) Finally, if you want to buy a vintage radio to take

home with you as a souvenir of your visit, there is a good selection on offer at Philip Knighton's vintage radio shop at 11 North Street, Wellington- an easy 20 minute drive from Len Kelly's. Apart from radios, Philip is very knowledgeable on gramophones, 78s and vintage sound equipment in general, and usually has plenty of these items for sale. He also offers an expert repair service. (Open Fridays and Saturdays 10am-1pm, 2pm-5.30pm. Telephone 01823 661618, or 01823 662647 out of hours).

If you would like a copy of the 'Vintage Radio in



A small selection of what the Bampton Wireless Museum in Devon has to offer: above left - sets from the 1940's, right - some radios from the the 1950's

the West' leaflet, or if you require any tourist information about this part of the West Country please send an s.a.e. to Bampton Museum, 4 Brook Street, Bampton, Devon EX16 9LY.

# Radio Instruments Ltd

by David Read

On Saturday September 30th 1922 the All British Wireless Exhibition was opened at the Horticultural Hall, Westminster by Sir Henry Norman MP. Referring to the anticipated start of public broadcasting Sir Norman said, "all the difficulties between the Postmaster General and the companies engaged in the formation of the Broadcasting Company have been overcome and nothing beyond a few preliminaries now stand in the way of the introduction of broadcasting". One of the 'preliminaries' was the actual licensing arrangements to be adopted and the form of the type approval stamp to be used on all applicable equipment. Nevertheless, Radio Instruments, along with Burndep and other early companies already had equipment in the exhibition and for sale. These pre-broadcasting sets were an expression of business confidence in this new area of commercial opportunity, and RI had been created in June 1922 specifically as a company focused only in the radio market with products only in the highest quality sector. The key executives who formed the company were J Joseph MIEE, Managing Director and previously the manager of the famous business of H W Sullivan; and W A Appleton MBE MIRE, Chief Designer and previously at the Admiralty where he was a Research Officer. This was no bicycle shop jumping on the wireless bandwagon and the firm quite clearly meant serious business.

RI's showroom and factory was at 12 Hyde Street (off New Oxford Street) London WC1 and the quality of its products quickly established the company as a supplier to the Admiralty and departments of Government. In October 1922, the postmaster general, Mr Kellaway, said in a speech made to the Liberal Club in Bedford that, "I am glad to be able to state there is a reasonable prospect of broadcasting services commencing in the next week or two". He went on to outline eleven conditions which were to be fulfilled by broadcast receivers in order to receive post office approval. One must assume that in this respect firms such as RI held their breath or had received privileged information, since to re-engineer the more complex and expensive receivers already in production would have been no joke. Such an instrument, the RI five valve receiving station type 5VA GPO registration number 0108, is illustrated on the front cover. RI sets such as this were not compromised by price considerations, they did not require plug in coils, but were constructed to tune from the longest wavelengths of around 4000 metres to the shortest to be used for public broadcasting of about 300 metres. This wide coverage was achieved by the use of internal coils tapped and tuned by rotary wipers, fine tuned by variable condensers and further tuned by tapped coils in the anode circuit of the RF valves. RI's attention to circuit efficiency was in marked contrast to the single wiped coil or spade tuning of domestic receivers in the popular price ranges. The 5VA was the long range model with two HF stages gang tuned in nine increments. Eight tapped degrees of initial tuning are provided followed by two variable condensers. Controls are also provided in order to vary the voltage to the H F Amplifier grids and the current to all filaments. Joseph's and Appleton's experience in Admiralty and Government equipment is obvious in this comprehensive design. RI made only two Crystal sets, indicating that their main interest was in valve receivers. The simplest of these Crystal sets is illustrated on the back cover and is the Crystal receiver type XLA GPO registration number 122. Notable is an extremely accurate variometer and a patent vertical detector of ingenious design.

By the time of the radio show at the Ideal Home Exhibition, which opened on 1 March 1923, RI was in the forefront of quality manufacturers and the prices advertised makes RI's market positioning clear, with two-valve sets priced at £21/15/0, up to the five valve long range model at £36/4/00. Top of the range was the Lyrian seven valve in Chippendale design with integral horn speaker and frame aerial at £101/10/6. It is a sobering thought that a shop assistant's salary at the time averaged

around £250 per annum. By 1925 competition had brought price amongst the quality firms to similar levels. However the following table from Brown Brothers 1925 catalogue is interesting. Prices are for receivers in comparable cabinets and without valves. Compared to the circuit efficiency of the Ericsson and RI three valve receivers, the Marconiphone V3 (essentially a V2 with an added LF stage) with its single aerial and anode coils and simple spade tuning is unsatisfactory in performance. The magic of the name however, commanded the highest price.



Valve Sets	RI	Sterling	Marconiphone	Ericsson
2v	£14/18/6	£9/9/0	£11/10/0	£13/0/0
3v	£21/15/0	£15/15/0	£27/6/0	£18/15/0
4v	£26/0/0	£21/5/0	-	£25/15/0

In 1925 RI introduced a permanent mineral to mineral detector which did not need a forward biasing current, and their LF transformer had become established as a clear market leader in the quality sector with over 500,000 sold to radio manufacturers, more than any other supplier in the UK. BVWS members who restore equipment will almost certainly have discovered for themselves that these RI transformers are almost never open circuit, 70 years after manufacture. RI had in fact from its foundation also supplied components to the home constructors market as well as to other set makers. A remarkable reminder of this occurred at the BVWS / V&A exhibition in the autumn of 1977 in a conversation between BVWS member Rupert Loftus-Brigham and the legendary John Scott-Taggart who was then 80. Many of us did not even realise that Scott-Taggart was still alive (*see post script*) and Rupert asked him about his memories. Among these Scott-Taggart remembered with particular pleasure that RI, the foremost set maker of the day, had chosen his ST 100 design for inclusion in their catalogue: either to be bought for home construction with RI components or available complete and ready made by RI.

After 8 years at Hyde Street, RI's success had outgrown their factory and a move became imperative. In June 1930 they moved to new premises adjacent to Croydon airport. Whilst RI had been amongst the pioneers of mains radio, the change to a mass production domestic market place in the 1930s caused them to strategically reposition their business to that of a supplier, particularly of wound components rather than complete receivers, and during the thirties a stream of innovative developments in transformer and choke design maintained their reputation. For this article however, the move to Croydon and the withdrawal from set-making provides a convenient end point.

*Post Script* John Scott-Taggart died two years later in August 1979. In a long life he had been a barrister, a member of both the Institutions of Physics and Electrical Engineers, a writer for *Wireless World* from 1914, a distinguished author from 1921 and was the founder of the Radio Press publishing *Modern Wireless* and *Wireless Weekly*. He is perhaps best remembered for his designs for the home constructors market and in his obituary it was estimated that over 100,000 amateurs had built his most famous design, the ST 100. He won the Military Cross as a Wireless Officer in the 1914-1918 war and during the Second World War was in charge of the technical aspects of radar stations. He was made an OBE in 1975.

# Marconi Exhibition, Italy

by Douglas Byrne



*This is the Palazzo del Podesta where the exhibition is being held this summer opposite the cathedral and town hall on main square in the centre of Bologna*

Two well known BVWS members, Douglas Byrne and Rod Burman, were invited to assist Gordon Bussey in the preparation of an historical wireless exhibition in Bologna, Italy, the birthplace of Marconi. Entitled "Radio, da Marconi alla musica delle stelle" (Radio, from Marconi to the music of the universe), the exhibition was to mark the centenary of the first wireless signals in the world, made by a young Marconi in the garden of his family home near Bologna, way back in the Spring of 1895. "Of course I was looking forward to a nice quiet lazy weekend, enjoying



*Gordon and Douglas seemed to prefer this stand, was it because of that well known British built TV set at the top!*



*A ship's wireless cabin of the twenties*

the Italian sunshine and taking things easy" writes Douglas, who is curator of the wireless museums on the Isle of Wight. Nothing could be further than the truth, for we spent two hectic though it must be admitted quite enjoyable days trying to make order out of what seemed to be total chaos! Numerous cartons of antique radios had to be unpacked and the contents displayed in glass fronted cabinets. All the notices were in Italian, and our workers although most willing couldn't speak a word of English. It was eventually discovered most spoke a little French, and so it made communication a little easier, though it might have been better



*The official opening ceremony was performed by Marconi's daughter, the Princess Electra: here seen chatting to Gordon Bussey.*

in morse code! As the only Englishmen there, we worked solidly from dawn to dusk, with only the occasional break for a cuppa cappuccino, but all was ready - having been VERY well dusted by Gordon! - in time for the official opening by Marconi's daughter, the Princess Electra. Phew!

This truly prestigious exhibition unfolds the story of radio communication from its inception in the garden of Marconi's home exactly a century ago, through the spark transmitter age, crystal sets with catswhiskers, and valves, up to the present world wide coverage of both sound and television by satellite.

