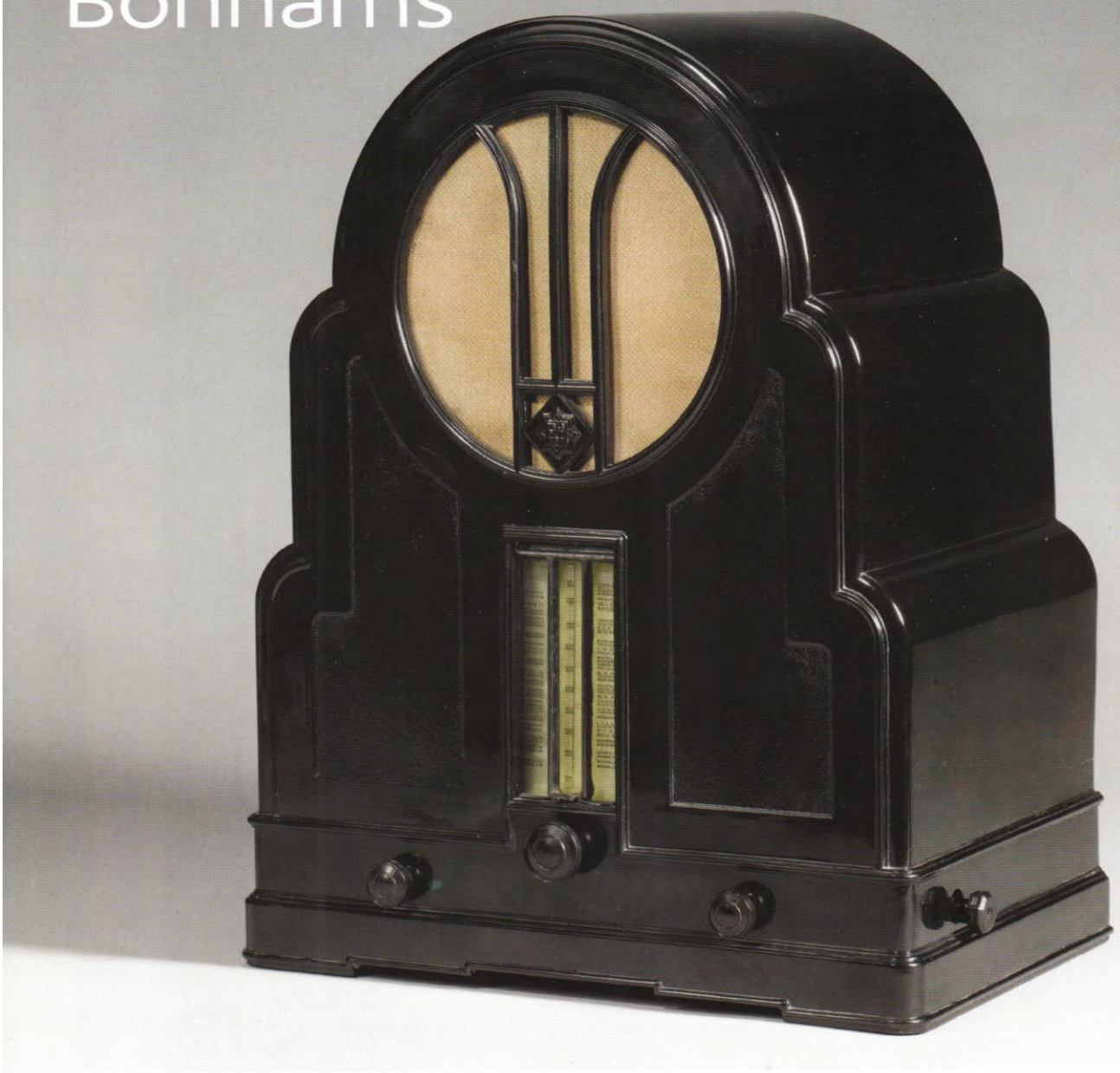
# The Bulletin

Vol. 33 no. 1 Spring 2008 www.bvws.org.uk


The Bulletin of the British Vintage Wireless Society £5.00 | free to members ISSN 0955-9345

Bonhams 1793



# Mechanical Music and Collectables
## Tuesday 13 May
## Knowle

For more information regarding this sale, or if you are interested in consigning items to any further sales, please contact:

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Illustrated:
A Telefunken Model 500 superhet wireless receiver, part of a large wireless collection being offered in Knowle, 13 May.
Estimate: £200 - 300

**Bonhams**
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Bulletin of the British Vintage Wireless Society
Incorporating 405 Alive
Volume 33 No.1 Spring 2008

www.bvws.org.uk



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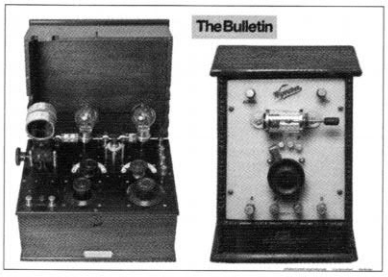


Cover: front – Wyvern1924/25, rear – RI ST100 1924

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Ian Higginbottom and Peter Merriman

**Contents**



# From the Chair

Since the last Bulletin, we have moved house and radio collection. Please take note of the new address in the Committee panel at the top of this page. Organisations that kindly send me a publication, would you please update your records.

At the recent BVWS AGM the Committee awarded the Duncan Neale Award for excellence in preservation to Mr. John Howes who is a very long standing member of the Society in recognition of the tremendous amount of work and time that he and his son Richard have put in to creating both the real and virtual museum for Dynatron equipment www.dynatronmuseum.org.uk and also for championing the cause of vintage Hi-Fi equipment with the twice yearly *Audiojumble* and not forgetting Brenda, Johns wife who keeps us refreshed throughout the events. The Pat Leggatt award for best voted Bulletin article goes to Mr. Ian Liston-Smith for 'A TV22 for the 21st Century' an excellent article which should give many collectors the confidence to tackle a vintage TV restoration. The Committee have created a new award, the Geoffrey Dixon-Nuttall Award which will be given each year for best voted restoration article. The Pat leggatt award will in future be given for best historical article each year.

Many of you, I am sure will have heard by now that Gerry Wells has been feeling rather under the weather of late. In fact Gerry has visited hospital on three separate occasions. I would therefore ask all members please to not contact Gerry or visit the Museum over the next few weeks as it is closed for now, apart from sending your good wishes by letter, as I am sure Gerry would appreciate that. Gerry is to have complete rest, and this can only be achieved if he is not disturbed for the time being. I am quite sure that Gerry will be back to his usual entertaining self in no time. I don't

*From the Chair* continued on page 36

# 'Chips with Everything' exhibition, Fife, Scotland

There are two inventions with significant anniversaries in 2008 - the transistor which was first demonstrated at Bell Labs at Christmas 1947 but not announced until 1948 and the first Integrated Circuit (IC) which was built by Jack Kilby at Texas Instruments in 1958.

The impact of these two devices on communications technology and indeed on everyday life over the last 50 years has been immense, surpassing even the wildest dreams of the technologists of the day. Both of these inventions were to provide examples of what has now become known as 'disruptive technology' - i.e. they offered such radical improvements over the existing technology (compare the transistor with the thermionic valve) or, in the case of the Integrated Circuit, unprecedented levels of miniaturisation at low cost, with the result that the entire electronics industry was changed dramatically. The new microelectronics industry grew at a remarkable rate, faster than any industry in history.

Today, electronics is an essential part of our society, even in the most remote corners of the planet, and we would be hard pressed to sustain our lifestyle, commerce, communications and travel without modern electronic equipment.

Although transistors were to appear in radios in the UK from 1956 and early integrated circuits were used in the first pocket calculators in the early 70s, the main driving force - and the funding - behind the development of integrated circuit technology in the early days was military and, in particular, the 'space race'. In spacecraft and missiles, it was essential to build complex guidance and surveillance systems whilst minimising energy consumption, weight and volume.

The development of IC technology is an exciting story."Chips with Everything" will concentrate on basic technical concepts that are easy to understand and link these to examples and applications that are immediately familiar to everyone. However, well–informed Guides will be pleased to speak to any visitors who have more technical knowledge.


The all-new summer exhibition at the **Museum of Communication**
131 High Street
Burntisland
Fife, KY3 9AA

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www.mocft.co.uk
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tel: 01506 823424

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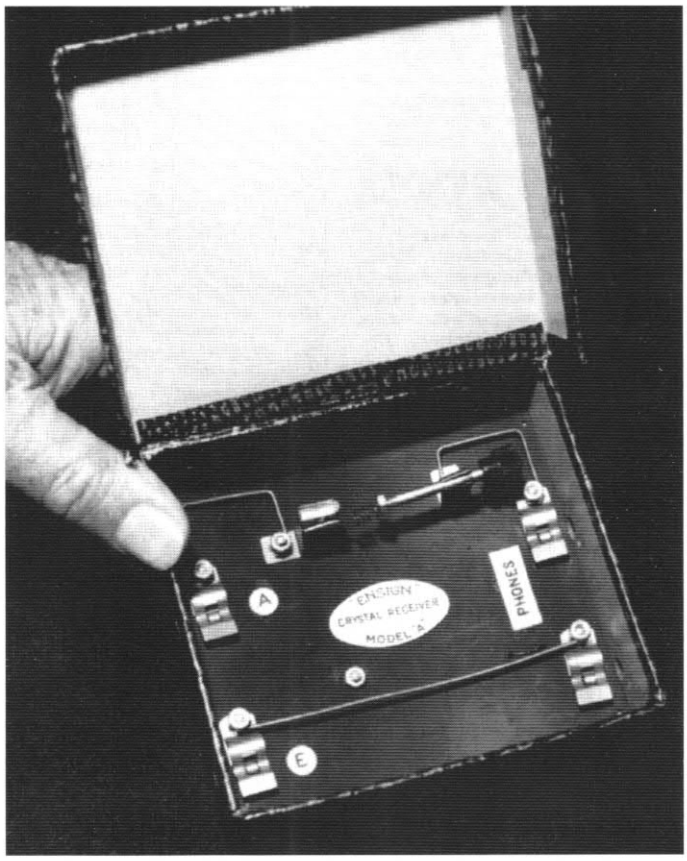
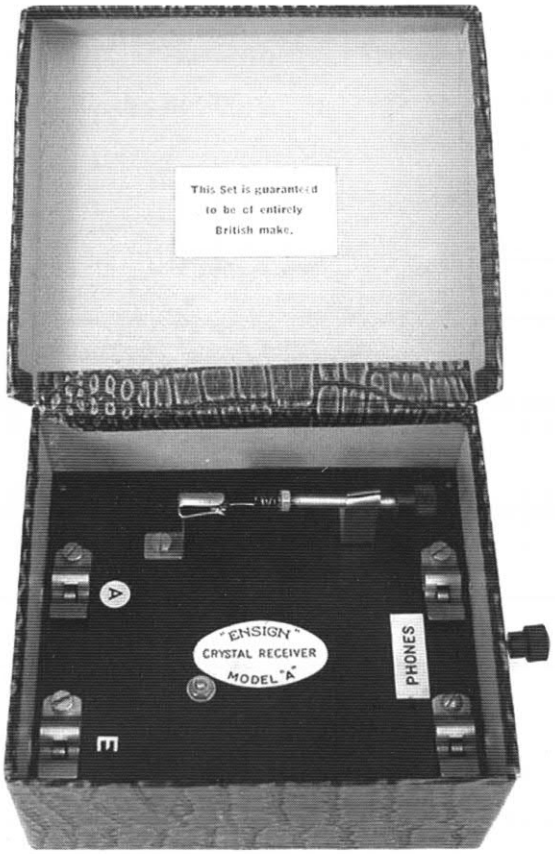
**Amateur Radio Station**
**MMØ MOC**




Photograph (ca.1925) of the Ensign *Model A* showing the above-panel wiring. Right: Ensign *Model A* with label stating British manufacture. Photograph courtesy of Erwin Macho.

# Ensign Crystal Sets

by Ian Sanders and Chris Simmonds

The Ensign Radio Company operated from premises in The Strand, London. A small number of advertisements by the company appear in late 1922/early 1923 for a crystal set and a two-valve receiver (carrying the Post Office registration number 2029), together with a selection of miscellaneous components. This early crystal set was also apparently given a registration number, but no record has yet been identified. Few references to the company appear in the technical journals of the period.

Three later crystal sets carrying the Ensign name – the Model A, B and C – are thought to have been manufactured sometime between 1925 and 1927 by the same company, although some uncertainty remains about the exact date of their introduction. At least one, the Model A, was offered as a kit of parts. The sets are of particularly cheap construction, incorporating unusually thin ebonite panels – approximately 1/16th inch in thickness; the Model A and B have flimsy cardboard cases, and all use American-style Fahnestock clips in place of terminals for external connections. (Ensign was possibly unique among British manufacturers in their adoption of the Fahnestock clip). None of the models carry either the BBC approval stamp or any registration number, consistent with the later manufacturing date. No provision was made for the use of a long-wave loading coil, doubtless to reduce cost.

**Ensign Model A**

Offered as a kit, the Ensign Model A was a small, low-cost set housed in a paper-covered, imitation snakeskin cardboard case with lid, measuring 4½ x 4 x 2 inches. Examples with either a black or brown ebonite control panel are known. Tuning was by a basic swinging, loose-coupled arrangement using hand-wound coils on formers provided as part of the kit and operated by a lever projecting from the side of the case. The set employed an equally rudimentary cat's-whisker/galena detector.

A curious feature of the assembly instructions was the exposed above panel wiring of the components. Extant sets, however, can be found with either above or below panel wiring; it is speculation that those with conventional under-panel wiring may have been factory assembled.

**Ensign Model B**

Generally similar in style to the Model A, the Ensign Model B was a slightly larger set measuring 5½ x 4½ x 5 inches. While the tuning arrangement was the same as that found on the Model A, a more robust Perikon detector was used in place of the galena/cat's-whisker. An engraved panel was used in place of the white ivorine labels found on the Model A.

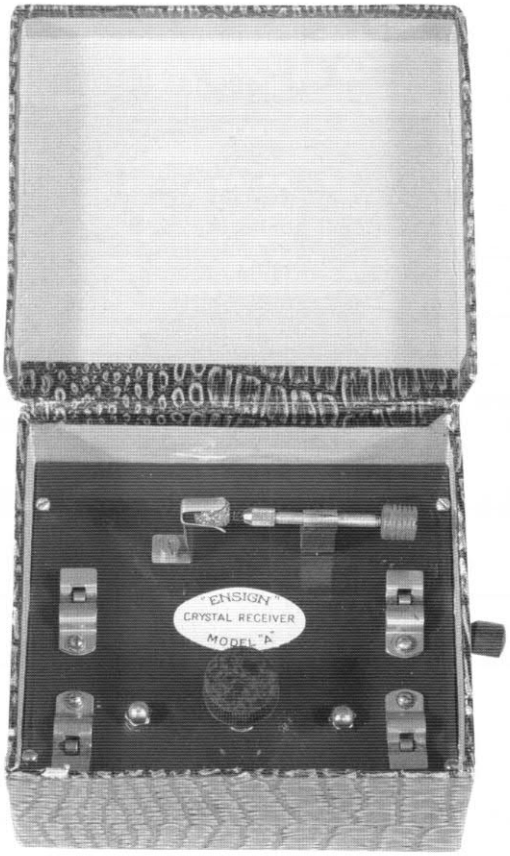
Based on the small number of surviving sets, the Model B was probably sold in the lowest quantities.

**Ensign Model C**

Believed to have been introduced in 1927, the Ensign Model C was housed in a more substantial, black-painted wooden case measuring 5½ x 4½ x 2¾ inches, with a detachable lid bearing the Ensign emblem. A similar loose-coupled tuning arrangement was used as in the earlier sets, but was operated by a miniature, ebonite tuning knob on the panel. The Perikon detector was the same as that used in the Model B. Although crude, even by the standards of the day, compared to the Model A and B, the Model C set featured two "sophistications" – clips for allowing two pairs of headphones to be connected and a three-position, series condenser aerial switch to accommodate aerials of different length.

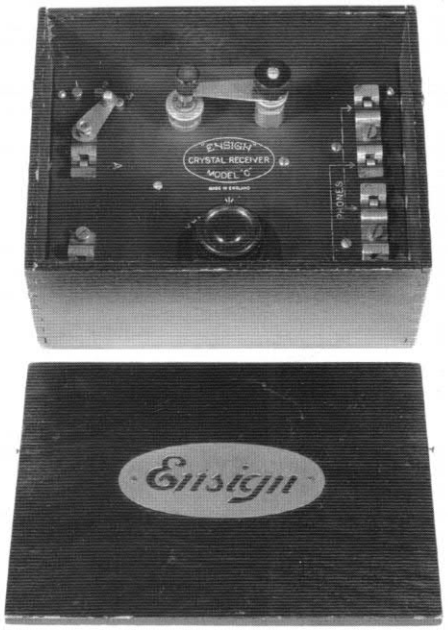
**Summary**

Unfortunately, little else can be said at the present time about the company or its products. Searches of contemporary literature have produced no other insight. The authors would be interested in any further information.

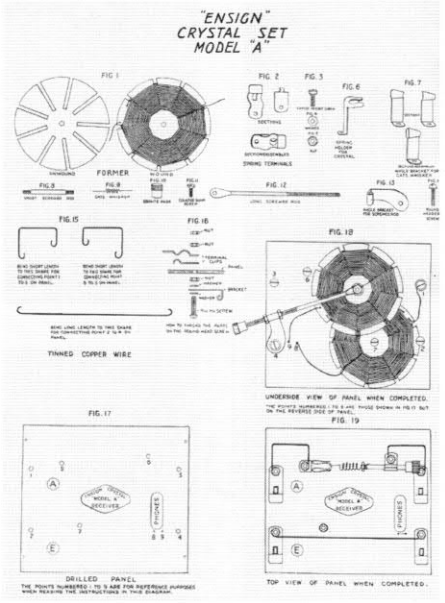



This version of the Ensign *Model A* has a brown control panel. A non-original (although period) tuning condenser has been added.

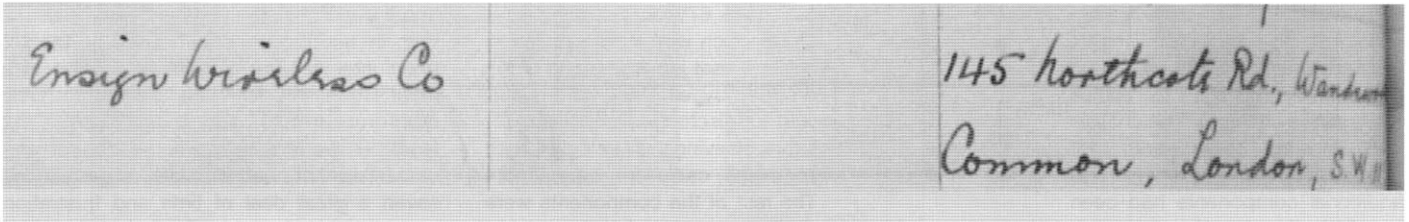

Ensign *Model B* with Perikon detector.




Ensign *Model C.*




Construction details of the Ensign *Model A*. Purchasers of the kit were required to wind the coils themselves.


**Ensign Wireless Company**
A business operating as the Ensign Wireless Company with premises at 145 Northcote Road, Wandsworth Common, London S.W. 11 was in existence in the first years of the British Broadcasting Company. It is not clear what relationship, if any, existed between this company and The Ensign Radio Company or whether the company was connected with the Ensign crystal receivers.

Entry from the list of registered manufacturers of the British Broadcasting Company, ca. 1922. Source: The National Archives, Kew. Courtesy of Lorne Clark.

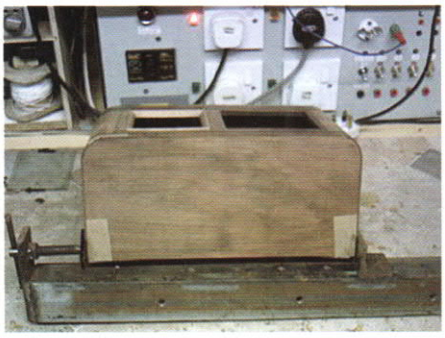
# Pilot Little Maestro Restoration

by Colin Wood

This was the last of four sets kindly given to me by my friend Henry Cavanagh before he sadly died in April 2007. The set was put away to await its repair for a future date which arrived in September.

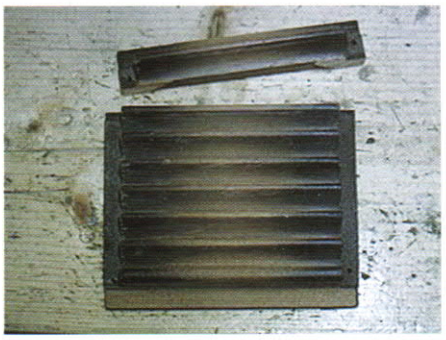
At first glance, this 1939 Little Maestro in walnut cabinet looked in good general condition, all the original knobs were present and it had the correct back panel. The resistive line cord was missing. A closer inspection of its cabinet revealed open joints, peeling veneer and patches of missing finish.

Heaven on Earth

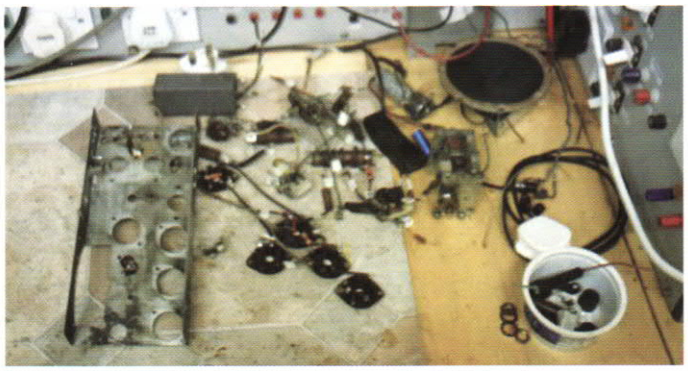


Corner joints re-glued

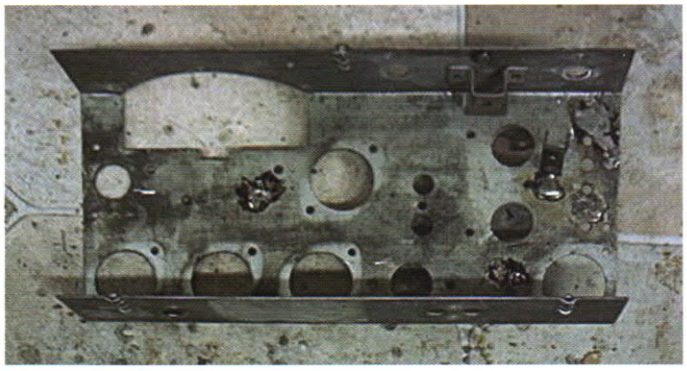
Ready for glue



Fragile grille



Chassis stripped



Plenty of solder

The three chassis mounting screws were missing, so with the knobs removed the chassis came out easily. On top of the chassis, supplied loose, was a brand new volume control with mains switch together with a large old resistor! All the valves tested at 100% emission as Henry said they would. Turning the chassis over, someone had been busy with snips, it looked a mess. Two days were spent trying to sort out the chassis. Paul Stenning's excellent capacitor dropper spreadsheets were downloaded and a 4.2uF dropper was made up to replace the resistive line cord. The chassis had missing components not shown on the service sheets and additional components had been installed. By now I was going round in circles and getting nowhere. The chassis still looked a mess and the cabinet wasn't much better so I decided to do a full restoration.

The chassis was totally stripped, marking each component. Large amounts of solder had been used to directly connect components to chassis; even the two stacks of tuning coils at the front end were soldered to the chassis. A hole was drilled in each location as the solder was removed; solder tags would be added later. The chassis was then rubbed down to bright metal and painted. The valve holders were then fitted and with the valves installed a proper job could be made of the new dropper. Using a Variac and an assortment of class X2 capacitors it was found that 5uF gave 67V across the heater chain which was just 1V down on spec. A neat job was made of the dropper by encasing it together with its discharge resistor in heat shrink sleeving with a single length of mains cable for connection. The rest of the components were added to the chassis surprisingly quickly.

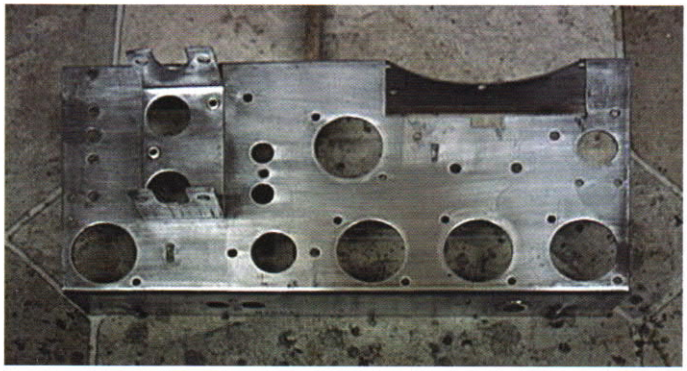
Large amounts of solder had been used to directly connect components to chassis; even the two stacks of tuning coils at the front end were soldered to the chassis.

With power switched on the valves obviously lit up but nothing else; HT on the valve pins was very high but the loudspeaker was silent. This was expected as I'm still a novice on chassis work. Now was the time to learn how to use a signal generator, having bought two previously but never used them! An email was sent to my friend and fellow Society member Martin Scobie asking for instructions to which Martin promptly replied. What a difference the signal generator made! It didn't take long working backwards from the loudspeaker before a signal could be passed from V1 to the loudspeaker; at this point only one station could be heard very weakly! This set doesn't have an aerial socket which threw me for quite a while until I realized that one of the original bits of wire under the chassis must have been the aerial! With the workshop aerial hooked up the set burst into life, the amount of volume was most impressive for such a small set. The new dropper tucked in snugly against the loudspeaker. The new volume control and old resistor not needed? Martin's instructions saved a great deal of time and frustration and with his help I've come to realize what a very useful instrument a signal generator is.

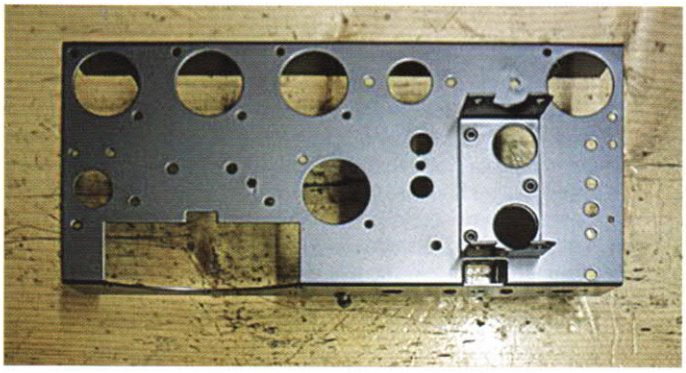
With a fully working chassis the cabinet restoration was next. The original finish was removed with paint stripper due to the damaged veneer, otherwise a cabinet scraper would have been used. The front top right

hand corner was worst as part of the walnut facing veneer had become detached and had a very small piece missing. In the same area a section of the front had become detached and there were many splits to the face veneer. Both top back corner joints had opened up. This work was broken down into sections with the detached front being tackled first. Gummed tape was applied around the repair area to protect the stripped surfaces from the hot hide glue. Matchsticks were used to hold the sections open so that hot hide glue could be worked in, the matchsticks were then removed and the sections quickly brought together, removing the excess glue with a damp cloth; more gummed tape was applied to hold everything firmly together until the glue set. The detached corner veneer was then re-glued and again taped tightly in position removing excess glue with the cloth. Once the glue had set a small piece of walnut veneer was selected and cut to replace the missing piece taking care to get a good match. This was then glued and taped into place. Hot glue was then brushed into the many splits, wiping away the excess and allowing it to dry. Finally both back corners were repaired in similar manner, but this time held tightly closed with a home made sash cramp until the glue had set. All was going well until the wooden grille was being rubbed down with wire wool; the grille suddenly broke into two parts adding yet another repair to the list. The grille was easily repaired with hide glue. With all the repairs completed the cabinet was gently rubbed down with 400 grit abrasive paper and dusted off. The next job was pure magic: the cabinet was given a coat of raw linseed oil: the effect of applying oil has to be seen to be believed as the colours of the veneers jump out at you. Excess oil was removed with a cloth and the cabinet was left for a full day to let the oil dry. Stain was not used. Four coats of button shellac were then applied using an artist's fan brush, letting each coat dry for 30 minutes before applying the next coat. The grille was also given four coats of shellac; the shellac was then left to dry overnight. The following day the cabinet was well flatted with 400 grit wet and dry abrasive paper, used dry, then French polishing proper could begin using a traditional polishing rubber made up of a soft cotton outer layer and skin wadding inner. Due to the small size of this set the polishing rubber could only be used for short periods before the surface became unworkable and had to be left to dry. I never use oil to lubricate the rubber, preferring to use patience and a bit more time to achieve good results. After two days of using the rubber the cabinet was well worked up with shellac and put to one side for a week in a warm place to let the shellac harden. With the shellac hardened, burnishing cream was used to produce a glass like finish. Given the fragile state of the grille, no further work was attempted to improve on the four brush coats of shellac, one break was one too many. The final job was to fully assemble the set and stand back to admire it. It's a pretty little set and my wife Bronwyn soon claimed it, finding a home for it in our front room. I still have a number of abused sets under the bungalow to restore and hope people keep snipping leads as I'm getting a nice collection together. I think Henry would have been pleased with the result.

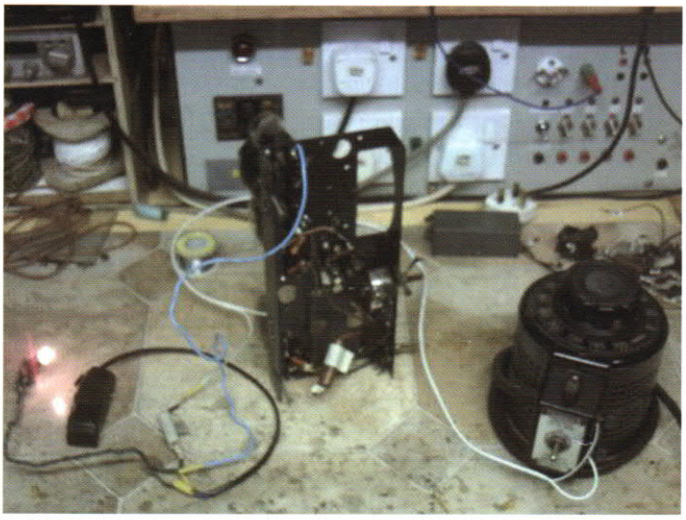
Fully restored



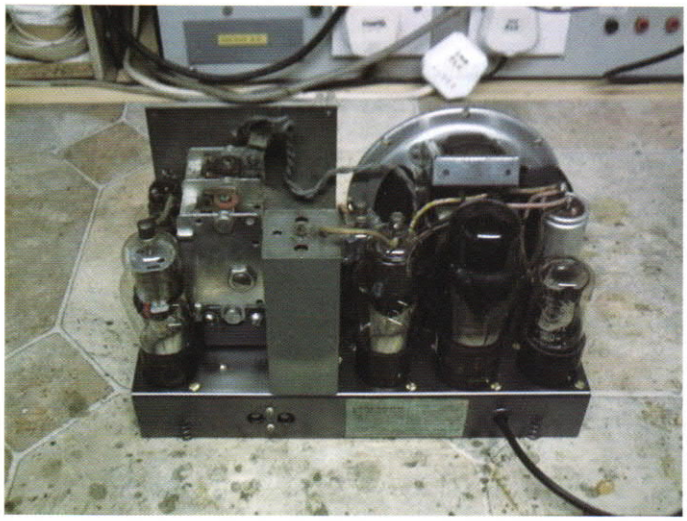
Ready for paint



Repainted chassis



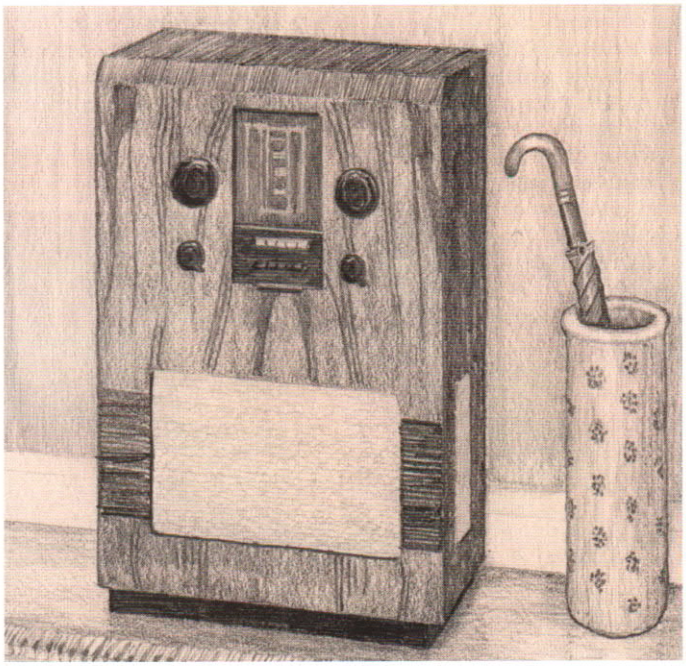
Testing capacitor dropper

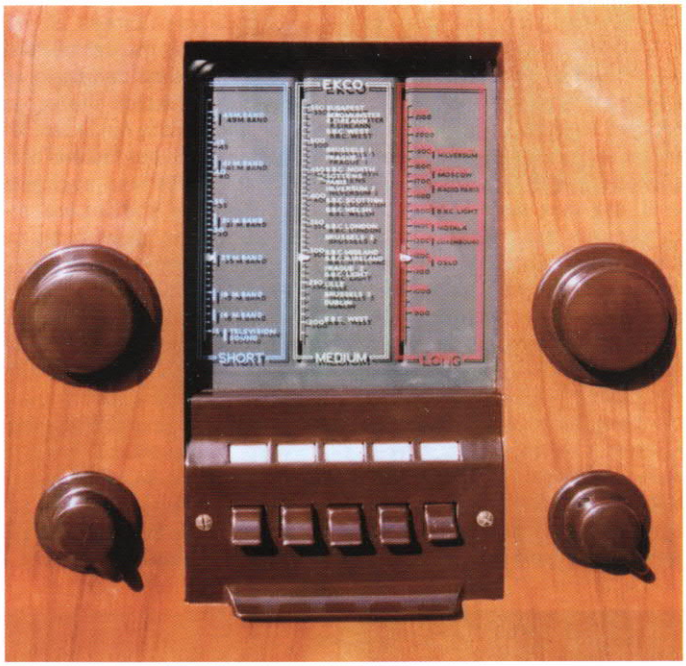


Restored chassis

# A good tip for an Ekco by Peter Nash

We all know that one man's waste is another man's treasure but even so, it is quite amazing what is sometimes cast out. Recently, while visiting the local rubbish tip, my father spotted an old console style radio which fortunately had been put out of harm's way. An enquiry led to my father acquiring the set on my behalf. Well, he did have some space in the car now!






The radio proved to be an Ekco model C36. This is the console version of the rather better known A23, which is a large bakelite–cased model. The C36 is a 5 valve AC mains superhet covering LW, MW and SW and in addition has 5 preset tuning buttons. It is housed in a fairly sedate cabinet along with a generous 10 inch loudspeaker. Considering the circumstances in which it was found, it was not too badly damaged, only suffering a few minor knocks and scrapes. All that was missing was one knob and the loudspeaker. No doubt that is now doing duty as a subwoofer in somebody's car! The good thing was that all the preset labels were still present (normally some are missing) and that none of the grille cloth was torn. The radio dates from around 1947 – indeed there is the date '15/4/47' chalked inside the cabinet. The valve line up was fairly standard for the time, namely ECH35, EF39, EBC33, EL33 and AZ31.