It can be found in the Palazzo del Podesta, opposite the cathedral and Town Hall right in the centre of Bologna, and is well worth a visit by anyone travelling to Italy this Summer. However plans are afoot to bring it to England next year.



*Marconi's original spark transmitter*

### PART 5

#### Radio Receiver Detectors

Strictly speaking, the term 'radio detector' should apply to a device which simply indicates that a radio signal is received. But what is wanted in our radio sets is something which extracts the programme modulation - speech or music - from a broadcast signal. This process is properly called demodulation and the device a demodulator; but it is usual still to speak of detection and a detector, so that is what we will do here. The subject of detectors is quite involved and will take the next two or three articles to cover adequately.

Why do we need a detector? Why can't we just feed the radio signal to a loudspeaker or earphones and hear the programme? Well the radio signal we receive consists of a sine wave carrier which goes up and down above and below the zero level in the way shown in Figure 5a. The number of cycles - a complete up and down and back again - in a second is called the frequency, and it is to this frequency or wavelength that we tune our receivers. The transmitted carrier frequency remains absolutely constant and a typical value in the medium wave band is one million cycles per second. One cycle per second is known as one hertz, in honour of the German physicist Heinrich Hertz who in 1888 was the first to demonstrate radio waves, and a million cycles per second is called one megahertz, written as 1MHz.

Radio waves move out from the transmitter aerial at the speed of light, about 300 million metres per second. A frequency of 1MHz means that the wave is oscillating one million times in a second, so the distance between cycles as the wave moves along is 300 metres. This is known as the wavelength and a transmitted wavelength of 300 metres is the same thing as a frequency of 1MHz, so receiver dials may equally well be marked in wavelengths or frequencies.

A plain carrier wave as described above would be very uninteresting, since it would give us no programme. To put speech or music on the carrier, the amplitude of the wave is modulated in accordance with the

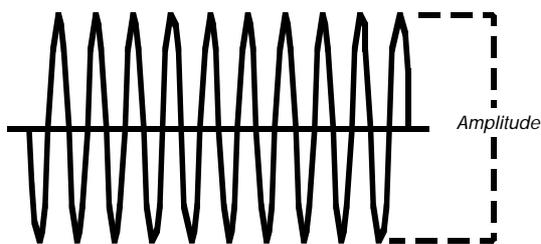


Figure 5a

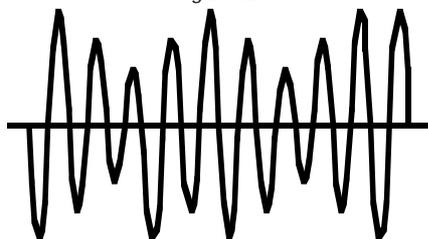


Figure 5b



Figure 5c

programme. The amplitude of the wave is its size from positive crest to negative crest, as shown in Figure 5a; and modulation means that when the music is loud the carrier wave amplitude is increased, and that the amplitude is decreased when the music is soft (Figure 5b). Of course the carrier must get bigger and smaller many times a second when a piccolo is playing high notes, and fewer times a second when bass notes are played by a cello.

We should now return to the receiver. If a 1MHz radio signal itself were fed to a loudspeaker or earphones, the loudspeaker cone or earphone diaphragm could not possibly vibrate a million times a second and would simply take up a position corresponding to the average value of the carrier wave. But the carrier wave goes equally above and below the zero line, so the average value is zero, the loudspeaker cone would not move at all, and we would hear no music.

Now we come to the clever bit! In the receiver a detector diode can be arranged to rectify the radio wave, that is to cut off the negative half-cycles and let only the positive half-cycles through.

With positive half-cycles only, the wave ranges from zero up to the positive crests and the average value is no longer zero but somewhere between zero and the positive crest value. As the amplitude of the carrier wave is varied by the programme modulation, so the average value of the rectified version will rise and fall accordingly (Figure 5c); and a loudspeaker, responding to the average value, will reproduce the programme.

Figure 6 shows a diode detector circuit working as described. The audio frequency programme modulation appears across the load resistor R and is passed on to an amplifier and loudspeaker.

To round off this explanation of modulation and detection, it should be said that it is 'Amplitude Modulation' (AM) which has been described. This is the arrangement used on medium and long wave broadcasts; but broadcasting on the Very High Frequency (VHF) bands uses a different system known as 'Frequency Modulation' (FM) in which the programme modulation varies the frequency of the transmitted carrier rather than the amplitude. FM is a complex system and rather beyond the scope of this series.

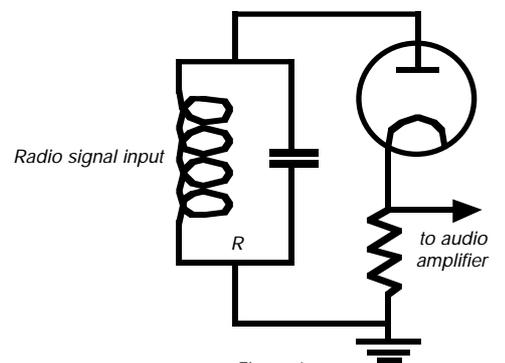


Figure 6

### PART 6

#### Small-signal Detection

In a previous Part of this series we treated the action of a diode in very simple terms, saying that current flows when the anode is positive to the cathode, and that there is no current when the anode is negative. In fact things are a little more complicated than this, as will now be described. Figure 7 shows how the anode current in a diode varies as the anode voltage is changed. From this one can see that there is a small current even when the anode is slightly negative; and that the anode current rises as the voltage is made increasingly positive, following a curved

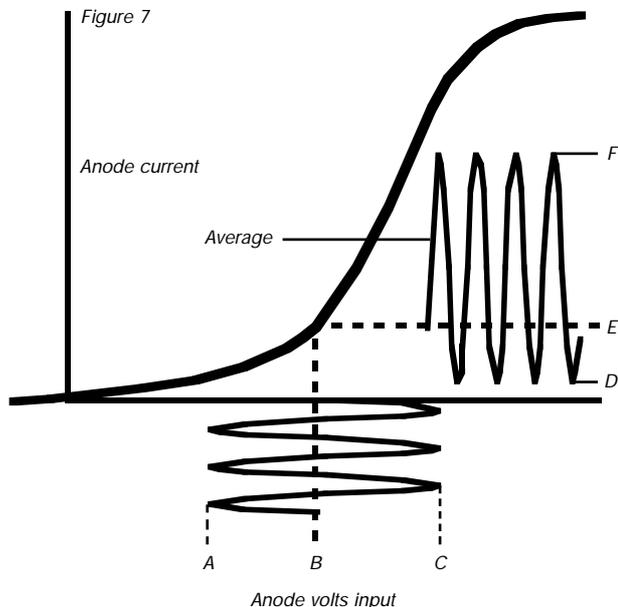


characteristic. When the anode is strongly positive it sucks up all the electrons emitted from the cathode: no greater current can therefore flow and the valve is said to be 'saturated'.

The important thing to note about the diode characteristic is that it is curved all the way up, with no straight line linear portion.

Why does a small current flow even when the anode is slightly negative? The reason is that the electrons emitted from the hot cathode shoot out with considerable velocity: although the anode is slightly negative, some electrons will be moving fast enough to overcome the repulsion and actually reach the anode, thus setting up a small anode current. Only when the anode is appreciably more negative will it repel all the emitted electrons, even those moving quite fast.

When we considered the action of a diode as a rectifier and radio detector, we assumed that the applied AC voltage was large enough to drive the valve up to the saturated region on the positive AC crests, and down well below the point where anode current is completely cut off on the negative crests. But supposing the radio signal input is quite small so that it neither saturates nor cuts off the diode current, how then does



detection take place?

Figure 7 shows a small applied sine wave signal and the resulting anode current waveform. Starting from the zero line of the input signal it can be seen that, because the diode characteristic is curved upwards, the positive half-cycles (B-C) produce a much larger change in current (E-F) than do the negative half-cycles (A-B) producing the current change D-E. This means that the average value of the anode current is not at level E corresponding to the zero level B of the input signal, but is something a bit larger as indicated on the diagram - exactly how much larger is dependant on the amplitude of the radio input signal.

This average anode current therefore varies in accordance with changes in the radio carrier amplitude, so a loudspeaker or headphone diaphragm, responding to the average value, would reproduce the radio wave amplitude variations which are the programme modulation and we could hear some music. What we learn from this is that any valve characteristic which is not a straight line can rectify an input signal and reproduce the programme modulation. The rectification is not so complete and efficient as it is with a large signal input where the diode acts effectively as an on/off switch, but the action is there to some degree.