**The chassis**

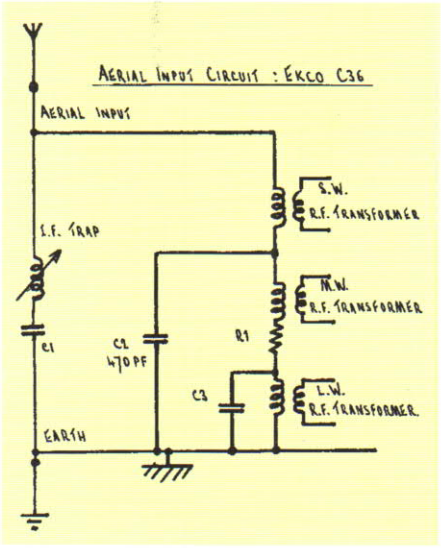
As is usual, I decided to tackle the chassis first. There was no rust, always a good sign, but plenty of dust. I consider that another good sign. A clean chassis can often mean that it has been 'got at' with often deleterious results. The only work that had been carried out here was the replacement of two valves (by equivalents) and one capacitor (HT RF bypass). A check around the chassis with the meter revealed no major trouble spots, but I did find reason to replace a further 4 capacitors. These were the HT RF bypass and AF coupling to output valve (slightly leaky) also HT smoothing electrolytics (not reforming reliably). Once this was done, power was applied, everything lit up that was supplied to and the sounds of Radio 4 LW came through. A tour around the dial revealed that all three manual bands were working albeit in need of realignment. Four of the five preset buttons were working. Not bad. SW and LW bands were reasonably sensitive but some parts of MW were fairly unresponsive. A full RF and IF alignment followed. We now had enhanced calibration but the sensitivity was still down compared with what it should have been. Replacement of the frequency changer and IF capacitor valves only brought about a marginal improvement.

The weak MW reception could be temporarily overcome by ignoring the aerial socket and instead touching the aerial plug onto the top cap (grid) of the frequency changer. This indicated that something was not altogether happy with the aerial input circuit as doing this could restore normal signal strength. In essence, the aerial is coupled to the receiver by means of three RF transformers, one for each waveband. The secondaries of the transformers are switched in and tuned according to the waveband in use. The primaries of the tranformers are permanently in series with each other and are unswitched. Broadly speaking, it is supposed that the impedance presented by the primary circuits of the non-selected bands would have negligible effect upon the selected circuit; see the sketch of the circuit. In practice, there may be a certain degree of loss but it is worth remembering that good, efficient aerial and earth systems were meant to have been used.

The weak MW reception could be temporarily overcome by ignoring the aerial socket and instead touching the aerial plug onto the top cap (grid) of the frequency changer.

I could find nothing actually wrong to account for the poor MW reception. My aerial had been tried on countless receivers over several years: although admittedly it was an indoor type, it was usually adequate. After studying the circuit, I simply removed C2 and at once MW reception assumed the normal strength. LW reception was unaffected by this change, but now SW reception began to suffer. C2 provides a low impedance return for the SW RF transformer and this is needed to bypass the series impedanceof the MW and LW circuits. Unfortunately, C2 will tend to shunt away signals at the higher frequency end of the MW band, but its reactance would not unduly affect longwave signals. I now tried a much smaller capacitor in C2 position, one whose value would allow the passage of short wave currents much more than medium wave. 47pF offered the best compromise that would retain SW sensitivity without overly degrading MW performance. It was like trying to balance some kind of electronic see–saw with SW one side and MW the other.

At another time, I found exactly the same problem afflicting an A23 chassis. Although




this change effects a drastic improvement, I remain unhappy with altering component values from the original specification. Maybe the receiver needs an efficient 70 foot outside aerial after all. Comments welcome!

Now that the sensitivity issue had been looked at, the next job to be tackled was the repair of the non–operating preset button. This was easy to cure. Removal of the switch bank assembly allowed access to the associated coils, whereupon tests confirmed one of these to be open circuit. This was caused by a classic dry joint. The fine wire of the coil had been wrapped around the anchoring support, but the solder had never wetted the wire, which was just held in place by the wax coating. With this connected, we could now reassemble and tune the 'overseas' position to Allouis.

To finish work on the chassis, it was de-dusted, another alignment check given, a new mains lead fitted and all moving parts lubricated. The dial glass and backing were carefully cleaned. All knobs and buttons, also the bakelite escutcheon were cleaned and polished. The chassis was now soak tested and found to work reliably. Even the original volume control was noise free!

**The cabinet**

The cabinet was slightly distressed. There were three main problems. A few chips and scratches had penetrated the stained lacquer allowing pale wood to show through. Secondly, there were paint–filled scuff marks around the set. Probably in storage or transit, some white painted items(s) had knocked harshly against the cabinet to cause this. Thirdly, the plinth required repainting.

The paint scuffs were removed first using a fine grade abrasive paper or fine needle file (used on cabinet corners) and Bake-O-Bryte polishing paste on the cabinet face. The general knocks and scratches were dealt with by using a medium brown shade of furniture scratch remover. I find this to be very effective when scratches need to be rendered 'invisible' on an otherwise good cabinet. The cabinet certainly was not bad enough to warrant refinishing; I consider that to be a last resort. It would be very dificult (for me at any rate) to recreate the effect of mellowed age which looks so right on an old set. Several applications of scratch remover were used, the first two or three just soaking in. After a week or two of an application every two or three days, the cabinet was looking much better. It was indeed difficult to see any damage from a normal viewing angle.

The plinth was repainted in gloss paint and the speaker cloth was carefully vacuumed. Finally, the cabinet was rubbed over thoroughly with a dry cloth to remove as much surplus scratch remover as possible, then polished with wax furniture polish. The chassis was reconciled with the cabinet and replacement speaker (thank you Gerry) and everything was ready for use.

**In use**

Acoustically, the Ekco works very well. The 10 inch loudspeaker mounted in the cavernous enclosure is able to impart a good long throw to the sound. Indeed, it almost sounds louder in the next room especially if the doorway happens to be in the line of fire from the speaker. The bass response is predictably very good and is no doubt aided in this respect by the negative feedback loop which operates across the entire AF stages. This does tend to knock back the gain, though, average listening usually dictates the volume control be set at something just beyond mid–travel. The four–position tone switch offers varying degrees of top cut from from position 1 deeply mellow to position 4 which actually seems to give a very slight lift to the mid–range. With some types of programme, it is very difficult to hear this lift at all.

Acoustically, the Ekco works very well. The 10 inch loudspeaker mounted in the cavernous enclosure is able to impart a good long throw to the sound. Indeed, it almost sounds louder in the next room especially if the doorway happens to be in the line of fire from the speaker.

As I have already implied, the Ekco demands a good aerial. The recever seems to be at home on shortwave use: the tuning control is geared very low and it feels precise with no backlash. The steel wire drive cord helps to ensure a positive and non–slip action. Tuning into a station, even on the 19 metre band is easier than with many of its contemporaries. Some of the foreign shortwave broadcasts are of quite high fidelity and the Ecko is amply capable of exploiting these, again the negative feedback assisting purity of tone. On the other hand, returning to MW and LW, some UK stations currently suffer from distorted modulation, presumably in some sort of attempt to wring out every last drop of efficiency from the transmitter and this becomes very noticeable after listening to some of the foreigners.

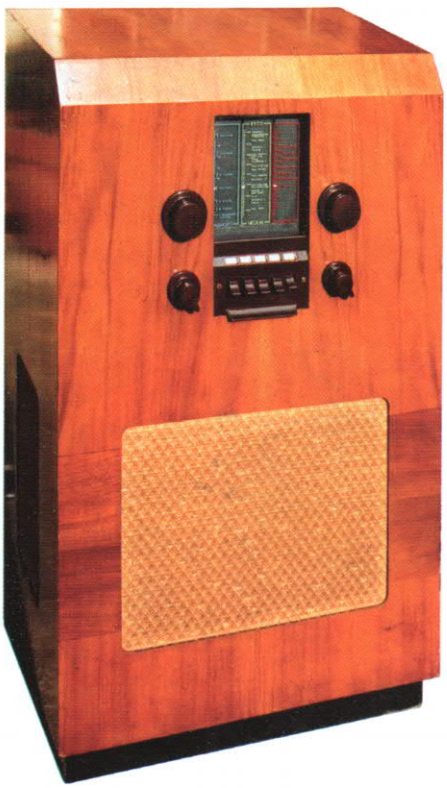
I can recommend readers to Mr John Ounsted's excellent article on the Ekco A23. This can be found in the Summer 1996 Bulletin issue, No.2 Although this deals mainly with the A23, much of the content is relevant to its more obscure bigger brother too.

The C36 has one or two little quirks that are worth mentioning. The bottom end of the short wave dial has a position marked 'Television Sound'. This apparently works on a harmonic as the fundamental frequency is closer to 7 metres (not around 14 metres which is the lowest coverage of short wave). I thought if ever I obtain one of the 405 line band 1 converters, it would be nice to be able to demonstrate the television sound facility. Accordingly, when carrying out the RF alignment, an attempt was made to align on to the band 1 sound signal, (41.5 MHz). No matter how much signal I fed into the receiver, there was zero response from any channel 1 frequency. On the other hand, the receiver was very lively around the fundamental frequency of 20 MHz.

The corners of the back cover are secured to the cabinet by means of press studs. Very nouveau! The control layout is a little idiosyncratic. The volume and tuning controls are disposed on each side of the dial. So, logically, one would expect the tone control to be below the tuning control, but no! The waveband selector is grouped with the volume control and the tone control is grouped with the tuning control. One quickly becomes used to this arrangement although in moments of haste mistakes can still be made.

**Conclusion**

So, another product from the 'steam' era of wireless has now been saved from oblivion. Not just saved, but returned to useful and pleasurable service. It also now looks very respectable too. Imagine, just a few months before, this radio was languishing at the council's disposal facilities!



# Oh East is East, and West is West by Alan Douglas

And Konosuke Matsushita meets Atwater Kent, somewhat after the fact. Whether they actually had any influence on one another, who can say? I bought this circa-1931 National 3-tube set about thirty years ago, and the 1934 Atwater Kent 185A last fall, because I liked the styling of each, but then I began to see similarities: the rectangular grilles, the metal bars, the overall look. The 185A grille cloth is reminiscent of Japanese patterns, when the light catches the golden threads just right, and the stepped panels with black-lacquered edges look distinctly Eastern.


*Radio Retailing, April, 1934* 11

ATWATER KENT RADIO

Announces

STANDARD BROADCAST AND EUROPEAN SHORT WAVE RECEIVER

at $39.90 Model 185-A F. O. B. Philadelphia

Weeks of testing have proved it a dramatic success. Production starts immediately. Place your orders today for Atwater Kent model 185-A. Range 5.5 megacycles to 15.5 megacycles—and 540 to 1700 kilocycles. Hears all important European short wave channels—and standard broadcast. Five tubes—ALL working to FULL capacity on all tuning ranges. Tone control, automatic volume control, 3-gang condenser, highly sensitive and selective. 8-inch electro-dynamic speaker. 2-point range switch. Glorious tone, ample volume. Order from your distributor today.

*Prices subject to change without notice*

ATWATER KENT MANUFACTURING CO. *A. Atwater Kent, President* 4700 WISSAHICKON AVE., PHILA., PA.


*Above: Aside from some light cleaning, and touchup of flaking black lacquer, the Atwater Kent is original. The National was in poor shape when I got it, so that has been refinished. I probably should have used toner rather than stain, but it's not far from its original appearance.*

*Far left: Advertisment for Atwater Kent 185A reproduced from 'Radio Retailing', April 1934.*

*Left: Japanese advertisement reproduced from the 1932 'NHK (Japanese Broadcasting Corporation) Yearbook'.*

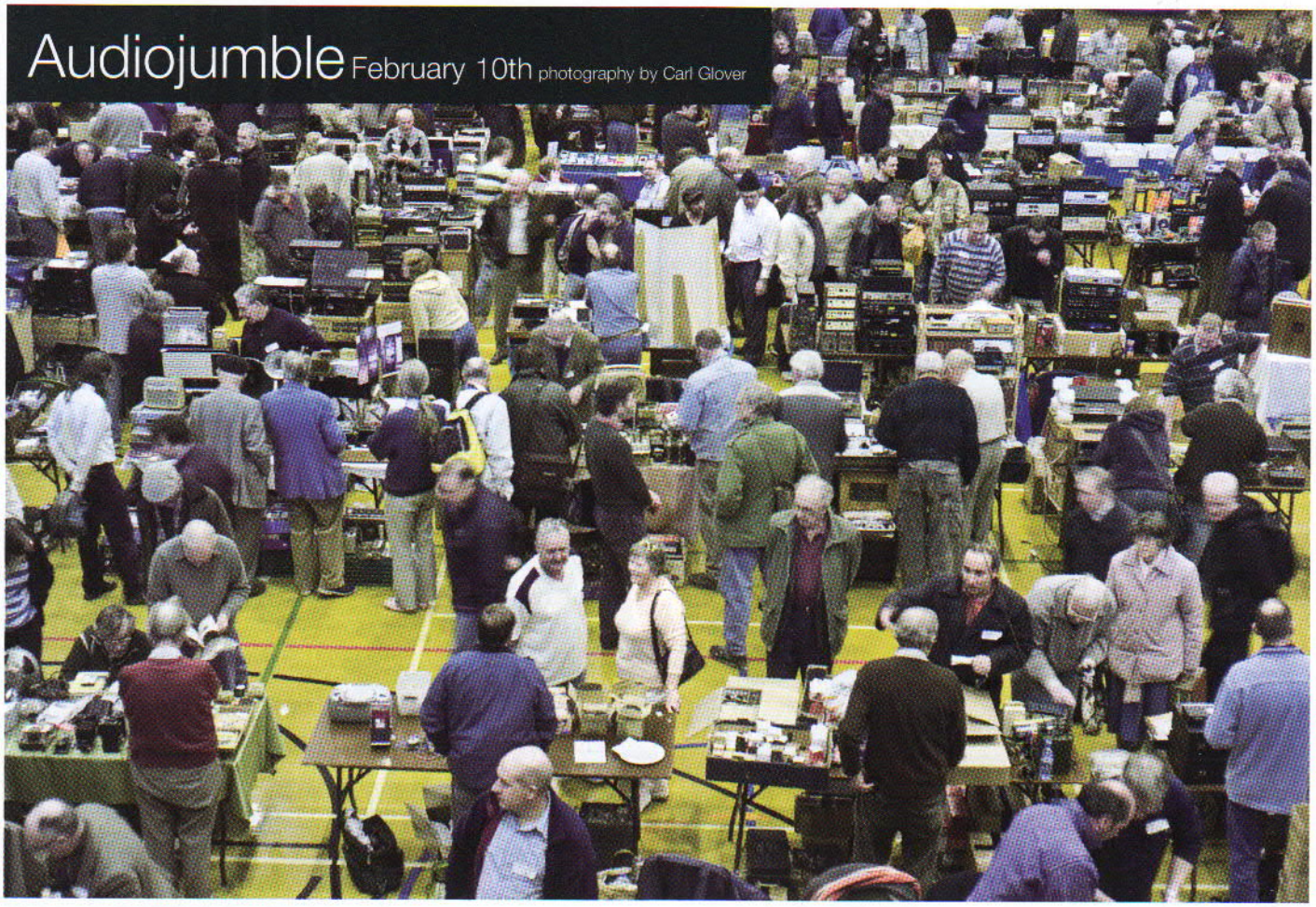
*Opposite page, bottom left: charming illustrations also found in the 1932 'NHK Yearbook'.*

The National could never have been marketed in the US, with its rather primitive regenerative circuitry, and of course the name National was already taken, so that when Matsushita did eventually export here after the war, it was under the name Panasonic.

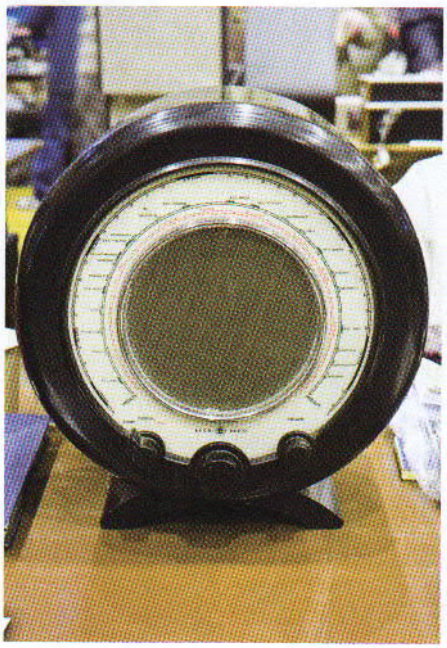
Atwater Kent's dealer advertising did not mention any outside influences on styling, only "Beautiful cabinet of matched and contrasting woods with metal inlay." One of his more avant-garde consoles was designed by his son, Atwater Kent Jr. after a European visit. I was among a group of four Atwater-Kent buffs that "Atty" escorted around Philadelphia factory sites and his storage barn in 1978 but I didn't see a 185A there, so I never questioned him about that model.

Incidentally the Atwater Kent is unusually well constructed for a Depression model: the cabinet sides are a full inch thick, and the heavy speaker would be more suited to a console. It sold well, perhaps more for its being a good value, rather than for its styling. But time was running out for Arthur Atwater Kent, who had led the industry by producing nearly a million radio sets per year in 1928 and 1929, and now was coasting downhill as other makers learned to be just as efficient and to use advertising just as effectively. In 1936 he closed the plant and retired to Hollywood, where he built a mansion and entertained movie stars.


# Audiojumble February 10th photography by Carl Glover

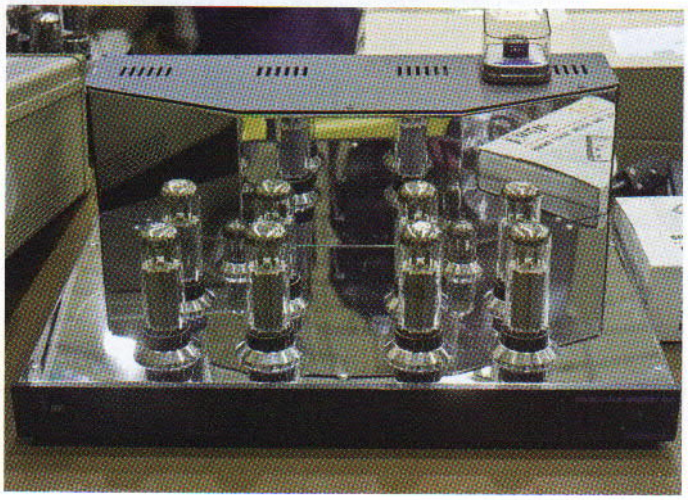


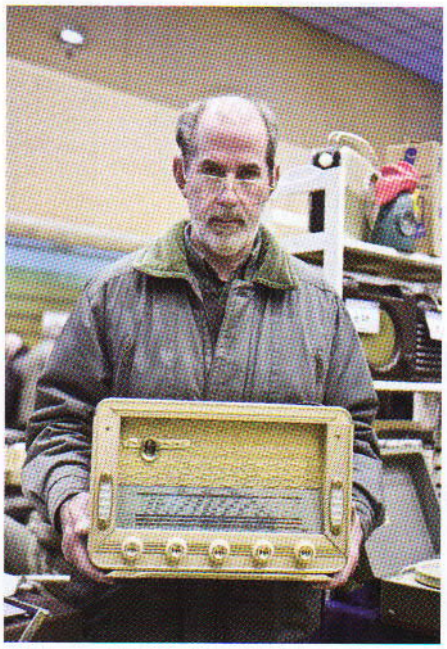


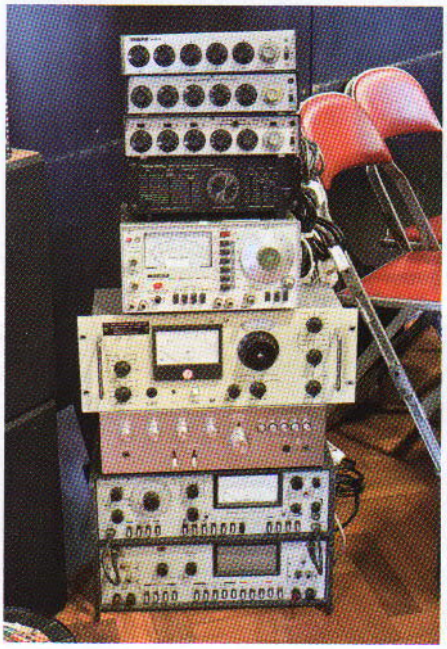



INSTRUCTIO
"AVO" VALVE TES


WURTH

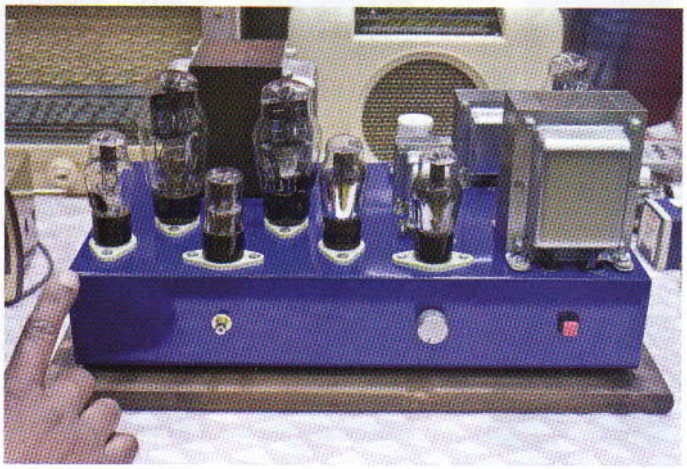




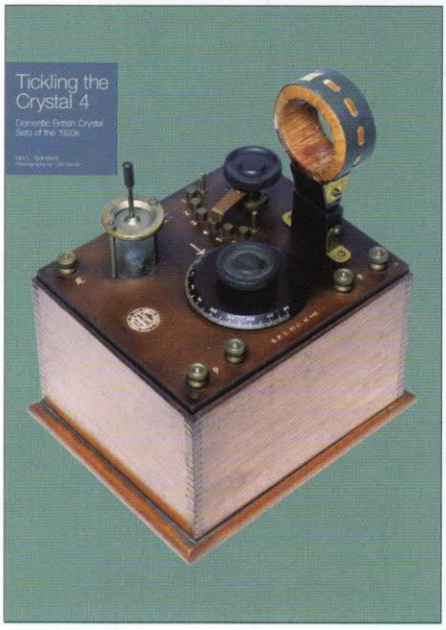



AMPEX
AMPEX


PHILCO



# *Tickling the Crystal Volume 4* to debut soon




Hopefully appearing for the first time at this years' NVCF on Sunday 11th May, Tickling the Crystal volume 4 will be available at a discount for BVWS members.

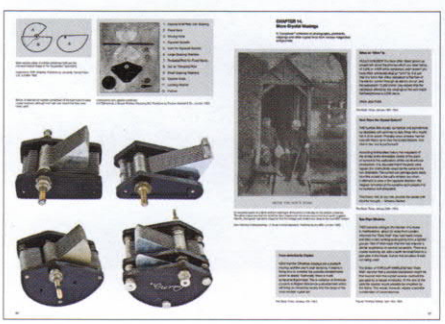
Tickling the Crystal 3 was published at the end of 2005. At that time there really was no plan for any further volumes. How much more could be said about crystal sets of the 20s? How many other sets could there be to photograph and document? The "trilogy" was complete. The author was going to dedicate his spare time to his family and gardening and Carl was going back to the world of catalin sets for good!

That was then. In the intervening time, new information has continued to come to light at an astonishing rate, while other enthusiasts have given graciously of their time and provided access to their own extensive collections. Carl Glover has travelled the country (well, the south of England at any rate), camera equipment in hand, photographing obscure, previously unknown crystal sets. PDFs have flown back and forth across the Atlantic for the last two years stressing servers and jamming email inboxes. *Tickling the Crystal 4* was the inevitable result.

The new volume runs to 256 pages and this time has been produced in full colour, featuring well over a hundred photographs of previously undocumented receivers. More attention has been paid to crystal circuits than previously and a large section of period advertisements has been included. And for those of you who unwisely invested in a slip-cover to house "all three volumes" – we will have to come up with some kind of 'trade-in' scheme, stay tuned.

Volume 5? No comment. Ian L. Sanders.



# The Pre-War Corrie and Other Things

Dicky Howett rummages through the Radio Times

## Via the delights of eBay, I acquired recently the first 26 editions (from Jan.8th 1937) of the Radio Times special 'Television' supplement.

This modest publication (available only in the London area) featured television-related articles, advertisements and the weeks tv listings. Goodies included, Home Affairs-Good Building, Table Tennis, Dress Design, Cabaret From The Grosvenor House and The Western Brothers. But the highlight of the week for May (12th) 1937 was the television broadcast ('transmission by the Marconi-EMI system') of the coronation of King George VI and Queen Elizabeth. Apart from the fact that air time was being entrusted to a brand new and unblooded outside broadcast rig (complete with three fixed-lens Emitron cameras and an experimental microwave link, albeit as a back up), what was unprecedented up until then was that this television broadcast was scheduled to run a whole hour!

Since the BBC television service began in November of 1936, daily airtime was just two hours, with one hour in the afternoon and another in the evening (no Sunday broadcasts). Average individual programmes lasted 15 minutes. It was thought that programme lengths shouldn't overstrain the viewer, with 20 minutes as a maximum. (Indeed, as a prerequisite, the original Baird intermediate film system-abandoned in early 1937- could only run for 20 minutes before it spluttered out of celluloid and hypo). Most television programmes were studio based with outside broadcasts a rarity. Camera cable length was a total of a 1000ft so apart from just poking the camera lens out of the window, any alfresco shooting took place within the grounds of Alexandra Palace. One intriguing 'outside/inside broadcast' occurred during the coronation week. Leslie Mitchell and George Robey took a live 'Tour Of The London Television Station' (May 15th 1937). This programme, repeated in the evening, ran again for another whole hour and showed various examples of sweated BBC tv life including visits to the transmitter hall, reception desk, restaurant, make-up room, control room and studios. A great shame that no vision was ever recorded, as this was indeed the only fully operational television service in the world, transmitting electronically on a scheduled basis to the home fireside. Even a movie record would have been valuable, but such is hindsight and also at the time, the lack of any viable video recording technique. As a third best, a few unexciting photos of the 'Tour' appeared later in the Television Supplement.

A great shame that no vision was ever recorded, (as this was indeed the only fully operational television service in the world, transmitting electronically on a scheduled basis to the home fireside).

But who was watching all this groundbreaking stuff? Television receivers were expensive. Top models could be 120gns, (the actual price of a small new car), but there were options of cheaper sets (60gns) or easy '£1 a week' payments. However, television was initially for the well-off. The programmes were aimed at those who visited nightclubs, mannequin stores, played table tennis, watched ballet or enjoyed 'The White Coons Concert Party'. The majority of 'televiewers' had to be content to watch the 'small screen' in department stores or at 'Radio Shops' in places such as Ealing, Esher, Coulsdon, Edgeware or Burnt Oak, grubby noses pressed against windows. A survey, printed in the March 26th edition of the Television Supplement described several responses from the lower orders. Two 'gas fitters' were 'frankly sceptical', refusing to believe that what they were watching was 'direct' television, but a film instead. Some 'Cockney' ladies thought the picture 'too good' and now 'we shan't have an excuse to go out to the pictures, nor indeed get rid of the men on Saturday afternoons either' An American viewer declared, 'This is the swellest publicity thing I've seen for years! If we can put over sponsored television...' Perish the thought. The conclusion of this admitted unscientific 'survey' revealed that although the actual programmes were not to every taste, the technical quality of the pictures was universally praised even though it was noted that tv receivers were still too expensive, the screen size too small and the hours of transmission too short. Those factors combined, I think we can agree, a 'golden age' never to return?

Wednesday

9.35 'PICTURE PAGE' (Fifty-Fourth Edition)
A Magazine Programme of General and Topical Interest
Edited by CECIL MADDEN
Produced by ROYSTON MORLEY
The Switchboard Girl: JOAN MILLER
A characteristic of Cecil Madden's 'Picture Page' that has made it a distinctive part of television programmes has been its unfailing topicality. The big events of the day, celebrities who are headlined in newspapers and eagerly discussed by the public, little-known people who have interesting tales to tell—all these have been featured. This evening's edition will be appropriate to the occasion, the eve of Coronation Day.
Because of programme alterations made necessary by the televising of the Coronation, both editions of 'Picture Page' this week are being televised today instead of tomorrow.

10.0 CLOSE

2.0 THE CORONATION PROCESSION
Televised from the North and South faces of the main arch of Apsley Gate, Hyde Park Corner
Part 1
Views of the Park, and crowd scenes between Stanhope Gate and Hyde Park Corner; and on the south side of Apsley Gate, from Piccadilly by Wellington Arch to St. George's Hospital and Knightsbridge
Part 2
Their Majesties The King and Queen, and the complete Procession from Stanhope Gate to Apsley Gate, on its return journey to Buckingham Palace

3.0 CLOSE

9.0 THE POET LAUREATE
John Masefield will read his Coronation Ode

9.5 MUSIC-HALL GAVALCADE
with
ALBERT WHELAN
TOM COSTELLO
MARIE LLOYD, JNR.
IDA BARR
ADA CERITO
WALTER WILLIAMS
TOM E. HUGHES
ARTHUR PRINCE AND 'JIM'
Chairman, FRED WILLETT
The BBC Television Orchestra
Conductor, Hyam Greenbaum
Presentation by Harry Pringle

9.50 GAUM

10.0

3.0 ST

3.10 MASK TH Dur
In this conclud will describe mask-makers Angus MacBe Henri Gaudier tions of thei viewers will taking a cast building the c clay. Specime decoration in Austria and It

3.25 GAUM

3.35 HA AND with
Harry Roy business wher learning to banjo. He n become a danc box factory began to do engagement w where he stay wards he to Africa, and the Leicester then that he that have ear 'The Jazz Je Harry Roy' the daughter o appeared with Royal Roman Rhythm.

4.0

9.0 ST CLAPHA
Once upon a t the one with th and the dit barrister's cle war and was the machine-g he managed t war-time conc audience laug probably have now.
After servin followed the father was a minstrel—by Clapham, and together for following year at Savoy Hil

TELEVISION CAMERAS
FROM EAST CARRIAGE RD
TO CONSTITUTION HILL

VIEWERS WILL SEE THE CORONATION PROCESSION

Three television cameras stationed at Apsley Gate, Hyde Park Corner, will transmit views of the complete Coronation procession as it passes down East Carriage Road and through the arch. These pictures show the position of the cameras at Apsley Gate, and (below) a view of the State Coach passing through Admiralty Arch at the Coronation of King George V in 1911. Further details of the arrangements for this transmission will be found on page 12 of the 'Radio Times.'

# Roberts RIC-2

by Paul Stenning

This set was given to me, and was in a fairly sad condition. The cabinet was filthy, the tone control knob was missing (the control shaft was broken) and the base plate was broken. It was also rather battered. However, when a battery was fitted the set did work, albeit with some crackles.

The RIC-2 is electrically similar to the earlier RIC-1, which was Roberts's first set to use an IC. The changes in the RIC-2 are mainly cosmetic – clearly Roberts were bringing the model to the same appearance and form of construction as their other models at the time.

The RIC-2 circuit diagram is included in the 1971-72 edition of Radio and Television Servicing (page 667). Comparison with the RIC-1 circuit in the 1969-70 edition reveals only a couple of minor component value changes.

The set uses an IC (Mullard TAD100) to replace the entire RF and IF stages, as well as the AF preamplifier. A ceramic resonator assembly is used to set the IF passband. Three transistors (OC71, AC187 and AC188) are used to form a direct-coupled class AB output stage.

Anyone who has worked with Roberts transistor sets will know that there are three main things that will stop them from working:

Faulty AF117-type transistors
Poor soldering
Electromechanical faults (controls, aerials, tuning drives, earphone sockets etc.)

This particular set did not use AF117 transistors, but the other two problems were present!

**Disassembly**

Most Roberts sets of this era are dismantled in the same way. The base is removed, the battery is removed, the speaker wires are unsoldered, then the two screws holding the chassis to the brackets mounted on each end of the cabinet are removed. If the set has a telescopic aerial, the screw for this needs to be removed too. The chassis can then be withdrawn from the top of the cabinet, complete with the tuning scale etc. Normally this is a bit of a struggle because it will be stuck in place with years of dirt and muck. Pushing from inside with a long screwdriver is a good way to free it.

In some sets, including my RIC-2, there is a DC input socket mounted on the back of the cabinet. This is held in place with two wood screws that are almost impossible to remove. Rather than struggling, I chose to cut the wires close to the socket. By leaving about 6mm of each wire on the socket, I could easily see which colour went where when reconnecting later.

Having extracted the chassis, the knobs can be removed (they are generally push-on types). Care must be taken because the control shafts are sometimes plastic and easily broken. There is often an earphone socket and a car aerial socket on the top face, so the wires to these items need to be unsoldered. Don't let the earphone socket get too hot or the plastic will melt and it won't work properly.

The two edge trims may now be removed and the tuning scale lifted away. Underneath there will be loads of dust!

**The Base**

The cabinet base is a flat piece of wood that is fitted with a turntable in the centre (so that the set can be rotated). Near one end is a round hole large enough to insert a finger. The base fits into the cabinet between a spring and a small block of wood, under some pieces of trim. By inserting a finger in the hole the base can be pulled against the spring and lifted out. On later models the spring is replaced with a piece of self-adhesive foam.

My base was broken lengthways, and the turntable was missing. The two pieces fitted cleanly together so I repaired it with some woodworking adhesive, then held the pieces together with some elastic bands while the glue dried.

From my previous encounters with Roberts sets (my late father and I repaired sets voluntarily for the British Wireless for the Blind Fund several years ago) I still had a few spare bits and pieces. I found a suitable replacement turntable from a spare R800 base (the R800 is a much later model but the turntable is the same). This was fitted to my base using the then-standard method of melting the ends of the plastic spikes on the inside with a soldering iron.

**Pot and Knob**

In my collection of Roberts bits and pieces I managed to find a similar knob to the missing one. However this was for a smaller shaft than the existing control. Since the shaft was broken anyway, I either had to repair it or replace the control. Since I didn't have a spare control to hand, I decided to attempt a repair.

The first thing I needed was some material to make a replacement shaft. This needed to be 4mm in diameter and about 20mm long. After some searching I spotted a small model-making paintbrush. Although the plastic handle is tapered I could get a sufficient length that was close enough to the right diameter. I cut the brush section off then filed a flat onto the handle (which I will now call the new shaft) to fit the knob. Care is needed to keep this parallel otherwise the knob will not sit straight.

With this part successful, I needed to fit it to the remains of the existing control. The control was disconnected and removed from the chassis. I then dismantled it (by unfolding the four bent-over tabs) and removed the shaft/wiper section. I cut the broken end of the shaft off with a junior hacksaw, so it was square.

The next stage was to drill a 4mm diameter hole into the 6.35mm (1/4") diameter shaft. It needed to be central and straight. A lathe would have been ideal for this job, but I do not have such luxuries. However I do have a bench drill, which is the next-best option. I fitted the shaft/wiper assembly into the drill vice, ensuring it was vertical. Rather than going straight in with a 4mm drill, I started with 2mm. Generally the best method of drilling plastic is to

use a fairly high speed and go very gently, lifting the drill away every few seconds to clear the swarf and prevent it getting too warm. A sharp drill is essential to prevent snagging. I drilled down into the shaft about 10mm deep, then enlarged the hole to 4mm to the same depth. Before starting I had marked the centre of the shaft with a fine marker pen, by eye.