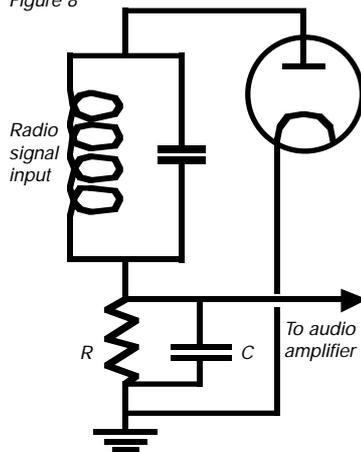
It is interesting to note that this small-signal detection working on the curved diode characteristic is exactly the way in which crystal detectors work. Many mineral crystals conduct electricity much more readily in one direction than the other, and are similar to diode valves in that they can be used as radio detectors as described above.

### Large-signal Diode Detector

Figure 8 shows a circuit for a diode detector slightly different from that previously described. It doesn't look all that different, but you should notice that the diode load resistor R is shunted by a capacitor C.

Imagine a large radio signal fed to the diode from the receiver tuned circuit.

Figure 8



The first positive crest will drive the anode strongly positive and electrons will flow from cathode to anode, through the input coil, and charge the upper plate of the capacitor negatively. Since the anode has now become negative to the cathode the diode current will be cut off; but the negative charge on the capacitor will leak away slightly through the high resistance (1 megohm or more) of resistor R, until the next positive crest of the radio signal turns the diode current on again and restores the negative charge on the capacitor.

This process continues as each succeeding cycle of the radio signal arrives, the diode being turned on only by the positive tips of the radio carrier.

The result is that the upper plate of the capacitor acquires an average negative charge, just how much negative depending on the amplitude (size) of the incoming radio signal. So if the radio carrier is modulated with programme, the negative voltage on the capacitor will rise and fall in sympathy with the carrier modulation and give us the programme signal for passing on to the audio amplifier. It is necessary that the load resistor R is large enough so that the negative voltage on the capacitor does not leak away very much between cycles of the radio carrier, but not so large that it cannot leak away quickly enough to follow the modulation variations in carrier amplitude up and down as the music or speech becomes louder or softer.

# When Wireless reverted to Wired Broadcast

By Anton Fitz-Gerald

It was quite fashionable, well into the 1950s, to use extension speakers around the home instead of investing in a multiplicity of receivers; it seemed a common sense thing to do. And then, on a more elaborate scale, a network to supply thousands of homes to provide an economical way of overcoming the difficulties of poor reception for the householder. Such things, along with the supply of gas, water and electricity can so easily be taken for granted as a natural convenience especially when we're born into it. But who started it? Recently, I became

loudspeaker in the living quarters. Extending the feed to a loudspeaker in those days was indeed quite innovative and Wallace was so inspired by the results that he experimented further to test its limitations. After satisfactorily linking a up to a neighbour's house, he then stretched to running half a mile of telephone cable to supply seven loudspeakers; there was no discernable loss.

In January 1925, a pole was erected on the Maton premises from which cables radiated like the spokes of a wheel to supply the surrounding

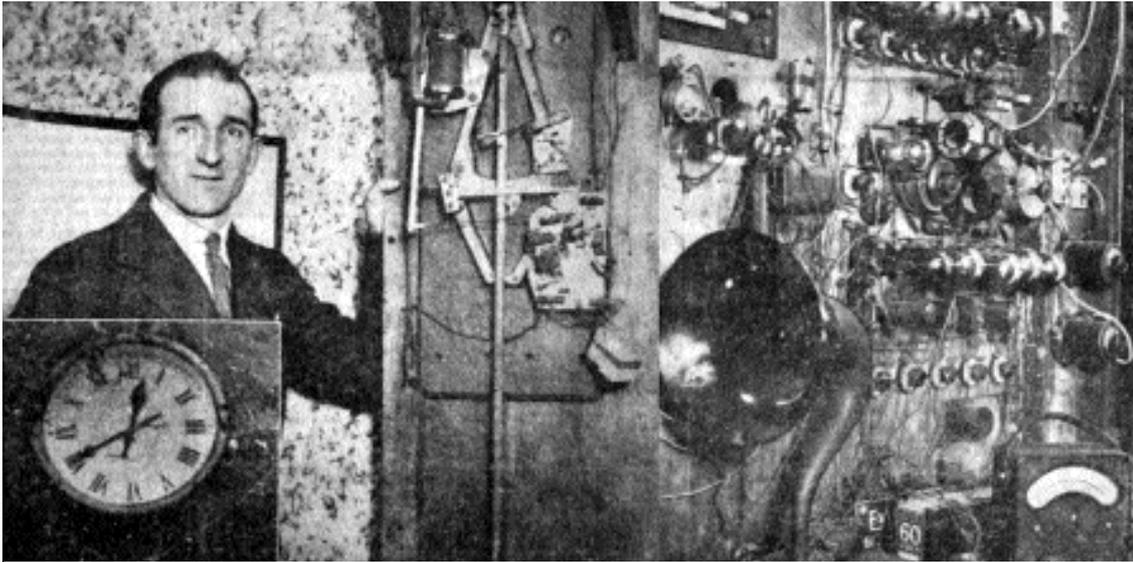
by a dynamo on the premises. Alternatively, in 1922, the Hythe Ferry Boat Service had installed on their pier, a small electric passenger train: to avoid an uneconomical off-load period for their generator, they offered to supply electricity to the village. To ensure value for money, the relay system had to be switched on in readiness for the commencement of the daily BBC broadcast. With brilliant resourcefulness, a wind-up alarm clock was modified so as to automatically power-up at the crucial hour, thereby leaving Wallace free to attend to his other business commitments: He was a man of tremendous energy and enthusiasm; having established an entertainment centre for the local community which incorporated a cinema, dance hall and roller-skating rink. In addition to which, he provided charabanc-hire, and a barge transport service for the traders.

Understandably, there was considerable controversy after Wallace Maton's relaying achievements had been applauded in the newspapers: Had the licensing regulations been violated? The legalities of such a scheme were in question. Quoted in a national newspaper report of that time, the first condition of a wireless receiving licence read as follows:

*"The licensee shall not allow the station to be used for any other purpose other than that of receiving messages in the premises occupied by the licensee".* 'The licence also states that it will be cancelled on a breach of any of the conditions on which it is granted, and empowers the Postmaster-General to cancel it at any time.

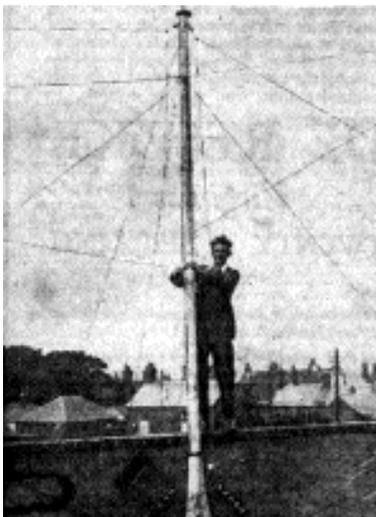
Yet before they could be wired into the system, Wallace had ensured that every customer had a current 'wireless receiving licence', (then, ten shillings a year) and had taken the precaution of seeking approval from the Southampton General Post Office. He had also obtained permission from the Southampton Council and the local residents to erect his overhead wires. But with its telephone wires connected to various houses, there was also concern that such a system transgressed against the Telegraph Act which made it 'illegal to institute a system of public telephonic communication in any exchange area without the licence of the Postmaster-General'. The Act granted to the PMG, what was almost a monopoly in the transmission of telegraphic and telephonic messages.

There was much debate resulting from Mr Maton's ingenuity: an entirely new legal point had been raised as sympathisers argued that it was 'not at all obvious that the conditions of the license had been contravened': the wireless system was simply being exchanged for wire. It was also revealed in one of the papers, that such an arrangement was being used in New York; which I would think, may probably have stemmed from the sound distribution systems of the great hotels. Ultimately the scheme was recognised by licence, for Wallace made approaches to both Southampton and Eastleigh for the setting up of relay systems and very soon



Mr Wallace Maton & (left) his Wireless clock and (right) the amplifier panel of his wireless 'exchange'.

enlightened by a piece of local history: Wallace Maton, was born in 1898, not far from where some of Marconi's experimental transmissions across the Solent were located. His father ran a furniture and general supplies store in the small village of Hythe in Hampshire. Among other enterprises, the Maton emporium would hire out bicycles for people to take a ten mile bumpy ride into Southampton instead of being ferried the nautical mile by steam boat. By 1905, business had expanded to incorporate a garage for the hiring and servicing of cars. During the ensuing two decades, the Maton general stores had rigorously kept pace with modern trends and amongst a variety of hardware they provided a selection of electrical items which progressed into the sale of radio receivers and charging of accumulators. Meanwhile, Wallace Maton took every opportunity to develop his technical interests and studied the new science to eventually enhance his father's business by becoming the local wireless engineer.