When I tried the new shaft in the hole, I was pleased to find it was a good push-fit. The slight taper of the paintbrush handle helped here. It therefore required no additional fixing. Before pushing it in finally, I fitted the knob then rotated the shaft in the hole to get everything as close to concentric and straight as possible. No matter how carefully one does this sort of job, there will inevitably be some lack of precision, but by rotating the parts I was able to find a position where the errors cancelled each other out – near enough.

When I came to reassembling the control, I found that the shaft was a very tight fit into the bush. By pushing the new shaft into the existing one, the existing one had stretched in diameter slightly. I reduced the diameter by using sandpaper, followed by wire wool to smooth the finish. I then reassembled the control, lubricating everything with silicone grease.

**Cleaning**

The best way to clean the tuning scales on this type of Roberts set is foam cleanser. Spray it on, leave it to work for about a minute, then wipe off. This will need to be repeated a couple of times if the scale is very mucky. My RIC-2 had obviously spent its former life in the usual home for battery portable radios – on the fridge in the kitchen – because it was covered with brown greasy muck. Some foam cleanser will get into the earphone and aerial sockets, but this does not matter. Once the dust in these has become soggy it can all be hooked out with a small jewellers screwdriver.

After cleaning, the scale still looked a bit dull and lifeless, so I polished it with Greygate Plastic Polish. This is specially formulated for Perspex and similar acrylic sheets, so is ideal for the job. Although the print on these scales does not tend to come away as with glass scales in valve sets, care should still be taken not to get cleaner or polish on the printed side.

The cabinet and trim were also cleaned with foam cleanser, after removing the speaker. With the speaker out I was able to flatten the speaker grill metal by hand.

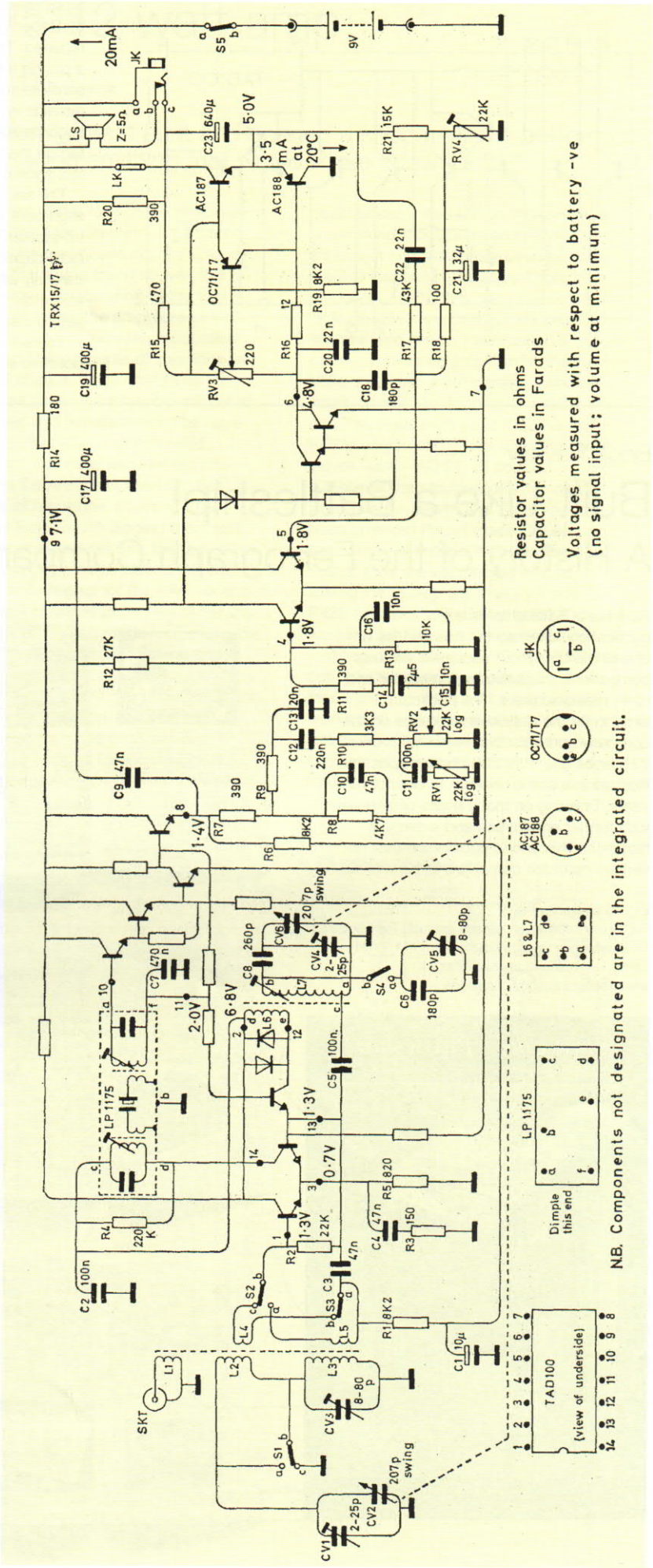
The vinyl covering is damaged in a couple of places, but there is nothing I can do about this apart from recovering the whole set, and I didn't think it was bad enough to justify that. The whole set looks a bit battered anyway, so to do the job properly I would need a new speaker grill, knobs, handle, wooden end cheeks etc. Not worth the effort!

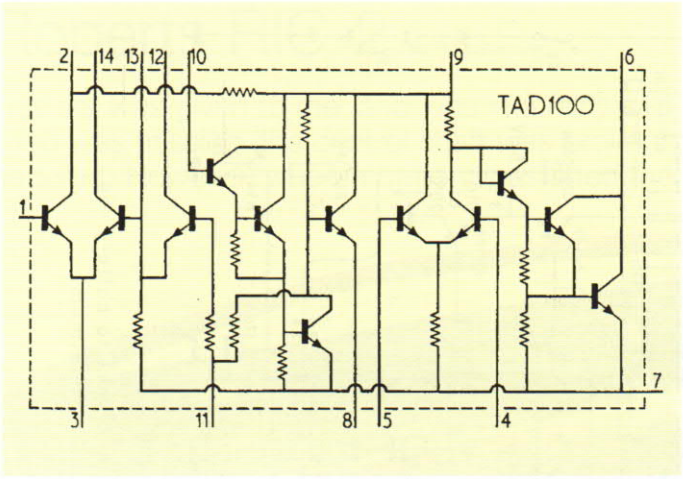
**Crackles**

The set was then reassembled sufficiently to allow it to be tested. As expected from previous tests, it worked OK but crackled when handled. The volume control and waveband switch were treated with contact cleaner because these crackled when operated.

The PCB and chassis wiring were then examined and a number of suspect joints were resoldered. Anyone who has worked with Roberts equipment will know that they seem to use the minimum amount of solder on their joints, in particular the interwiring. There are invariably a few connections that are so delicate that you wonder why the wire hadn't dropped off years ago!

The set now behaved better, but there was still crackling and distortion when the speaker wiring was disturbed. This turned out to be due to the earphone socket. I have had problems with these previously, so it didn't surprise me. Unlike the open






types used on far-eastern trannie radios, the enclosed types used by Roberts and other British manufacturers cannot be easily repaired. The earphone socket disconnects the speaker when a plug is inserted, and it is this arrangement that fails. The only sensible solution is to disable this function so that the speaker remains in circuit even if an earphone is plugged in. This is easily accomplished by moving the wire to the speaker to a different tag on the socket. It is unlikely that anyone would need to use this socket now, so the solution shouldn't cause any problems.

The set now worked reliably, but I was not happy that the alignment was correct. It sounded rather shrill - as though slightly off-station. As a quick check I connected a test meter across the AGC capacitor and tuned into a fairly weak station on MW. I then carefully adjusted the cores of the two inductors in the IF filter assembly for maximum reading. Tuning across both bands the set now sounded much better, so I decided to leave it at that.

The set was then finally reassembled. To finish it off I polished the case with household aerosol polish.

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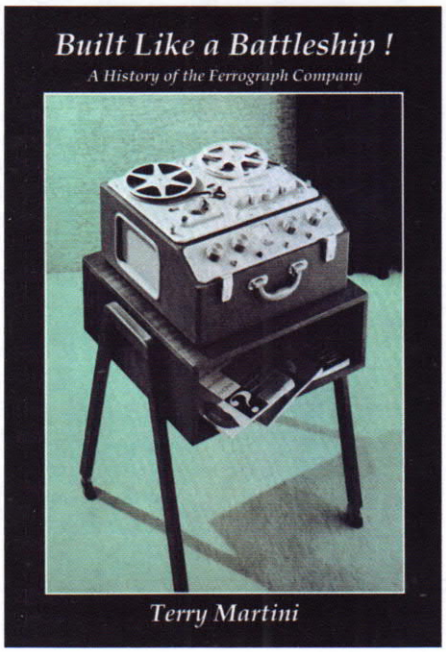
Book Review

# Built Like a Battleship!

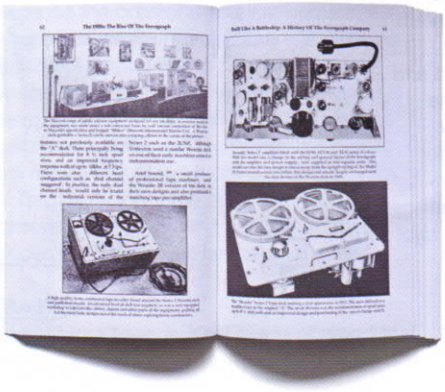
## A History of the Ferrograph Company by Terry Martini

Built like a Battleship! is a brand-new publication, charting the rise and fall of one of the UKs most succesful wireless component, magnetic tape recorder and Hi–Fi manufacturers. The publication aims to be the definitive reference on the company and its subsidiaries. With over 221pages and over 200 photographs and illustrations, some unseen for over seventy years. Drawing on many hours of interviews with former employees and extensive research. This is one publication that no serious collector can afford to be without.

£11.99 plus shipping.
For further information, please contact: Terry Martini,
18 Sherbrooke Road, Rosyth, Fife KY11 2YP.
Email: terrym@ferrographworld.com
www.ferrographworld.com/book







# The building of a PX25 12 watt amp and the story behind it

by J Farrer

In about 1934 my dad borrowed money from a great aunt and opened a shop near the bottom end of Seven Sisters Road in Tottenham, selling anything that would make a few 'bob'.

As time went on, he got around to selling radio components, valves and kits – one of which he took home and constructed himself. We had no electricity so this addition was wonderful. I loved to open the top of the set and twang the 'wobbly' valve (spring mounted DET) much to Dad's annoyance.

When we got mains electricity at home we had a Philco set. At the shop, Dad employed an engineer who everybody knew as 'Norton', who showed me how to make crystal sets and one-valve receivers running on low 800's and old HT batteries. Later, the shop branched out into television; I remember watching Mickey Mouse on a mirror lid set and listening to the sound on an HMV radio.

'Marvellous' amplifiers were coming into vogue, so Dad started getting parts and speakers for them. As there was a lot of spare time in the shop they decided to make up some amplifiers on the premises, which proved to be very popular. A large speaker on a 4 foot baffle was put over the door under the porch - a BTH mains energised if I remember. The speaker was connected to a powerful (for the time) amplifier, the results could be heard outside the cinema at the bottom of the road (if the wind was blowing in the right direction). Dad said that it was the quality and not the volume that made the sound travel so well, but I reckon it was a combination of the two.

They were selling the amplifiers so well that they decided to increase production and ordered bulk amounts of transformers, valves and chassis. Then World War II broke out and the government confiscated all the valves and transformers. The large collection of amplifier chassis ended up as a blast wall filled with dirt outside the door to the Anderson Shelter (I bet anybody that has since moved in to 97 Gloucester Road is still digging them up!)

Dad was cheesed–off with the fate of his amplifier company, so he closed the shop down and volunteered for the RAF. He ended up as an M/T driver at Biggin Hill. After the war he opened a shop on the opposite side of the road selling toys and fishing tackle.

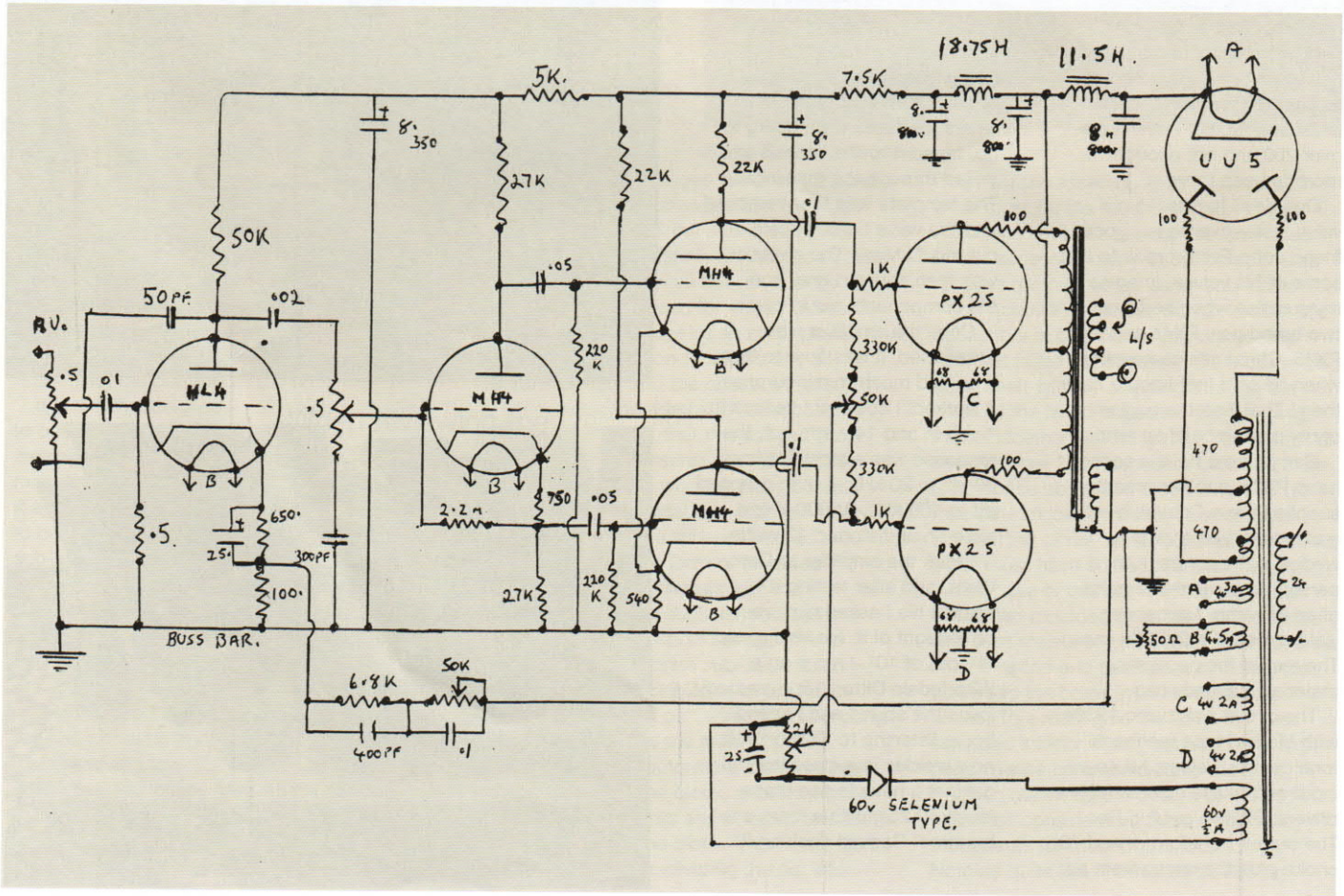
Whilst I was at school I spent a lot of my time making radios and scrounging bits and pieces from abandoned and bombed–out houses, I also found parts at the local tip. When I left school I went to work at STC in Oakley Road, Southgate. Since I could solder, I was put on the assembly line making modulators and redoing joints that had previously been failed by the AID inspectors ('wrapped tight and soldered' – if OK they were painted red).

As people knew that I was interested in amps and radios, I was asked if I could supply and run an amplifier for the local VE and VJ day street parties. I worked nearly all night for two days, making one up. The modulators used KT33Cs and EF37s so you can guess what the other valves were – AC/DC of course...

We even had loudspeakers hung on lamp posts – Health and Safety hadn't been invented then. I made £20.00 each time – a fortune in those days.

Just after the war people started asking me to help get their PX4 and PX25 amp kits (with Baker speakers) working; this was also quite profitable.

When radio work at STC stopped I was put onto telephones – boring! So my best friend and I spent our time roaming the works until we got sacked (you couldn't leave). After that I got a job as improver/ engineer at a radio shop, then I joined the Airforce as a WOP/TP OPP: then



back to a shop followed by another as a service manager until my retirement.

My first posting in the RAF was at RAF Manby. I told the commanding officer that I was electrically minded in 'civvy street' and he posted me to 'transmitters' which was in a half–underground building remotely controlled from the tower. The warrant officer in charge got on with me OK, especially when I lent him my chassis cutters for the T/X he was making (has anyone heard of G3CUS which was his call–sign?). After a bit he asked me if I would like to move into the transmitting station. I spent a very happy time repairing 1132s, 1153s and 1154s – we had a proper test bed. As it was a training station I often got a call at night to switch on the 1131s. I had to check all readings and call the tower on each one to check that the 1132s hadn't drifted off. Frequencies were 114, 116, 118, 110 kHz. You could hear the replies on the modulator transformers. Should an RX not answer, you put a spare on your shoulder and cycled to the tower, but left it to M/T to return one.

I got posted to Negumbo (Ceylon – now Sri Lanka) in transmitters again. Having never bashed a key or a teleprinter I escaped promotion.

Now being retired and having lost my wife, I decided to do a Gerry Wells and start collecting radios. I now have over 200 and not enough room to keep them in!