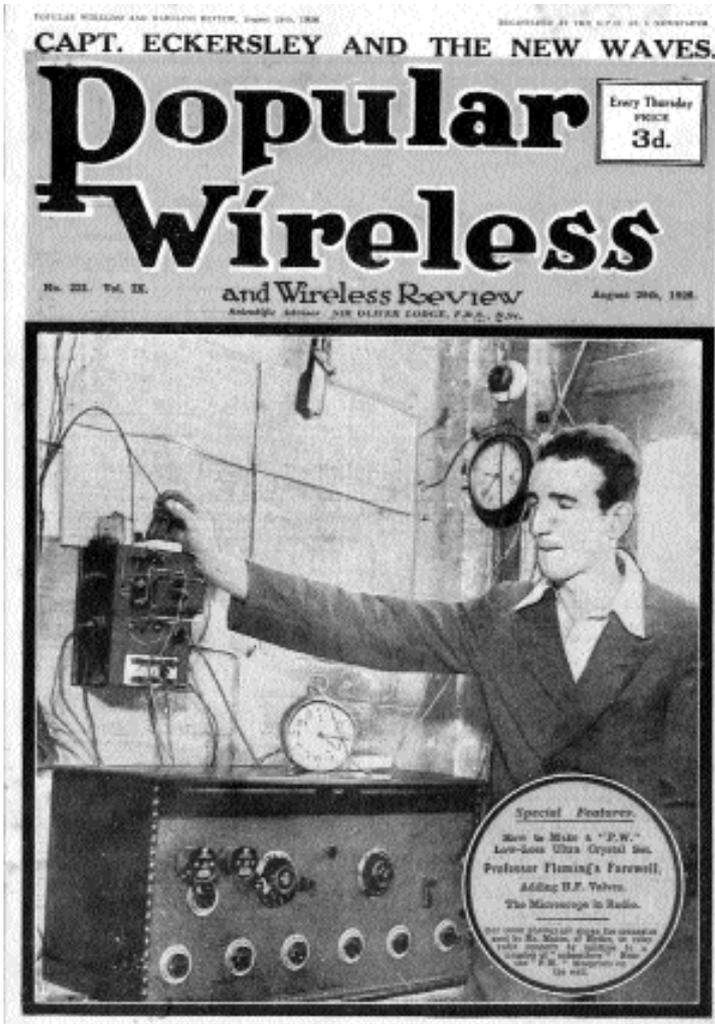
Wallace Maton and the wires which relay the programmes with GPO permission.

In the 1920s when valved receivers were taking over from crystal sets, he constructed a mammoth five valve arrangement mounted rigidly on the wall of his workshop. But that was not the ideal place for wireless entertainment, so he hit on the idea of extending the output to a

houses. As with all enterprises, there were obstacles to be overcome: local residents reacted against having cables draped over their gardens which indeed put Wallace's powers of negotiation to test. But it solved the problem for many: the weekly fee of one shilling and six pence would link them into Maton's relay system. This was far preferable to the price of a valved radio with its demands on expensive batteries and thus avoided any tuning-in difficulties that they might otherwise have.

From an initial clientele of twenty, he soon realised that further circuitry would be needed to cope with the increasing demands. Within a few weeks, he had developed his system sufficiently to eventually serve well over a hundred homes; reaching one at a distance of ten miles as well as supplying the local hospital free of charge. On taking a magnifying glass to the aged newspaper pictures showing Maton's

set-up, I tried to get some impression of the type of circuitry he used. A 'breadboard' supports the usual array of components for a five valver, above which, it appears that there were five separate distribution amplifiers - I'd love to know more. Initially, Wallace would have used dry batteries in the conventional way, but as demand grew, electrical power could have been provided by a bank of storage batteries charged



Wallace Maton relaying broadcasts to 'subscribers'

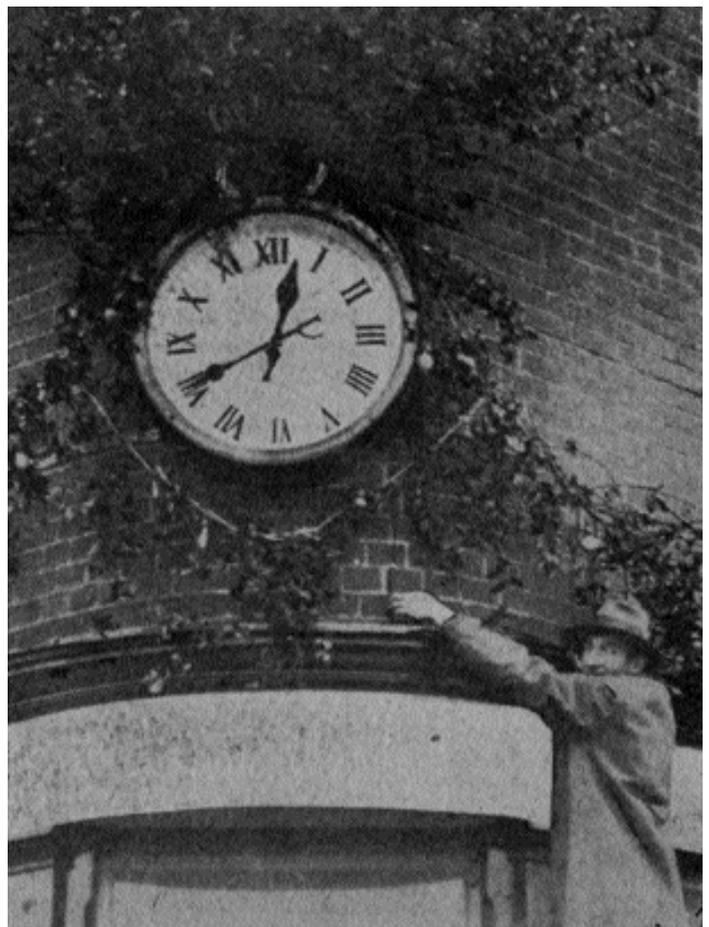
a business-man followed suit in Southsea. Indeed, there was growing interest throughout the country as more and more listeners favoured the simplicity of just having a loudspeaker plugged in at the wall to hear the BBC transmission. 'Wireless Exchanges' sprung up in many other towns. As the pioneer of radio re-diffusion, he could not possibly have foreseen the rapidity with which his idea would develop. There were many occasions when Wallace Maton was called upon for his expertise which he gave willingly, and in August 1928 sold all relevant information and circuitry for £5! And, I am told, without the consideration of royalties!! In 1930, there were 12,000 subscribers across the country. By March of 1935, the number had risen to 205,000 and in April 1936 it was estimated that 250,000 homes were being served. During this time, with so many firms providing radio re-diffusion, the fraternity formed the Relay Services Association. There was growing concern by the Ullswater Committee of Inquiry into broadcasting services; who recommended to the Postmaster General that the system of wireless exchanges should be taken out of private hands in order to be operated entirely by the Post Office; using telephone wires, and that its programmes should be controlled by the BBC. The response by the Relay Association was such as to protest accordingly and to make recommendations in favour of the continuance of the private operator. The debate lasted for so long that the final decision was postponed until after the war, meanwhile, the established system remained in service. Meanwhile, the private operator was up against matters of national security, but serious considerations as to funding a takeover also ensued. By 1940 Dr Walmsley of the GPO Wire Broadcasting Branch, read a most interesting paper before the Wireless Division of the IEE covering various methods of relaying audio by wire; either directly or by rf-carrier. The greater advantages of wire broadcasting was realised: compared to radio of the time, it offered more bandwidth and less noise interference. But competition sprang up when the electricity generating board claimed that they were in a better position to broadcast as they served five times more homes than the telephone network. The programmes could be injected at the substations using a suitable rf-carrier. But the opposition spoke of immense problems dealing with interference as well as safety aspects. However there was little public support in favour of the Post Office

scheme, and freedom of the ether ruled. It was regarded that a government-controlled system of broadcast distribution would be a step towards totalitarianism. It had been demonstrated in the war that wireless broadcasting would never be overshadowed by wired distribution. Maton's distribution service grew to include 150 homes, some well beyond the boundaries of the village and up to ten miles into the country. The cable runs were vast, and by 1941, due to the shortage of man-power and materials, the rigging operation petered out. An increase in radio services may have added to the problem. Wireless exchanges continued, and in its journal of July 1955, the Relay Services Association showed concern over the rising costs of providing an ever demanding service. In the knowledge that such enterprises were highly profitable, a tax had been imposed. If the relay companies increased their charges, their rating would be accordingly reassessed, resulting in a vicious spiral to jeopardise their existence. An incentive for company merging was thus created. The same journal gives an account of its Southern Area annual luncheon at which Wallace Maton and his wife were guest of honour, and includes an article in appreciation of the pioneer's work.