One day I had taken my valve tester over to my good friend John Easterbrook to test some of his valves. Imagine my surprise when he found two brand new PX4s and one PX25. Christmas came early when he said that I could have them! That was the beginning of my plan to build an amp...

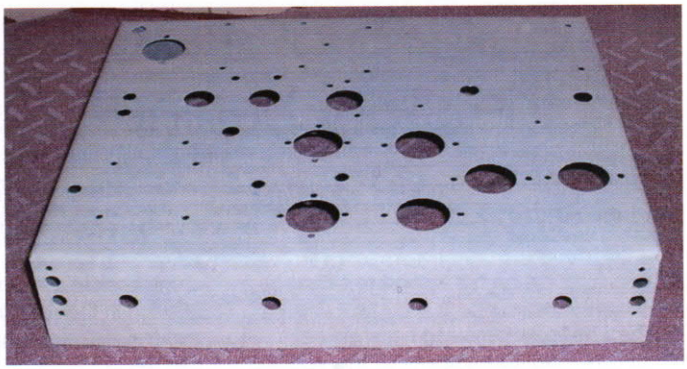
Gerry let me have a second hand PX25, another member supplied me a Columbia mains transformer with a wedge in the centre, a third person gave me the remains of an old amp. Harpenden yielded new 8 mfd 730v cans. The rest of the necessary materials I already had.

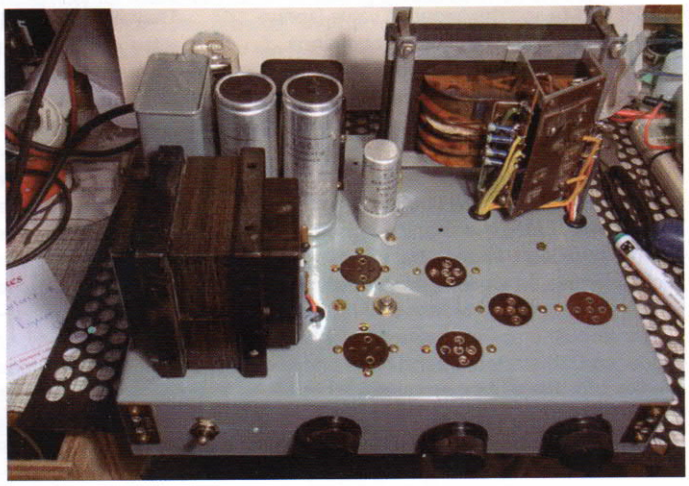
The circuit was basic 1930s with Mullard type feedback tone control. Valves: ML4s input and phase splitter, MH4 drivers, PX25 o/p, UU5 Rec. The output transformer and 18w choke plus the knobs from an old amp. The first choke was a nice battery valve output load with a good core, rewound with a full reel of 30swg. The output transformer was open circuit: when I stripped it back I found it had burnt through to the core. Luckily I had a nice stack of 1 1/2 inch.015 A404 Lams. This was rewound as follows: 128 turns 20 swg tapped at 20 and 40 turns, 2nd half 800 turns. The feedback same as first half with a bit of AC on SRC sorting out the phasing. Wiring was fed out to a tag panel on the side with speaker adjustment screw; the two anode stoppers were also mounted on it. I stripped the mains transformer which was 4 turns per volt. I removed the centre wedges and got two extra 100 volt windings to bring sec up to 500v plus two 4v windings for the PX25s for the 'fixed bias' and one extra turn for the second hand PX25 (65%).

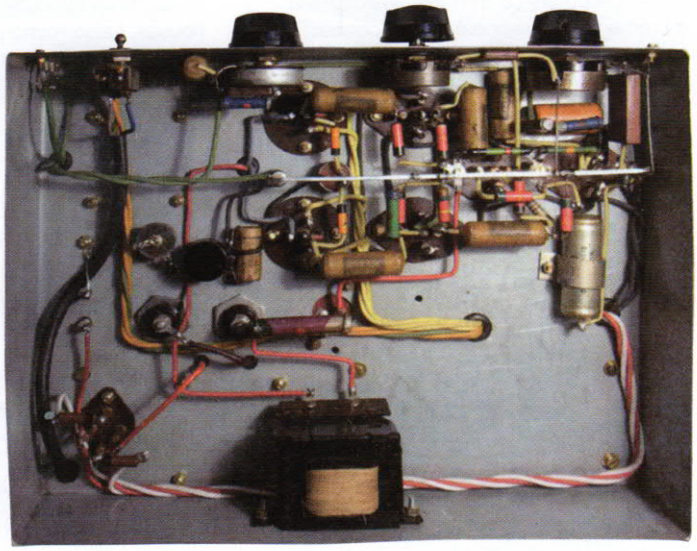
I used only 1930s components, except for the selenium bias rectifier which was from an old 405 Ferguson television. I did a dummy run with all the larger components and valves to determine chassis size. I made up the chassis from 22 swg mild steel, it being the thickest that could safely bend in the vice. I soldered up the chassis corners, put AC on mains t/x and phones on output t/x to check orientation and where I wanted them. I made a template from a piece of cardboard and marked where the holes were going to go, taped it to the chassis and drilled through the markings. The template was then removed and the valve holders were cut out (Q.Max). The chassis was then sprayed grey and the components put in place.

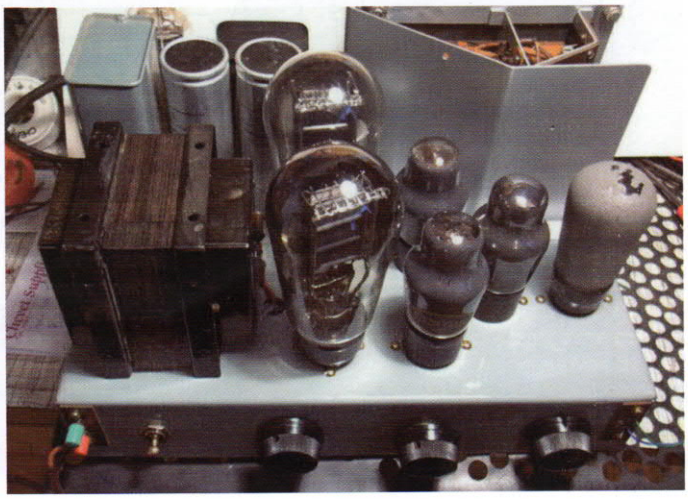
Once the amplifier was assembled, it was time to turn it on and much to my surprise it worked! I could not believe it; 1 volt in and 14 watts out, the response was almost flat from 30 Hz to 20 kHz, it then dropped off to 100 kHz. At 800 kHz it gave an undistorted 12 watts.

I took the amplifier to Gerry Wells, and after testing it against his I asked him what he thought of it. He kindly said "10 out of 10". I run it on a Wharfedale Ditton 15; everybody loves the sound and I spend hours listening to CDs on it. It now resides in a glass fronted cabinet (I have to see those lovely PX25s) with a 'zero one hundred' Garrard deck on it.



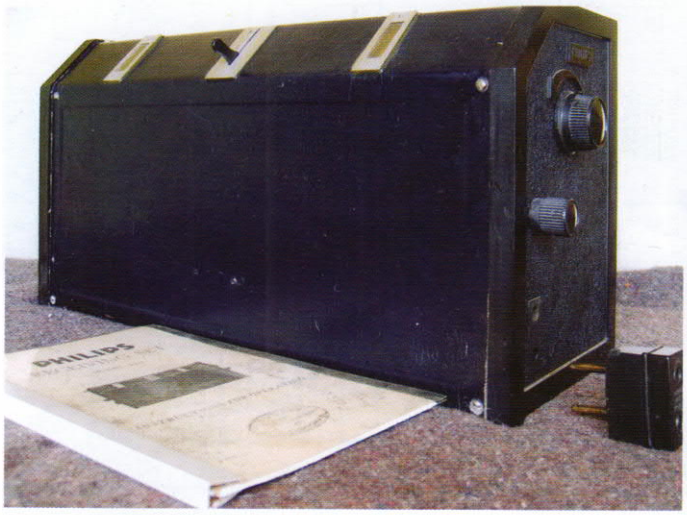




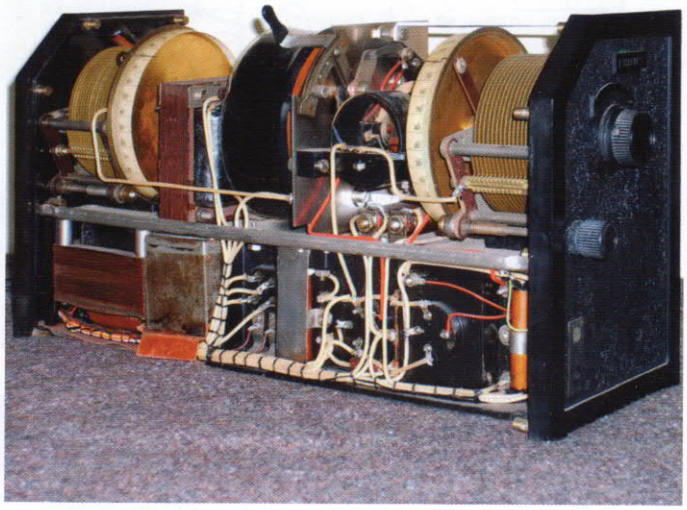


# Philips Model 2514 by LL Williams

In 1928 when better things were electric the Philips Model 2514 was radically different from its predecessors, embodying numerous technical innovations which would be adopted by many set makers by 1930 but in 1928 they were ground–breaking.




Philips Type 2514 Receiver



Inside the Philips Type 2514 Receiver

Inside the Philips Type 2514 Receiver

Philips Type 2531 Receiver

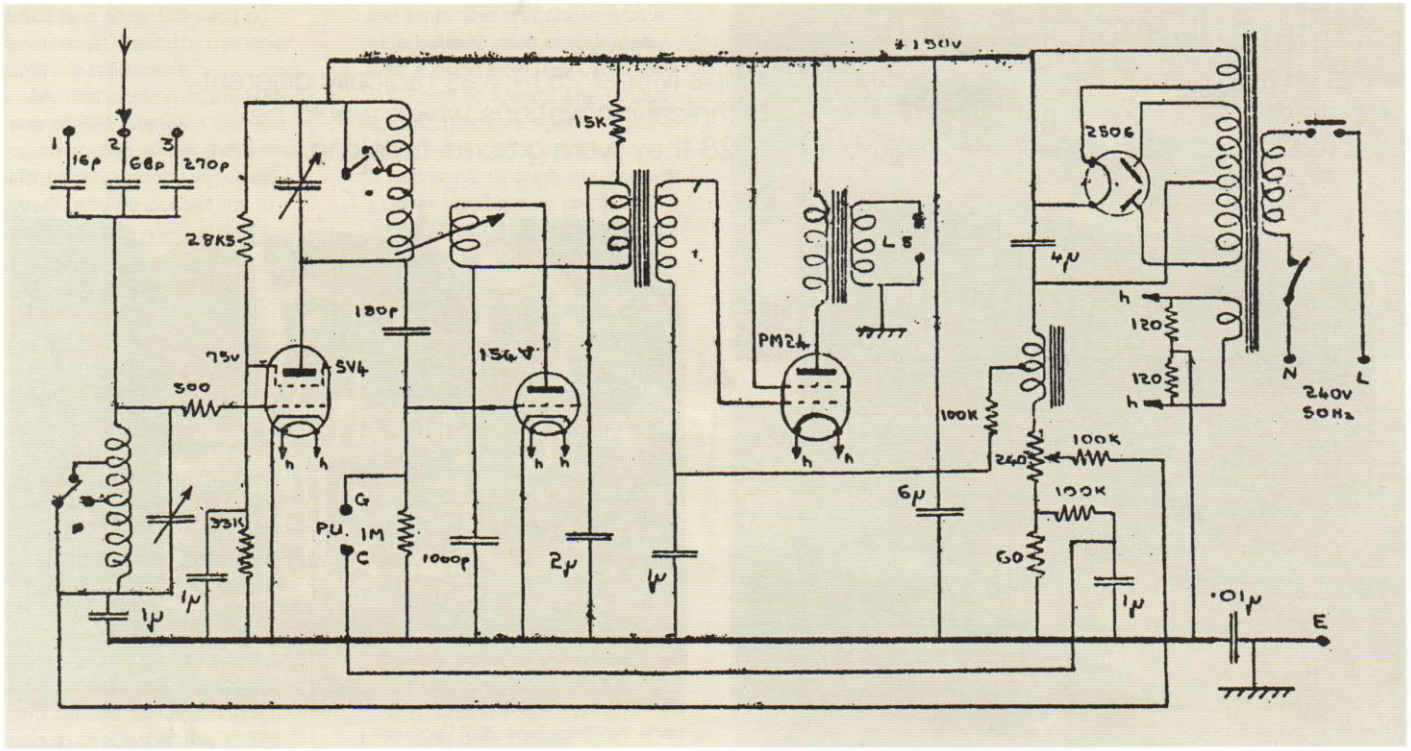
Starting with the mechanical construction, the first thing to strike the eye is that this set does not look like a 1920's radio. It is physically very compact and modern, resembling a 1960's transistor portable in both style and size, measuring 14 1/2 inches wide, 8 inches high and only 5 inches deep, finished in blue rexine with the controls at the end.

It is clearly designed to be mass produced, making extensive use of mouldings and presswork. It appears to be intended to be built as a series of sub-assemblies which could be made separately and then united into the whole. The set is built onto two black moulded end plates which have numerous brass inserts for attachment to the case and chassis and are metallised on the inside to provide screening. These two end plates have all the controls except the wave change switch and have the aerial and earth and speaker sockets moulded in. A very heavy gauge (0.084 inches) steel plate flanged for extra stiffness connects the two end plates and forms a platform on which all the sub-assemblies are mounted. This plate is connected to the circuit common terminal but not directly to earth and is not pierced for valve holders but obviously functions as an earth plane and screen in addition to supporting all the transformers and the choke and the moulded sub–assemblies. I think that this flanged plate represents the transitition from wooden base board to metal box chassis. Most of the sub–assemblies are in the form of moulded sub–chassis with the valve sockets moulded in. The whole set appears to comprise sub–assembled circuit blocks which have been part wired before mating on to the main structure. The intervalve and output transformers are incorporated into one block, a resistor bank containing 14 resistors and 6 capacitors are incorporated into one block. This is excellent for mass production, dividing the set into many simple assembly jobs and results in what must be the most compact 4 valve AC mains set of its period. The downside is that access to many of the components requires removal of the same sub–units. If you acquire an old set with a number of capacitors in one block, you will usually find that failed capacitors in the block have been dealt with by snipping through the wires of the failed capacitor and hanging the replacement in the wiring. You will never see this on a 2514 capacitor block as there is no space above the block, and even to reach the block terminals, considerable dismantling of the set is required. The service trade must have cursed the designer.

When reviewing the design of the 2514 you must consider that there were no precedents for most of the technology. Nothing quite like it either had been or could have been attempted before 1928

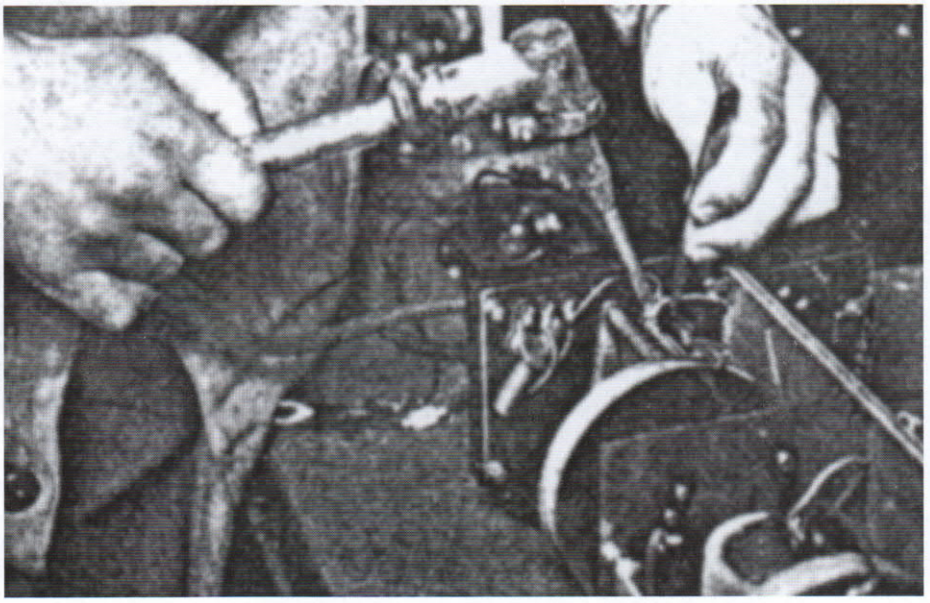
The case of this set with the exception of the two moulded ends was formed from two bent sheets of galvanised steel covered in blue rexine and secured with numerous screws to the brass inserts in the end plates. This must give the 2514 the best screened interior of any set short of a high performance communications receiver.