#### MATON'S RADIO CLOCK.

Another piece of Maton ingenuity was his much renowned 'radio clock'. Electrically illuminated and high enough to be seen at all hours, its 3ft diameter face over-looked Hythe village square from the corner of his shop. Near it, a loudspeaker was placed to relay the broadcasted Greenwich time signals (pips) and the chimes of Big Ben. The clock was slaved to its component pendulum which was suspended near the wireless apparatus in the workshop. According to newspaper reports, this clock was able to automatically synchronise with Big Ben. The details that made such a feat possible remain a mystery: Wallace's invention has disappeared into obscurity thus concealing the evidence to keep us all guessing. In the absence of such evidence, I searched the faded newspaper picture for clues. Judging by relative proportions with Mr Maton in the photograph and applying the formula for SHM, I gauged the pendulum's length to be most likely at 1243mm; the period of which being two seconds. Early electric pendulum clocks were propelled by swinging a magnet into a solenoid; the field of which was activated by the swing.

*continues next page*



The wireless clock in Hythe Square. It gave BBC 'dot' time and also reproduced the sound of Big Ben.

continued from previous page

With this in mind, I can imagine that it was possible for Mr Maton's clock to be arranged so that its own timing mechanism would switch-over its solenoid circuit in readiness to be activated by the received sounds of Big Ben. Each strike of the bell being at every four seconds. A suitable electro-mechanical arrangement could have converted the bell sounds into energising pulses trimmed to match the movement of the pendulum and pull it into 'sync'. Little deviation would have occurred as such a pendulum is likely to maintain good accuracy over a twelve hour period. So, at every twelfth hour, the 48 second session of correction would have been sufficient to restore synchronisation with the nation's time piece. Immediately after the twelfth strike, the solenoid circuit would need to have been restored to normal, otherwise - chaos!  
Well, that's my guess.

**Acknowledgements:**

My grateful thanks to Mrs Muriel Maton for her valuable assistance in providing the various newspaper cuttings and other information related to her late husband's work.

**References:**

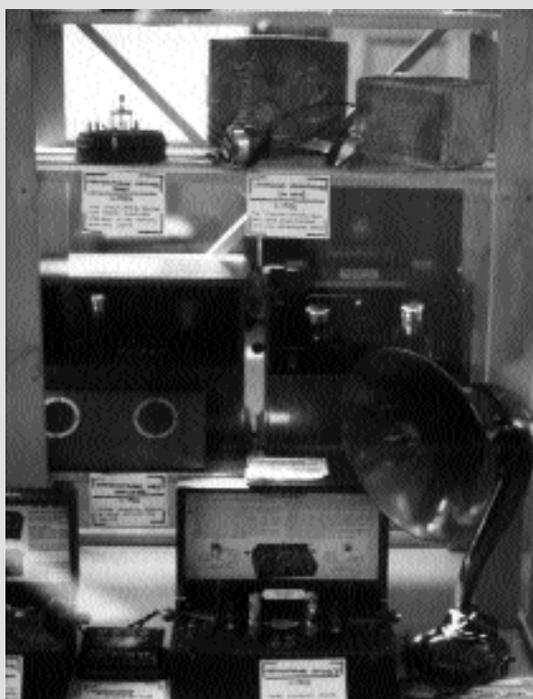
Popular Wireless - August 28th 1926 - (front cover photograph)

Southern Echo for articles and photographs  
Daily Mail, Daily Express, Morning Post.  
The Journal of the Relay Services Association - July 1955  
The Wireless World - April 1940

**Notes on clock mechanism:**

According to the report, the minute hand moves every half minute. The pendulum seen, is of the simple type without temperature compensation.  
Also seen by the picture, is that the clock is separate and therefore slaved to the timing mechanism.  
From a report, I see that the clock engaged the radio broadcast for one minute prior to the chimes.  
If those pulses were amplified to feed a solenoid, then they could be used to synchronise the movement. Automatic adjustment of the clock could be achieved by a release catch which tripped-in on the twelfth beat. If the clock was running slow, there would be the added complication of having to pull the hands forward: the four seconds chime period would allow a 48 seconds deviation for the clock correction.

## Marconi exhibition in Hove



*Pictures taken of Mr Enrico Tedeschi's recent Marconi exhibition in Hove Library, Church Road, Hove which lasted from Tuesday the 11th of April to Saturday the 22nd of April. Mr Tedeschi is also planning an exhibition of novelty transistor receivers at Hove Library from the 4th to the 15th of July. Next year there are plans to exhibit an exhibition on Transistor history from the 9th to the 20th of January followed by 'Sinclair archaeology' from the 6th to the 17th of February.*

## Mystery Rolls-Royce Photograph



The picture above depicts Thomas Weston Searle, described variously as electrician, salesman, sales manager and electrical engineer. From 1886 (the year of this picture) until 1894 he occupied six premises within a quarter of a mile from Cooke Street, Manchester, the place of this picture.  
There is no evidence that he had any manufacturing facilities but in Cooke Street one F.H. Royce was manufacturing domestic electrical equipment and electric cranes.  
It is probable, indeed very likely that Searle purchased supplies from Royce.  
In the picture there is a bell-set with

servants telegraph and bell pushes, devices which may be taper keys or trembler coils, bell pulls or pendant switches and a glass dome containing probably a measuring instrument, whilst Searle is holding a small motor or dynamo.  
This picture is very likely the only known record of the earliest products of what is now Rolls-Royce Ltd.  
Any light or information to add to the least well documented area in the history of one of the worlds greatest companies would be greatly appreciated.  
*Eliot B Levin, 110 Derwent Avenue, East Barnet, Hertfordshire, EN4 8LZ*

# Japanese Shirt Pocket Radios

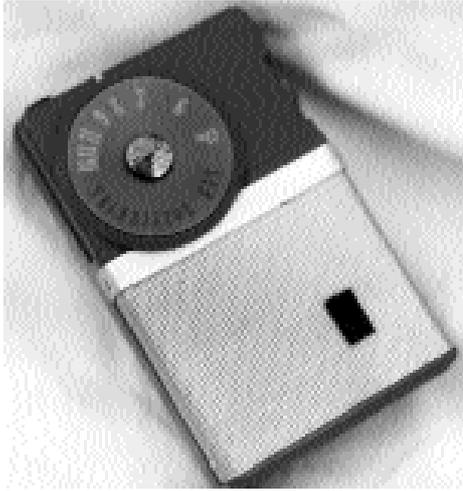
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By Enrico Tedeschi

Japanese shirt pocket sets are among the most loved of all the transistor radios produced during the golden era of 1957-1963.

They not only sparked a technological revolution which changed the way people regarded radio but also started a complete new era of glamorous design and style.

within this category, the most striking examples are the early shirt pocket sets made under the trade names of Sony, Sanyo, Toshiba, National, Nipco, NEC, Nanaola, Fleetwood, Standard, Crown, Mitsubishi, Candle, Global, Yaou, Hitachi, Aiwa, Marvel, Wilco and Realtone.

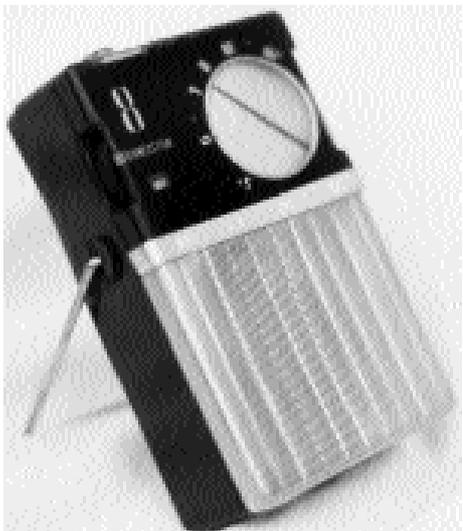


Sony TR-63 1958. The first shirt-pocket Japanese set.

## The early Sonys

The TR-63 (1957) was the first Japanese shirt pocket radio, and the first set exported globally. Unlike the Regency TR-1, the TR-63 used all miniature components, and succeeded in fitting them into the smallest cabinet at the time (112 x 32mm). I will always remember the excitement of opening one and finding that incredible variable condenser, which was not like anything that I had ever seen before.

But the real killer was the second shirt pocket from Sony: the TR-610. This was and is the most typical of all transistor radios, its design and pleasant lines set the standard which others are to be compared with. Consumers liked it and Sony sold 436,952 of them, most of them were bought by the younger generation who liked to



Sony TR-86 1958



Sony TR-610 1958. The second shirt-pocket set.

listen to their favourite rock and roll music on the move. About the same time (1958) Sony brought out the TR-86, an 8 transistor, fatter shirt-pocket model, which did not enjoy much success, followed by the TRW-621, incorporating a Seiko watch and the TR-65, a beautiful, but rather unsuccessful development of the TR-63. In 1959 Sony made its first shirt pocket, two band (AM and SW) radio: the TR-714, which enjoyed a relative commercial success with sales numbering 245,938. It worked very well (I should know, I had one), I have never seen such a clean, compact and well proportioned short



Global GR-711 wave set as the TR-714.

The natural successor of the TR-610 was the TR-620 which Sony produced in 1960. It was even smaller than the previous models, mainly due to improvements in component size. The final historic model by Sony (the TR-650) was produced in 1962 ending a family of design that was never to be repeated again.

## Other Manufacturers

By then many other Japanese manufacturers were producing their own version of the pocket portable. From what I can remember the most popular ones, apart from the Sonys, were the Sanyo 6C-022 with its nylon body and large front grille, the Fleetwood NTR-150 with its beautiful stylised front wings, the clean looking Wilco 360 and the incredible Global GR-711 with its attractive reverse printing escutcheon. Other less popular models were the Standard SR-F410, the Crown TR-680, the Candle PTR-60S, the Hitachi TH-640 and the Mitsubishi 6X-515.

Standard, which refrained temporarily from manufacturing significant examples of shirt pocket models, made a niche of its own by producing one of the smallest sets known at the time: the Microscopic Ruby. During the Sixties this radio was manufactured in a bewildering variety of models and styles. They ranged from the diminutive SR-G430 (the original one) to the larger model SR-Q460F (with AM and FM). Nec, Sharp and Realtone did have a go at producing micro-radios but were somewhat left behind in size and style. Sony did not attempt to

make a

micro-radio until

1963 when it

produced the TR-

8, a striking and

unusual set

shaped like a

micro camera.

Between the two

extremes (the shirt

pocket model and

the micro-radios)

Aiwa, Marvel,

Sony and Toshiba

managed to

produce very

small shirt pocket

sets with a well

designed appear-

Sanyo 6C-022

ance. I can remember the Aiwa Ar-665,

Marvel 6YR-15 and the Toshiba 6TP-394 as

sounding very tinny but great to handle and look

at. The Sony TR-730, which belonged to the

above category managed to sound better

mainly because it used an oval speaker which

ran the entire length of the cabinet.

## The Japanese 'American' sets

When the American manufacturers realised that it was near impossible to produce comparable transistor sets at a similar price, size and style of the Japanese ones. Many turned to having their products made in Japan and badged with their Trademarks.

Bulova, Channel master, Lafayette, Motorola, Westinghouse are just a few of the American brands which chose to have some (or all!) of their models made by their former enemies. Other brands made in Japan adopted a deceptive strategy giving their product American sounding names such as: Trans-American and Americana being the most obvious ones.

## Conclusion

Many other manufacturers produced shirt pocket sets both in the USA and elsewhere but the Japanese sets are probably the most representative of the genre, and marked an important time in the development of the transistor radio, which can rightly be called historic.

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## Your Committee at Work

Report of the 1st meeting held on 2 May 1995

I do not suppose it will surprise anyone to learn that the first session was something of a marathon with some members not getting back home till the early hours of the morning! This was partly due to there being two consecutive meetings - a joint meeting with the Emergency Committee preceding the meeting of the new committee.

The minutes of the first meeting record the following:

1 Congratulations on the production of three Bulletins of high quality in such difficult circumstances.

2 Re the files and Society property held by the previous Editor - it was reported that these would be handed over.

3 David Read reported that some of our new members had not received the usual 'welcome letter' or the year's back numbers of the Bulletin. An apology was offered to those members and it was agreed that at least an acknowledgement would be sent until normalcy is achieved.

4 Re professional help with the administration of the Society - it was agreed in principle that our size now required this. The Chairman said that many societies have this help and that he would investigate and report back. Mike Barker volunteered his assistance with the necessary computer work meanwhile.

5 Re the Newsletter- suggested that this should have greater content and be published more frequently. This also was agreed to be a task for the committee.

The chairman concluded the handover by proposing a heartfelt vote of thanks to the emergency Committee. This was unanimously

acclaimed.

*From the minutes of the (new) committee meeting:*

1 Allocation of duties- those as elected were confirmed. In addition, Dave Adams to continue as Information Officer.

2 Organisation of events- Ken Tythacott asked if any other kinds of functions such as visits, social events or seminars would be wanted. It was agreed that this will be dealt with at future meetings.

3 Ken informed the Committee that while Steve Sidaway had received many compliments regarding his running of the last Harpenden he had to report that the management of the hall had serious complaints. One was that the 'no smoking' rule was broken. Another was that they were concerned that we were breaking the law in selling 'unsafe electrical equipment'. (It was suggested that as long as there are no mains plugs on the sets then we would be within the law.) The third complaint was that we broke the agreement by not being out of the hall by six o'clock.

Gerald Wells told of his plans to organise teaching workshops at his museum. He is recuperating well from his operation and hopes to have the specially built workshop ready in the not too distant future.

The finances of events- Ken expressed the opinion that there should be some formal procedure for authorising the expenditure that officers incur in the carrying out of their duties. This led to considerable debate. The Chairman proposed that the minutes of meetings should record the authority given to Committee members to incur expenditure. This was agreed as a temporary measure.

The Chairman stated that the finances and legal liabilities of events would be discussed at future meetings.

3 Re the Bulletin- Carl Glover informed the meeting that he has had sufficient material so far but that he hopes to receive even more. David Read suggested that all articles submitted should be acknowledged and authors told when whether their work was likely to be published.

The Chairman said that a future meeting will be devoted entirely to the Bulletin.

4 Finances- David Read presented the statement of accounts for 1994. He summarised for us as follows: Income had increased substantially, this being mainly due to increased proceeds from swapmeets and auctions. Expenditure was also up, the main expense being the independent postal ballot we had to have this year. However, the surplus of income over expenditure had increased. In answer to a question David informed the meeting that we paid tax on interest and on auction profits.

5 Proposed participation in the '100 Years of Radio' celebration- Ken Tythacott reported on the efforts made by Geoffrey-Dixon-Nuttall and himself in trying to put venues and proposals to the Committee for consideration. They had consultations with many museums in London as well as other bodies. They generally found the museum staffs to be enthusiastic, however proposals to date had not found favour with museum trustees. They are now in contact with English Heritage.

Discussion on the broader question of the type and extent of the Society's involvement was postponed.

The next meeting would be held at the Vintage Wireless Museum on the 10th June.

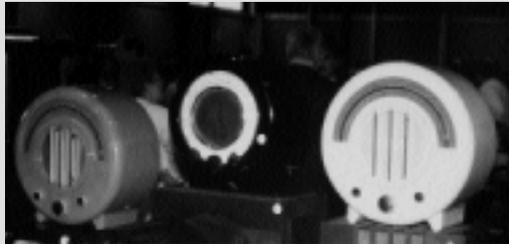
*Dave Adams, Minutes Secretary*

## Dorset auction



On Friday, 21st of July, Chapman, Moore & Mugford-Auctioneers, will be holding an auction in Shaftesbury, Dorset, comprising of approximately 300 lots including an Ekco A22 with original box, Ekco AC76, AC85, Bush TV22, 1934 Atwater Kent Radiogram, Eddystone AR 77, AR 88, HRO, GEC McMichael TV disc player and much more. There are also many gramophones including a Columbia 'Graphophone', G&T horn gramophone, HMV and Dulcetto picnic gramophones and an Edison fireside phonograph.

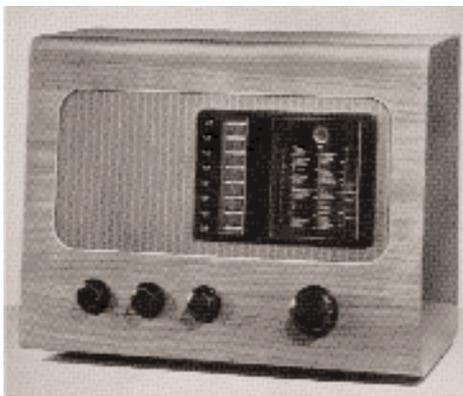
Viewing: Thurs 20th 6pm - 8pm, Fri 21st from 11.00 onwards. Catalogues £1.50 by post from Chapman, Moore & Mugford, 9 High Street, Shaftesbury, SP7 8JB. 'Faxback' 01336 411672 Tel: 01747 852400, Fax: 01747 853614



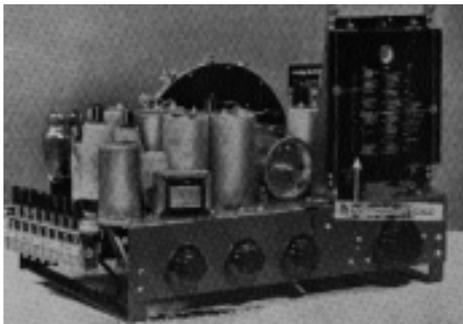
## National vintage communications fair

The NVCF '95 at the NEC Birmingham was another staggering success for Jonathan Hill, comprising of just under 300 stalls, including dealers from Japan, USA, Holland, Belgium, France and Italy. Attendance was in the region of 2,500 people, not bad considering it started off as 18 stalls in Bampton village hall in Devon. Vintage wireless amounted to 55% of the stalls compared with 45% last year, reflecting the growing interest in this area. Classic audio and hi-fi occupied 52 stalls. The NVCF is fast becoming the largest event of its kind, and it will be interesting to see what the future brings

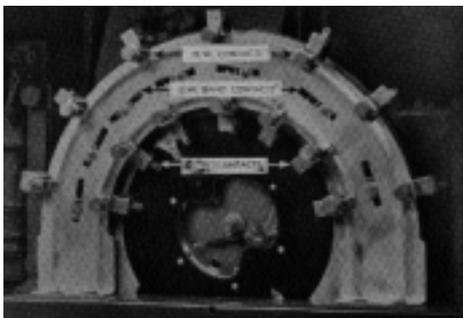




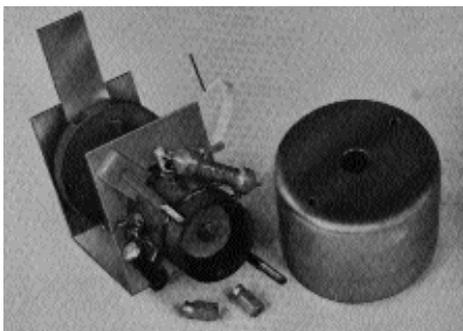
The Murphy A52 is contained in a highly polished light Walnut cabinet



Front view of chassis, both cord driven scales. Note the push button unit can be secured to the speaker end of the chassis for servicing.