When reviewing the design of the 2514 you must consider that there were no precedents for most of the technology. Nothing quite like it either had been or




Philips Type 2514 Receiver Circuit

Repairing the strip type of fuse

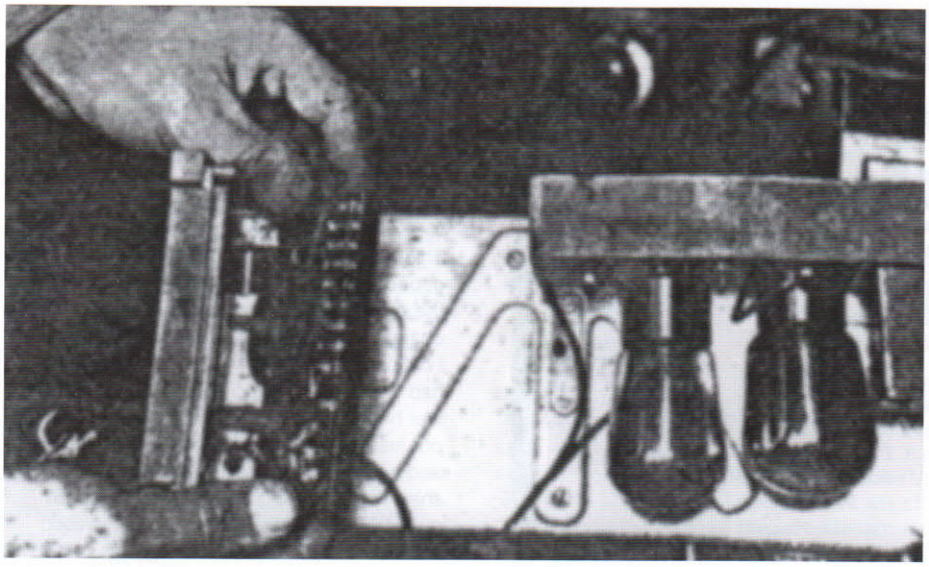


Disconnecting the grid leak to enable the HF block to be withdrawn

could have been attempted before 1928 and the test of how well its designers did is how many of its circuit and fabrication techniques were later adopted as industry standards, many of them right up to the end of the valve set era. One consideration for the designers was safety in the totally new concept of operating directly from the AC mains made possible by the availability of indirectly heated valves. It is true that directly heated valves for AC filament power were very succesfully used but the advantages of an isolated heated cathode were so overwhelming that this became the preferred form for all functions except some rectifiers and some power amplifiers. The division is already apparent in the 2514's valve line–up.

An excellent design feature of the 2514's mains transformer is the thermal trip which opens the primary circuit if the transformer overheats. A wide copper strip is wrapped around the outside of the windings so that it is in good thermal contact with the primary winding which is on the outside and a spring contact is soldered to this strip with a low melting point alloy (Woods Metal) so that any excessive temperature rise melted the joint, breaking the circuit before harm resulted. It required a service engineer to gain access to the trip and re–make the joint while holding the spring down, the intention being that the reason for the over–temperature would be investigated before powering up. It is a great pity that all set makers didn't adopt this design. All the other AC mains sets in my collection have been fitted with thermal trips because they are regularly powered up and I don't want a rewind job; but my trips, which are of course recent additions, sense core temperature for practical reasons which gives inferior protection to the Philips design.

The Model 2514 has no 'on/off' switch; the manual says 'to switch off remove the plug from the mains socket'. The set has a twin mains lead with a 2–pin plug and mine had a bayonet light socket to 2–pin adaptor which could have been original. Most houses in 1928 were wired for lighting only. A separate earth lead is fitted which is connected direct to the secondary of the output transformer but goes to the chassis and the metal case via a capacitor. I fitted my set with a 3–core fabric covered lead and hard wired the chassis and case to earth. Should any future owner object, the original unsafe arrangement is easily restored. The bottom section of the case has a safety link which breaks the mains supply if the case is opened. Unfortunately it is a single pole link and with the original 2–pin plug had a 50% chance of being in the neutral lead which is worse than no link at all. The circuit is a classical straight 3 with a screened grid



The HT block partially removed

Inside the Philips Type 2531 Receiver

HF stage, a triode grid leak detector with reaction and a transformer coupled pentode output stage. Although the set is intended to operate a high impedance speaker it uses a double wound output transformer with one side of the secondary earthed. The valves used were the very latest types which had only been introduced in 1928. The HF and detector valves are indirectly heated. I think the valves in my set are (with the exception of the rectifier) probably the originals as they have 'made in Holland paper labels'. they are quite rare because although you will find them in valve manuals with B5 bases, these have B4 bases with a side terminal for the cathodes on the HF and detector and the screen on the output. There is also a bit of uncertainty about the HF stage (S4V). My valve manual shows a pentode on a B5 base with suppressor connected internally to cathode but the set manual shows a tetrode. I have tried shining a strong light through the metallisation due to gettering and I think I see a screened grid construction like a PM12. I guess these valves are an early form prior to the introduction of the B5 base versions.

The mechanics of the tuning controls are unusual (very Philips) but do the job beautifully.

Technically the circuit is as up–to–date as was possible in 1928; after all, screened grids and pentodes were new inventions then. The aerial circuit is worthy of special mention; the coils are large toroids of square section, housed in a large moulding 4 1/2 inch diameter, looking just like a variac without the iron core. The tuning range of the aerial coils is strongly influenced by the aerial loading, ie. the customer's aerial arrangements. To cope with this, three aerial sockets are provided, each with a different series capacitor ranging from 16 pF to 270 pF. Then just to make sure, the medium wave band is covered in two sections so that the wave change switch has three positions, two for medium and one for long waves. The detector tuned circuit, however, has no problem of uncontrolled loading and tunes the whole medium wave band in one sweep whichever of the two medium wave switch positions is selected. The HF stage has a gain control which works by varying the grid bias and has the idiosyncracy that as the control is rotated clockwise, volume steadily increases until the control is near full then decreases again. This gets a mention in the manual.

The detector stage is standard 1920's practice, being a grid leak detector with reaction using a triode. The coils are also standard practice with a honeycomb wound long wave and a single layer solenoid medium wave, one each side of a rotating reaction coil which turns 180 degrees to either enhance weak signals or reduce strong ones. A pick–up can be connected so that the detector functions as a voltage amplifier. No gram switch is provided; the manual says turn the reaction down and disconnect the aerial.

The mechanics of the tuning controls are unusual (very Philips) but do the job beautifully. If you look at the detector tuning end you will see a knob exactly on the centre of the tuning capacitor shaft and could be forgiven for thinking it operates the capacitor. In fact the shaft passes straight through the centre of the capacitor and is not connected to the capacitor rotor at all; it is the reaction control. The tuning is by means of small knobs below and to one side of the capacitors. The shafts from these knobs go to the rear of the capacitors, where beautifully made high reduction ratio friction drives engage 4 inch diameter drums which are mounted on the back of the capacitors. The drums have Ivorine strips round them calibrated 0–180 degrees in 1 degree intervals and can be read by a fine wire cursor to a fraction of 1 degree. In spite of the very small knobs this mechanism gives very smooth and very fine adjustment without a trace of backlash; a real bit of class, but mechanically complex.

The power supply is just like the power supply of any AC mains set but, when it was made, AC mains sets were the latest development. The fact that it is not significantly different from what was being done 30 years later tells us that the Philips engineers got it right first time. Indirectly heated valves being very new, the cathodes are directly connected to the circuit common and negative bias is supplied by putting the smoothing choke in the HT negative side and using the voltage drop across part of the winding plus some series resistors. In one respect this is a battery circuit adapted for mains power because it uses a HT of only 150v. It took time for circuit designers to realise that with mains power HT voltages and current drains were no longer a design limiting consideration, but otherwise the


2514 made the leap from battery sets to the technology we were using in 1950.

In my professional life I never designed anything that could not have been done better with what was available at the time. Starting with your early prototypes you keep making minor improvements until you reach the point when you clearly see that a radical redesign to properly integrate all the improvements into the original design is required. Usually at this point management insists that the design be sealed at the early, not fully developed phase in order to get it into production and earn my wages. Sometimes when demand slackened there would be a Mk II which was what I wanted to start production with, but by then new materials and knowledge meant I wouldn't have even started from there. I can see this happening to the 2514 design team.

In 1930 came Model 2531. It is virtually the same set but built on a metal box chassis with a very nice in–line layout and individual valve holders in piercings in the chassis. This time the service access is much improved. The set is in a moulded cabinet with lift up lid, no metal parts outside and a double pole safety link which breaks both mains leads when the lid is opened. It has a mains on/off switch and a rotary wave change switch, this time both aerial and detector circuits are switched on both medium wave bands. The valves are B5 standard types and the HF stage is definitely a screened grid. The friction slow motion tuning drives are similar and so are the 4 inch calibrated drums but now they are illuminated. It is 2514 Mk II. The fact that at a time when progress in set design was very rapid, only minor changes were made in two years which shows how revolutionary the 2514 was in 1928.

I acquired a 2531 and I like if possible to have hands–on with any set I write about. It hasn't displaced the 2514 from its place in my collection as it was the first and was full of new technology. To get it near–perfect at first try is quite remarkable. [The Philips 2514 gets a special mention in the 1934 edition of the Science Museum Handbook on Radio Communication, as a landmark event for 1928 - Ian Higginbottom, Sub-Editor].

Readers examining the pictures may note what appears to be a case of gross over–restoration. I am in favour of preserving early sets in as near possible to the original condition. In my case I also require my sets to be safely operable and work as well as they did when they left the factory. This requires replacing things like leaky capacitors but I always put the new ones in the old cases so that the appearance is not changed. This 2514 was the first valve set I collected. It came when a colleague who had done radio servicing at the end of the war heard I was looking for old radios. This one had been declared not worth repairing and had spent the last twenty years in a shed with a leaking roof. In fact water ran out when I tilted the radio. The galvanised steel case was OK.The chassis was bright green and anything that could rot had rotted. The rectifier had gone and the temperature trip was open. Surprisingly the mains transformer after drying out was alright. The output and intervalve transformers were a rewind job; the choke was alright as were the valves. Almost all the capacitors needed replacing but all the resistors were OK. After a complete strip down, the green deposit on the chassis cleaned off, leaving bright nickel plate without a single rust pit (they don't make them like that anymore). I rewound the transformers, put 1000v polypropylene capacitors in the old cases and put the pitch seals back. Then I reassembled it and rewired it using tinned copper in glass fibre. It doesn't look right but should last longer than the original rubber covered wire. Given reasonable care it should function for another hundred years (I power up all my old sets for an hour every month). When you have stripped a set down to the last screw and washer and put it all back, you have a better appreciation of its design and construction and have time to ponder why it was made like that.

I replaced the big cardboard washer which sealed the aerial coil housing with transparent mylar so that the toroids were visible ( the cardboard had decomposed) and for many years the set was displayed with the case off. The inside of sets, especially ones showing important developments, are much more interesting than the outside. I collect technology and most of it is inside.

My ideal display, if I had time and space, would have sets out of their cases in glass cases with angled mirrors so that they could be viewed top and bottom from every side, and they would all be operable. I have compromised with a good display of components down the ages (1915 to 1935) and if some of them were not so rare I would like to show them sectioned. Most of what made radio possible can't be seen in a set on a museum shelf.

# A brief resumé of British (and several overseas) finished goods & component manufacturers (as at May 2005) part 16 by Dave Hazell

**SAGEM.** Société d'Applications Générales d'Electricité et de Mécanique, of Paris, France (in 1965). Aircraft avionics.

**SEI.** Salford Electrical Instruments Ltd, of Peel Works, Silk Street, Salford 3, Lancs. (in 1942 & 48). In 1966, 70 and 1977, Peel Works, Barton Lane, Eccles, Manchester. By 1976, SEI were also at Times Mill, Heywood, Lancs. A GEC company since at least the mid-1920's. They manufactured precision polystyrene capacitors, photocells, metal rectifiers, ferrite components ("GECALLOY" dust cores), quartz crystals and the SEI "Selectest" and "Minitest" multimeters and the "Miniscope". In 1955, they also marketed "Puretone" paper based magnetic recording tape.

**SEL.** Standard Elektric Lorenz AG (now known as Alcatel SEL AG). Until 1987, SEL was owned by the American company ITT. Most of ITT's overseas operations had "Standard" in the company name. SEL was sold (as a part of ITT's European telecoms interests, excluding STC in the UK) to the Alcatel-Alsthom of France (a subsidiary of Compagnie Générale d'Electricité - CGE) group in the mid 1980's. CGE combined its own telecoms operations with those of ITT Europe, to form Alcatel. In 1993, SEL AG was renamed, Alcatel SEL AG.

The two original companies that later merged to form SEL were: Lorenz & Genest and Lorenz (founded by Carl Lorenz). Mix & Genest was a substantial part of Standard Elektrizitäts-Gesellschaft (SEG – Standard Electric Company). Another part of SEG was the South German apparatus factory (SAF). SEG had been owned by ITT since 1929. Mix & Genest and SEG were primarily telecoms companies.

C Lorenz was primarily involved in radio engineering. They built transmitters for radio broadcasting and also radio receivers. C Lorenz AG was, like SEG, owned by ITT from 1929. In 1940, the Schaub radio company joined C Lorenz and the trade name Schaub Lorenz was eventually used.

In 1958, SEL AG and C Lorenz AG were merged to form Standard Elektrik Lorenz AG (SEL).

In 1961, SEL AG took over Graetz KG, the radio and TV manufacturer. In 1966, SEL acquired Ingelen of Austria.

After they abandoned "hand-wired" chassis TVs in the late 1960s, Kolster Brandes (KB) in the UK used mono and colour TV sets based on SEL chassis. In the late 60's, the KB brand gave way to the ITT brand. When Alcatel-Alsthom bought most of ITT's European operations, they sold the SEL TV operations to Nokia of Finland in 1987 (which already owned Salora and Luxor). The SEL TV plant at Bochum, in Germany, was closed down in September 1996. In July 1996, Nokia sold its TV manufacturing business to Semi-Tech (Global) Company, a subsidiary of Semi-Tech Corporation of Canada (who also then owned Akai Electric Co of Japan).

**SGS.** An Italian maker of semiconductors. In the 1960's they had a joint venture with Fairchild Semiconductor (SGS-Fairchild), to make silicon planar transistors in Europe – as used in the infamous Pye 40F series dual standard mono TV chassis. By 1965, they had factories in Ruislip, Middlesex and Lian, Italy. Later in 1965, they acquired a site for a further factory, at Middlefield Farm, Grangemouth Road, Falkirk, Scotland. In 1969, the UK company – SGS-Fairchild Ltd changed its name to SGS (United Kingdom) Ltd. In 1971, they had a factory in Falkirk, Scotland. Merged with Ates in the 1970's to form SGS-Ates. In the 1980's, the company combined with the semiconductor arm of Thomson of France, to form SGS-Thomson Semiconductors. It is now called ST Microelectronics.

**SNS Communications Ltd,** Tropical Works, 851 Ringwood Road, West Howe, Bournemouth, Hants (in 1967 & 68). Manufacturer or distributor of "Wolec" brand radio microphones, plus transistor amplifiers, crystal AM & FM radio tuners, cabinet and line source loudspeakers and intercom systems. By 1968, a member of the Firth Cleveland group.

**SPS.** Brand of electrolytic capacitor. In 1965, the US firm SPS International established a factory at Shannon, Ireland, to make them. SPS International Ltd, Shannon Airport, Ireland. By 1966, the advertisements were for Callins International Ltd.

**SRM Television Ltd,** Sylvan Avenue, Leicester (in 1951). A short-lived manufacturer of "SRM" branded TV and combined TV/radio sets (believed to employ Plessey chassis).

**STC**
Standard Telephones & Cables Ltd. Headquartered at Connaught House, Aldwych, London, WC2 (in 1946). In 1965, they moved to a new HQ at STC House, 190 Strand, London, WC2. STC was, for most of the 20th century, the British subsidiary of the American International Telephone and Telegraph Corporation (ITT) through the ITT subsidiary International Standard Electric Corporation of New York, USA. It was originally known as Western Electric Co Ltd in the UK (ITT bought International Western Electric from the owner – American Telephone & Telegraph in 1925). Consequently, in 1925, the name was changed to Standard Telephones & Cables Ltd. For many years, STC had plants and offices in Harlow (new town), New Southgate (London), Woolwich and Painton. STC was primarily a telecoms company but also controlled Kolster-Brandes Ltd. (KB). STC also made germanium and silicon semiconductors, capacitors, metal rectifiers, Brimar consumer and industrial valves and CRTs, crystals, Brimistors and TV EHT triplers.

In 1982, ITT floated STC as a public company, retaining 35% of the shares. Standard Telephones & Cables plc then (disastrously) entered the digital semiconductor memory market and took over ICL. In 1987, Northern Telecom (of Canada) bought ITT's interest in STC plc. Later, in 1991, Nortern Telecom took complete control of STC plc, which then became STC Ltd (for a while). STC pioneered optical fibre technology at its Harlow research labs – Standard Telephone Laboratories (now known as Nortel Research Labs).

HQ in 1964, 63 Aldwych, London, WC2. In 1975, 190, Strand, London, WC2. MD – Kenneth Corfield.

**Consumer Products Division of STC,** Footscray, Sidcup, Kent (in 1965). Dudley Saward (formerly of Bush Radio and Rank Bush Murphy) became general manager in 1965. The brands included: KB, RGD, Regentone, Ace, Argosy and the factories were located at Footscray, Hastings and Rhyl.

**Rental Services.** Formed by STC in 1965, to enter the TV rental market.

**Electroniques.** In 1970, the brand name for an electronics constructor's catalogue from STC, Edinburgh Way, Harlow, Essex.

**STC Mobile Radiotelephones Ltd,** New Southgate, London, N11 (in 1970). Maker of the STC "Starphone" two-way, handheld radiotelephones. By 1972, "Star and Starphone" transferred to ITT Mobile Comms, Radlett Works, Colney Street, St Albans, Herts.

**Microwave and Line Division,** Chester Hall Lane, Basildon, Essex (in 1970). Site later used to assemble SEL colour TVs (in 1980's). This site was opened by STC in 1965, for the manufacture of transmission equipment (telecoms).

**Radio division.** Oakleigh Road, New Southgate, London, N11 (in 1955). In 1955, Electronic Switching Division (TXE4 telephone exchanges).

**STC Semiconductors Ltd,** Footscray, Sidcup, Kent (in 1970). Footscray 3333 – same 'phone number as KB! In 1966, STC created STC (Transistors) Ltd, headquartered at Footscray, with operations at Footscray and Harlow.

**Thermistor division,** Stephen Street, Taunton, Somerset (in 1973 & 75).

**Brimar Valves division.** Footscray, Sidcup, Kent (in 1955).

**Private Communications Division,** Footscray, Kent (in 1972).

**STC,** Henley Road, North Woolwich, London, E16 (in 1974). Submarine Systems Division (e.g. cables and associated electronics).