This shows the semi-circular 'rail' on which the LW, MW and SW contacts are mounted, enabling the variable condenser to be motor-tuned.



The A52 SW oscillator band spreading device, which operates by varying the actual inductance of the coil over a small range.



Under the '52' showing the tuning motor near the rear of the chassis and the unusual drive changing mechanism.

## The MURPHY A52 Push Buttons par excellence

A small item in the Broadcaster of September 24th 1938 reads:

*"There are to-day on the market some very good push button sets, quite a lot of indifferent ones, and some that, if we are to speak frankly, must be called thoroughly bad !"*

The MURPHY A52 released August 1938 can certainly be classed as "a very good push button set". An AC mains Superhetrodyne receiver covering 16.1-50m., 200-500m. and 950-2000m. Motor driven, variable capacitor tuning on MW and LW, and motorised band selection on SW.

There are 7 preset push button stations on MW, and 7 stations on LW, with names beside each button that change when wavebands are switched. This ensures only the correct name is shown beside each button.

When switched to SW, the main tuning scale indicator lies over each band on the SW scale.

A mechanical linkage from the wavechange switch, automatically connects the manual tuning control to the band spreading device, and operates the smaller scale indicator over the left most scale.

An automatic tuning correction (ATC) circuit is used to ensure accurate tuning of MW and LW push button stations. On SW the buttons are used to select each band. For manual tuning on all wavebands a cathode ray tuning indicator is included.

From the aerial, a high frequency amplifying stage, controlled by variable inverse feedback is used. This is in the form of a Mazda SP41 high slope RF pentode, this is then coupled to the first frequency changer. The first of the two Mazda AC/TH1 frequency changer valves, is used on all wave bands. On MW and LW this operates at the I.F. frequency of 465Kc/s. and at 3.1Mc/s. on SW. Band spreading on SW is achieved by varying the inductance, of the first frequency changer oscillator coil. This is done by means of a small metal disk which is moved up and down within the coil. The second frequency changer has a split personality, having the function of ATC control valve on MW and LW push button tuning and second frequency changer at 465Kc/s. on SW.

From the second frequency changer, signals are fed to the first I.F. transformer and on the I.F. amplifying valve Mazda AC/VP2. The signal voltage is then presented to the second I.F. transformer which is unusual, in that the primary and secondary are tapped, and used as references for the operation of the ATC circuit. The type of ATC circuit employed, is simpler than that of its predecessors, and avoids the complication of special discriminator circuits. It has the advantage that the correction of tuning is made irrespective of the actual setting of the I.F. circuits. The ATC control voltage is developed across two resistances, which form the loads for the two sections of a double diode valve, Mazda 41DD. The signal voltages from the second I.F. transformer are applied to the double diode valve in such a way that the actual voltage, across each diode is dependant on the relative phase of the voltage in the primary and secondary of the I.F. transformer.

When the receiver is correctly tuned the circuits are balanced and voltages at each diode anode are equal and opposite, resulting in no voltage being produced to affect the control valve. If the set is mis-tuned, an imbalance in the second I.F. circuit will produce a voltage difference to be

developed between the two diode loads. This "difference voltage" is then applied to the grid of the control valve, thus altering the reactance of the control circuit, and as this is in parallel with the oscillator circuit, tuning correction results. The remaining detector and AF sections of the set are quite standard for 1938, with the exception of the negative feedback Hetrodyne filter.

The A52 produces a hefty 5 Watts output from a Mazda AC5/PEN into a speaker with surprisingly good response. Due to the small baffle area within its tightly packed cabinet, the set appears to lack bass. This is not so, but due mainly to the sets ability to reproduce an audio bandwidth of approx 150-7000 c/s., with manual high note attenuation from 5000 c/s. upwards and a filter in the output stage arranged to give a sharp cut off at 9000 c/s. to eliminate objectional hetrodyne whistles.

There are a few points to note if you intend working on the Murphy A52. Firstly, if it is not known that the motor tuning is in good working order, NEVER attempt to run the set unless you have first engaged the MANUAL, push button to remove the motor tuning from circuit. I strongly recommend the above, otherwise irreversable damage may take place to the small paxolin gear wheel in the motor drive linkage. The central hole in this gear is keyed by two flats that locate on the drive spindle, thus a great deal of pressure is put on this gear, and the flats will be stripped if the moving parts are not free of dirt and old grease.

All moving parts of the dial indicator cord pulleys and associated linkages should be cleaned and lubricated. A check should be made on the condition of the multi-core cable between the push button unit and chassis. As this can cause short circuits and cause the motor to continually run.

If the receiver has not been in service for some time you may find that the rubber coated, friction drive wheel attached to the tuning control spindle has developed flat spots, causing tuning to be erratic and slipping will occur on motor tuning. This can be cured by removing the old rubber coating until the inner bakelite wheel is reached, and re coating the wheel using pieces of cycle inner tube, or the rubber sleeve used on laser printer paper feed rollers, as these have a textured surface and will not slip.

Before removing the chassis from the cabinet, the push-button station name panel and its pilot lamp bracket must be removed. When the lamp bracket is clear, the name panel can be removed by loosening, the screw holding it to the metal rod link, and lifting it up and out.

I have found that particular attention to the wave change switch contacts is needed to eliminate spurious faults and noises in this particular set.

The commutator disc contacts should be checked for tension. If the pressure on the disc is too heavy there is risk of drive slip, while if it is too light intermittent operation will result.

This set was Murphy Radio's only motor driven, variable capacitance tuned set. In 1939 push buttons once again appeared on Murphy sets, but this time using permability tuned, switched circuits enclosed in small boxes that could be added to any of the 1939 range at extra cost to the customer, in either buttons only or buttons and remote volume control on a 15Ft retractable cable.

No console or radiogram models of the A52 were made. this must be put down to the sheer cost at that time, as the table model retailed at £18 10s

Mike Barker

# Report from your Information Officer

For new members I think I should explain that I am happy to receive queries on anything but I must immediately make plain that I cannot guarantee an answer. My main qualification for this job is my proximity to Gerry Wells' Museum. Most of the answers I find in Gerry's archives or, quite often, from the 'top of his head'. I also have a register of members who have special knowledge and who have generously offered help. I am building my own archive and directory of sources (earmarked for the Society on my demise). I am keeping in mind the likelihood that my successor may not so favourably placed geographically. I and others would like to see the establishing of a Society library and archive. A few moments' thought will bring the difficulties to mind. But, we are not abandoning the idea. There is a wonderful wealth of knowledge and learning in our Society. Somehow it must be preserved for posterity. Some further words now regarding the 'register'.

In the early days of the Society a complete membership list was published more than once. A special register was compiled by Mike Field of members collections. This was mainly to enable members to exchange information particularly where members had examples of the same set. This was, however, in the days when the days when sets had not been accorded the values of today and when the membership was a fraction of our present thousand plus. Many members now have valid concern in the matter of security. This is one reason that the publishing

of a membership list was abandoned. The other was the cost in printing and mailing not to mention the continuing difficulty of publishing amendments. (If all the officers were full-time employees housed under the same roof this and many other services would be possible.)

Two or three years ago, members wishing to have their names and addresses published, particularly those having a special skill and knowledge, were invited to inform us. A register was thus compiled. This register is still serving the membership. I still use it but with circumspection. We lose members for various reasons including the inevitable one. I now sometimes have to check with the Treasurer before I approach someone I do not know. This explains why the register has not since been republished. I refer you to my comment in the brackets above.

However, the scheme has not been abandoned. We will be making another request in the near future but the difference will be that the register will not be published. It will be held by the Information Officer, as now, and members will make their requests to him.

An additional scheme is being considered. This is to invite members to volunteer to act as 'Regional Contacts' and to provide the means by which any members so wishing can contact others in the area. It is hoped that this will be specially helpful to those living too far away from the location of the Society's usual meetings. If the idea commends itself to you I would be very pleased to receive your comments and suggestions.

*Dave Adams*

## Statement of Accounts for 4th April 1994 to 9th April 1995

	1994/1995	1994/1993
<b>Income</b>		
Subscriptions and Donations	14,891.00	15,436.04
Sale of Publications	40.00	162.00
Meetings and Auctions	8,541.79	2,166.22
Interest on Deposit	381.93	305.47
	<b>23,854.72</b>	<b>18,069.73</b>
<b>Expenditure</b>		
General Expenses incl. Taxation	941.18	994.59
Sundries	5.00	0.31
Bulletins	14,392.42	14,670.18
Extraordinary Items (Note 4)		
Election costs	2,372.58	-
Expenses of Emergency Cttee.	221.28	-
	<b>17,932.46</b>	<b>15,655.08</b>
<b>Surplus of Income over Expenditure</b>	<b>+5,922.26</b>	represented by a corresponding increase of £5,922.26 in assets

Assets	1995	1994	Movement
Current Account at Lloyds	16,798.25	5,995.62	+10,802.63
Deposit Account at Lloyds	7,785.29	12,403.36	-4,618.07
Giro	350.39	604.39	-254.00
Cash	30.26	38.56	-8.30
Total assets	24,964.19	19,041.93	
Increase in Assets			<b>+5,922.26</b>

*David Read*

D.D. Read FSCA  
Treasurer

## Notes to the Accounts

1. The accounts have been closed on the 9th April in order to simplify the agreement of the Society's books with those of the Bank in view of an electronic funds transfer initiated by an overseas member without normal primary documents or a physical cheque. This problem has also occurred on Giro where some members have simply initiated a funds transfer, for instance for membership subscriptions, without bothering to complete the Society's renewal forms.

In future members are urged always to complete the Society's membership documents.

2. The accounts have been constructed to show the impact of taxation when paid rather than provided for. This makes it consistent with the Society's cash accounting method and enables actual asset balances to be shown in the statement of the accounts at the reported date.

3. Income from membership subscriptions has shown a 3.5% decline. This may be a marginal effect on renewals caused by uncertainty at the time of the AGM.

4. The substantial increase in expenditure is wholly attributable to extraordinary costs associated with printing and postage of election addresses, together with the costs of the Electoral Reform Society. Out of pocket expenses have also been paid to members of the Emergency Committee. Costs of this nature are not expected to be incurred again.

5. The increase in the Society's income from auction commission reflects growth in items catalogued, and also an amount of £2265 relating to the previous year where only 5 working days between the March auction and the year end was insufficient to prevent the income from falling into the current year.

I have examined the books and records of the British Vintage Wireless Society and the statements of account and assets movement and certify same to be in accordance therewith.

*Peter Radford*

Peter Radford FCA

Independent Chartered Accountant

# Letters to the Editor

Dear Editor,

The article by Charles H. Jones in the April issue of the Bulletin, with respect to the Burndept / Vidor connection, has prompted me to write about a fairly unusual Vidor portable gramophone I have in my collection. Externally it resembles a standard wind-up gramophone except that a loudspeaker grille and volume control knob are visible. It does, in fact, have a clockwork motor but not an acoustic tone arm or soundbox. Instead, it has a Garrard moving-iron pickup and a battery operated valve amplifier. It also has external pick-up sockets for connection to an existing wireless set, without use of the battery amplifier. I believe this combination to be quite unusual.

Acoustic gramophones with electric motors were available quite early on, certainly by the 1920's, but I believe they were expensive. Subsequently, electric pick-ups became available to convert wind-up gramophones for electrical reproduction through a wireless set or amplifier. These heavy pick-ups fitted on to the gramophone tone arm in place of the acoustic soundbox and the trailing output leads must have made their use quite difficult. With the advent of integral electric pick-ups and tone arms, combined with electric motor, the 'plus-a-gram' type units were produced. These were without amplifiers and were designed to give full electrical operation through a wireless set. All of these 'add-ons' allowed utilisation of an existing wireless to reproduce gramophone records without the expense of purchasing a radiogramophone.

The purpose of the Vidor design appears to be to obtain portability and electrical reproduction, with the benefit of volume control, without the need for mains electricity. All one needed was the appropriate Vidor batteries!

I have been unable to test the battery operated amplifier of this machine but have connected it to a wireless using the external pick-up sockets provided. At first there was no output from it, apart from an acoustic output from the needle, so I decided to examine the pick-up. The moving-iron pick-up works on the principle that the vibrations from the record groove modulations, transmitted by the playing needle, are transferred to a small armature pivoted centrally between the poles of a permanent magnet and surrounded by a coil. The movement of the armature causes flux changes in the magnetic field, giving alternating output voltages from the coil. The end of the armature furthest from the needle is constrained by a rubber damping pad of various designs. Inspection of the pick-up internals showed that the armature was touching on pole piece. The armature was recentralised and some output was then obtained, but the bass reproduction was distorted. Further inspection showed that the rubber damper had become hard and brittle and this was replaced using rubber tubing. Reproduction was then quite reasonable.

As a collector of gramophones and radios I was very pleased to acquire this unusual combination of clockwork and electric by Vidor, and to get it at least partially working. I would be interested to know if any member can date it.

*Tony Voysey*

Dear Editor,

I have noted that 92.40 members of the BVWS (who is the 0.40 member, I feel I will never discover!) who voted for me at the last election, outnumber people I personally know. To both of these groups I would like to say 'thank you'.

I might not be in the committee but I will endeavor to do my best to support the society and its aims.

By the way I hope that the new committee will organise some sort of celebration for the centenary of radio as appropriate for the occasion.

*Enrico Tedeschi*



## Thanks from Gerry Wells

Gerry Wells would like to thank all friends and members who so kindly contributed to the 'Wells Appeal'. The money has been very much appreciated and has helped to keep the Vintage Wireless Museum going through this difficult time.

*Picture on left: Gerry announcing raffle ticket winners at the annual garden party on June 10th, held at the Vintage Wireless Museum in Dulwich, London*

# N E W S

## Wootton Bassett

Mike Barker's popular Wootton Bassett swapmeet is being held on the 2nd of July, so hurry and fill in those forms that came with your Bulletin or you will miss some of those little wireless bargains that tend to turn up at the smaller meetings.

## IEE conference

The Institution of Electrical Engineers will be staging their conference on '100 years of Radio' between the 5th and 7th September 1995. For more information please contact: HYR95 Secretariat, Conference Services, Institution of Electrical Engineers, Savoy Place, London WC2R 0BL. Tel: 0171 344 5477, Fax: 0171 497 3633, Telex: 2611765 IEE LDN G, Email: conference@iee.org.uk

## Christmas National Vintage Communications fair

The fifth National Vintage Communications Fair will take place in the Pavilions hall of the NEC in Birmingham on Sunday 3rd December, and will feature thousands of rare and collectable vintage technology items with special emphasis on early radios, television receivers, gramophones, telephones and classic 1950s hi-fi. In attendance will be over 300 specialist dealers from the UK, the Continent and the USA.

For further information please contact:

Jonathan Hill, Organiser NVCF'95, 2-4 Brook Street, Bampton, Devon EX16 9LY. Telephone (01398) 331532.

## Further Harpenden meetings

More dates for your diary - mark them in now! Swapmeetings are coming up on Sunday 24th September, and Sunday 26th November. Please note carefully the return address which will be given for your Harpenden applications.

## Southborough meetings

The ever popular Southborough swapmeet is being held on October 15th, John Howes is also holding his usual Audio Jumble on July 16th. For more information please contact John Howes at: 11 Crendon Park, Southborough, Kent TN4 0BE (Tel: 01892 540022)

## Bulletin Index

The Bulletin Index is currently available up to issue 20/1 and is a complete cross reference of authors, subject matter and main articles back to the beginning of the society. Please send an SAE with a cheque for £2 payable to Pat Leggatt at 28 High Park Road, Farnham, Surrey, GU9 7JL.

## New Articles

If you have anything interesting to say concerning Wireless, Television, broadcasting etc. please send it to the Editor for possible future publication in the BVWS Bulletin, as the Bulletin is only as interesting as the articles that comprise it. We welcome all suggestions and comments regarding the new appearance of the Bulletin and hope that it is catering towards your needs as a collector / enthusiast / historian. Your article can be just a few paragraphs long as long as you think it conveys its message across to your fellow members. Also if you have any photographic material that would look good in the bulletin, don't hesitate to post it to the Editor.

Please send all articles typed and / or on floppy disc to:  
Carl Glover, c/o BSS, 1 Rothsay Street, London SE1 4UD



The RI XLA Crystal set GPO registration number 122