**Test equipment and cables,** Corporation Road, Newport, Monmouthshire (in 1955 and 1972).

**Crystals** – Harlow, Essex (in 1955).

**Industrial Supplies Division** – Cline Road, Bounds Green, London, N11 (in 1946). Maker of "Stanelco" electric soldering irons.

**Rectifier division** – Edinburgh Way, Harlow, Essex (in 1957).

**New factory at Monkstown,** Northern Ireland opened on July 5th 1962.

**STL – Standard Telephone Laboratories Ltd,** London Road, Harlow, Essex (in 1978).

**Saba.** In 1968, SABA Gmbh and General Telephone & Electronics (GTE) agreed on a programme of technical and economic co-operation. By 1978, Saba was owned by GTE, according to a Wireless World article. Saba was founded in 1835 as a precision engineering company in Triberg, Germany. They later moved to Villingen. In 1973, SABA Radio & Television Ltd, were at 6-12 Cornbrook Park Road, Manchester, M15 4EE. At some point (probably 1980's), SABA in the UK was handled by European Electronics Corporation Ltd, Units 8 & 9, Faraday Road, Aylesbury, Bucks, HP19 3RY (they also handled Nordmende). As at 2004, the brand is owned by Thomson of France.

**Sadia** – brand name for water heaters. In 1946 Aidas Electric Ltd, Sadia Works, Rowdell Road, Northolt, Middlesex. In 1964: Sadia Water Heaters Ltd – same address. Later merged with Heatrae Ltd, to form Heatrae-Sadia Ltd.

**SAFT (UK) Ltd,** Castle Works, Station Road, Hampton, Mioddx (in 1971). SAFT stands for Société des Accumulateurs Fixes at de Traction, of Romainville (Seine), France (in 1966). Battery maker. Became a part of of Alcatel, but in 2003, it was sold to Doughty Hanson.

**Samsung.** Founded in 1938 by Byung-Chull Lee in Taegu, Korea. Samsung means "three stars" in Korean. The company began selling foodstuffs, then diversified into textiles, heavy engineering, petrochemicals, shipbuilding, aerospace and consumer electronics. Mr Lee died in 1987 and his son, Kun-Hee Lee became chairman and CEO. In 2006, Samsung has five divisions: semiconductors, telecoms, TFT-LCDs, digital media and digital appliances.

**Samwell & Hutton Ltd,** Delta Works, 54 Goodmayes Avenue, Ilford, Essex (in 1969). Established in 1946, by G Hutton and Peter Samwell. Peter Samwell died in 1967, aged 49. Maker of spectrum analysers and wobbulators.

**Sanders (W H) Electronics Ltd.** Gunnels Wood Road, Stevenage, Herts (in 1959 & 61). In 1965, acquired by Marconi Instruments Ltd. Maker of microwave equipment and static switching systems (e.g. proximity switches).

**Sangamo.** Sangamo Electric Company, Marion, Illinois (in 1955). Maker of mica capacitors + ... Taken over by Schlumberger (in the 1960's?). Later merged with Weston to form Sangamo –Weston.

**Sangamo Controls Ltd,** North Banstead, Bognor Regis, Sussex (in 1969). Maker of transducer meters.

**Sangamo Weston Ltd, Enfield, Middx (in 1947 & 58).** In 1958, there was a factory at Port Glasgow, Renfrewshire. Maker of test equipment, timeswitches, measuring instruments (especially kWh meters) and aviation instruments. British Sangamo was formed in 1921, a subsidiary of Sangamo Electric Co, Springfield, Illinois. Weston was the UK offshoot of Weston Electrical Instrument Corporation, founded by Edward Weston (who was born in England) in 1888. In 1936, British Sangamo acquired the Weston Electrical Instrument Co of Kingston By Pass, Surbiton, Surrey. In 1938, Weston manufactured electronic test equipment, including multimeters. The combined enterprise was called Sangamo Weston. In 1958, In 1975, Sangamo Electric Co was acquired by Schlumberger. Since then, sold on again, now a "Roxboro plc" company. In 2005, it was sold by Roxboro, to Ametek.

**Sankyo.** Sankyo Seiki Manufacturing Co Ltd, 17-2 Shinbashi 1-chome, Minato-ku, Tokyo 105, Japan (in 1969). Manufacturer of miniature electric motors for cassette and record decks, level meters and tape heads.

**Santon Ltd,** Somerton Works, Newport 13, Mon (in 1946 & 64). Maker of heavy duty rotary switches, immersion heaters and water boilers. Later (by 1982) IMI Santon Ltd.

**Sanwa.** Brand of Japanese multimeters in 1967. UK importer was Household Electrix Ltd, 47-49 High Street, Kingston-upon-Thames, Surrey.

**Sanyo Marubeni UK Ltd**, Greycaine Road, Watford, Herts (in 1979). UK base of the Japanese Sanyo corporation (e.g. consumer electronics). In 1963, Sanyo transistor radios were distributed in the UK by Marubeni-Iida Co Ltd, Moor House, London Wall, London, EC2.

**Sarkes Tarzian Inc.** A US company formed by Dr Sarkes Tarzian and located in 415 N. Coolege Avenue, Bloomington, Indiana. The company made valves, silicon rectifiers, TV tuners, etc. - and complete sets. At one point, it made plug-in solid state replacements for valve rectifiers. It also owned some TV and radio stations. What remained of the company was taken over by Bull Run Enterprises circa 1999.

**Sasco.** Stewart Aeronautical Supply Co Ltd, PO Box 20, Gatwick Road, Crawley, Sussex (in 1965). Distributor of electrical and electronic components. Later became Swift-Sasco, then..?

**Satchwell Controls Ltd,** Farnham Road, Slough, Bucks (in 1964). Thermostats, etc. for heating controls. Later taken over by GEC.

**Sator.** Brand name for (Austrian made?) potentiometers and capacitors imported into the UK in the 1930's, by Orion Lamps Ltd, 82-84 Theobolds Road, London, WC1.

**Savage (W. Bryan) Ltd.** In 1934, a manufacturer of transformers and chokes. Later also manufacturer vibration testing machinery and variable frequency power supplies. By 1960, owned by Pye of Cambridge. See also under Pye.

**Savage.** Savage Transformers Ltd., 51 Northgate Street, Devizes, Wilts (in 1948) and Nursteed Road, Devizes (in 1950 & 67). In 1967, incorporating Dodd Transformers Ltd, Bradley Road, Trowbridge, Wilts – both members of the John James group of companies. Transformer manufacturers.

**Saxonia Electrical Wire Co Ltd**. Acquired by Enfield Standard in 1971.

**Schaub-Lorenz.** Consumer electronics brand name of ITT's German company, Standard Electrik Lorenz (SEL), in 1966.

**Schick Incorporated (UK) Ltd,** Billingshurst, Sussex (in 1964). Electric shavers.

**Scholes** (George H) & Co Ltd, Wylex Works, Wythenshawe, Manchester 22 (in 1950, 58 & 64). Maker of "Wylex" consumer units, etc. In 2004, the brand is owned by Electrium plc – see Crabtree.

**Schreiber Wood Industries Ltd,** Rye House, Hoddesdon, Herts (in 1964). Cabinet manufacturers. Any connection with Schreiber Furniture – fitted kitchens, etc. – established by Chaim Schreiber and later taken over by GEC?

**Scopex Ltd,** Pixmore Industrial Estate, Pixmore Avenue, Letchworth, Herts (in 1973 and 1980). Maker of oscilloscopes.

**Scopex Electronics Ltd,** 63-65 High Street, Skipton, North Yorkshire (in 1984). Successor company to Scopex Ltd, which went bust?

**Scophony Ltd,** in 1947, developing large screen TV sets. By 1950, Scophony-Baird Ltd, Lancelot Road, Wembley, Middx. In 1951, Scophony Ltd is sold to EMI Engineering Development Ltd.

**Scott (James) Ltd,** Carntyne Industrial Estate, Glasgow, E2 (in 1963). Maker of travelling wave tubes.

**S-Dec.** Breadboarding system produced/marketed by S.D.C. Products (Electronics) Ltd, Corn Exchange, Chelmsford, Essex (in 1968).

**Sealectro Ltd,** Walton Road, Farlington, Portsmouth, Hants (relocated there from Surrey in 1965). In 1963 and 65, at Hersham Trading Estate, Walton-on-Thames. UK company of Sealectro Corporation, Mamaroneck, USA. Maker of specialist switches, matrix boards, coax connectors, insulated terminals, etc. Taken over by ITT in the 1980's.

**SECME** – switches (French?). In 1976, Souriau (UK) Ltd.

**Secosem**, 50 rue Jean Pierre Timbaud, BP120, 92403 Coubevoie, France (in 1975). Semiconductor maker. By 1977, a subsidiary of Thomson-CSF.

**SE Laboratories (Engineering) Ltd,** 606 North Feltham Trading Estate, Feltham, Middx (in 1968/9). Maker of test equipment (such as UV chart recorder, multimeters, oscilloscopes, counter-timers). By 1970, a division of EMI. In 1973, their magnetic tape recording division was at Wells, Somerset.

**Selmer (Henri) & Co Ltd,** 114-116 Charring Cross Road, London, WC2 (in 1957 & 64). Musical instrument maker and in 1957, produced a Selmer "Truvoice" tape recorder (Collaro deck). In 1957, they marketed the German made "Butoba" portable tape recorder in the UK. In 1958 & 60, they distributed a SABA tape recorder.

**Semiconductors Ltd,** Cheney Manor, Swindon, Wilts (in 1958). A new factory making transistors, set up as a Philco/Plessey joint venture. Until the Swindon factory was ready to occupy, sales and admin staff were based at Plessey's Ilford offices. The firm also had a presence at Towcester, Northants (another Plessey enclave). In 1960, the firm entered into a joint marketing agreement with the GEC semiconductors division. In 1961, Plessey acquired full control of the company. Became Plessey Semiconductors Ltd by the mid 1960's. In the 1980's, a new CMOS process plant was built at Roborough, Plymouth. Circa 1990, the name changed to GEC-Plessey Semiconductors Ltd. A few years later, it was sold to Mitel of Canada (later renamed Zarlink Semiconductor). In 2002, most of the Roborough, Plymouth plant was sold to a German microelectronics firm.

**Semikron GmbH** – a German semiconductor firm (in 1976). In 1965, represented in the UK by HCD Research Ltd, 77 Gloucester Road, Croydon, Surrey. HCD was formed in 1961, to make precision frequency standards, etc. In 1965, HCD formed Semikron Rectifiers & Electronics Ltd, to handle the semiconductor business of Semikron in the UK.

In 1972, they set up a UK company – Semikron (UK) Ltd, Brewhouse Lane, Hertford, Herts.

**Semitron Ltd,** Cricklade, Wilts (in 1968 & 72). Maker of zener and avalanche diodes.

**Sennheiser Electronic of Hanover, W. Germany (in 1966). Maker of headphones, micorphones and studio equipent.**

**SenTerCel.** Brand name for selenium rectifiers made by STC. The rectifier division was at Warwick Road, Boreham Wood, Herts (in 1950 & 53). Moved to Edinburgh Way, Harlow (New Town), Essex, circa 1955 – along with other STC operations.

**Servis Domestic Appliances Ltd,** Kings Hill, Wednesbury, West Midlands (in 1983). Manufacturer of washing machines + ... Went into receivership in the 1990's – now owned (brand only?) by ??? In 1967, Servis washing machines were made by Wilkins & Mitchell Ltd, The Green, Darlaston, West Midlands (and a sales office at The Hollies, Wednesbury.).

**Servisol Ltd,** 64 Myrtle Street, Liverpool 7 (in 1939). In 1947, at Crown Works, Boundary Place, Liverpool 7. In 1950, at 14 North John Street, Liverpool 2. In 1962, at Coopers Buildings, Church Street, Liverpool 1. Maker of the famous "Servisol" switch cleaning fluid. By 2002, a brand used by Ambersil Ltd.

**SESCO.** Société Européene des Semiconducteurs (in 1965). Semiconductor manufacturer. By 1968, General Electric (USA) had a 40% stake in the company.

**Seymour Products (Arbroath) Ltd,** West Mill Wynd, Arbroath, Angus, Scotland (in 1949). Also in 1949, they announced their intention to commence the manufacture of TV sets in 1950, at their West Mill Wynd factory.

**SGS** (United Kingdom) Ltd, Planar House, Walton Street, Aylesbury, Bucks (in 1970). An Italian maker of semiconductors. In 1971, the firm was taken over, together with Ates, by IRI (an Italian finance organisation). By 1974, SGS-Ates. Later SGS-Thomson and now ST Microelectronics.

**SGS-Ates Componenti Eletronici SpA,** Via C Olivetti 1, 20041 Agrate Brianza, Milan, Italy (in 1973). Now SGS-Thomson.

**Sharp.** Japanese Electronics company, based in Osaka. In 1967, their UK base was at 16-18 Worsley Road, Swinton, Manchester. In 1961, the UK distributor for Sharp was Wholesale Supplies (Swinton) Ltd, at the same address.

**Sherwood Electronic Laboratories Inc,** 4300 North California Avenue, Chicago 18, Illinois, USA (in 1966). Manufacturer of "Sherwood" HiFi amplifiers.

**Shockley Semiconductor,** California. Established in 1956 by William Shockley, who co-invented the transistor whilst at Bell Labs in the late 1940's (with W H Brattain and J Bardeen).

**Shure Electronics Ltd,** 84 Blackfriars Road, London, SE1 (set up in 1961 and still there in 1970). In 1973 and 1980, at Ecclestone Road, Maidstone, Kent. US maker of microphones and cartridges. In US, Shure Brothers Inc, 225 West Huron Street, Chicago 10, Illinois (in 1955).

**Siemens.** Although started up by the German Siemens family in the UK, circa 1851, Siemens Brothers & Co Ltd was siezed by the British government with the outbreak of World War I. Consequently, following the first world war, the UK company not directly connected with the large German company, Siemens & Halske (founded in 1847 by Werner Siemens and Johann Georg Halske) . By 1850, Werner's brother Willhelm (later changed to William) established a UK agency for Siemens & Halske. This became a subsidiary in 1858 and in 1865, changed its name to Siemens Brothers. Later still, William was knighted and he became the first President of the IEE.

Siemens of Germany was formed in 1847 as Siemens & Halske Telegraph Construction Company, in Berlin. In 1863, a cable factory was established in Woolwich, London. In 1897, Siemens becomes a stock company (AG). In 1903, Siemens & Halske AG acquired the works of a power engineering company – Schuckert & Co. It merged this with its own power activities to form Siemens Schuckertwerke GmbH. In 1919, Siemens & Halske form Osram GmbH, in partnership with two other German companies. The name Osram was originally coined in 1906 and is derived from Osmium and Wolfram. In 1925, Siemens-Reininger Verfa Co was formed, which became Siemens-Reininger Werke AG in 1932. This company became a major manufacturer of electromedical equipment. With the outbreak of WW2, the UK company's assets were once again seized. Following WW2, Siemens began rebuilding its international operations.

Siemens of Germany re-established itself in the UK, circa 1964 (by which time the UK Siemens Brothers business was part of AEI and the brand name was phased out in 1960). In 1966, there was a major reorganisation of the German group: Siemens & Halske AG, Siemens Schuckertwerke GmbH and Siemens-Reininger Werke AG were merged into one company – Siemens AG. Siemens of Germany supplied metal rectifiers to UK radio & TV manufacturers in the 1950's and 60's. The German company is a very big operation. In the UK, by 1979, its UK HQ was at Siemens Ltd, Siemens House, Windmill Road, Sunbury on Thames, Middx. It recently spun off its semiconductors division, naming it "Infineon Technologies". In the 1990's, it formed a joint venture with Matsushita (of Japan) to combine their electromechanical components business, which recently became an independent company in its own right (NAIS). Siemens also bought the German Nixdorf computer company (1990s?).

**Siemens Brothers & Co Ltd** made telecoms equipment and cables. In 1911, Siemens Brothers & Co Ltd, Caxton House, Westminster, London, SW – Factories at

Woolwich Stafford and Dalston. It has a big factory in Woolwich Road, Woolwich, London SE18 and a research unit in Blackheath, London, SE3. In a 1942 Post Office Engineer's Journal advert, it stated "Established 1858". In 1956, the cables division office was at 38-39 Upper Thames Street, London, EC4. Siemens also made lamps under their own name – in 1946 & 58, Siemens Electric Lamps and Supplies Ltd, 38-39 Upper Thames Street, London, EC4 (a wholly owned subsidiary). Siemens Electric Lamps and Supplies Ltd at one time (certainly in 1955) also distributed Tugsram valves. They also made/marketed "Full o'Power" and "Siemax" batteries.

In 1955, Siemens Brothers & Co Ltd became part of AEI in (1955) and was merged with a sister company, Edison Swan Electric Co Ltd, on 1st July 1957, to form Siemens Edison Swan Ltd. The combined group had several factories, including: Sunderland, Spennymoor, Woolwich and Lydbrook. It had 21,000 employees. A new research centre was built (starting in 1957) at Harlow New Town.

**Siemens Bros & Co Ltd,**
Woolwich, London, SE18.

**Siemens Electric Lamps and Supplies Ltd,** 38-39 Upper Thames Street, London EC4 (in 1946). In business since at least 1923. Maker of "Sieray" fluorescent lamp fittings.

**Sifam Electrical Instrument Co Ltd,** Hollydale Road, Queens Road, London, SE15 (in 1937). In Torquay, Devon (in 1947). Established in 1925. Maker of panel meters (and a valve tester in 1937). In 1960, they moved to a new factory at Sifam Ltd, Woodland Road, Torquay, Devon (still there in 1974).

**Sigma Products Ltd,** 72 St Andrews Road, Northampton. Maker of r.f. chokes. Now part of TT Electronics?

**Sign Electronics,** Plumstead. London, SE18 (in 1968). Audio test equipment manufacturer (distributed at that time by Aveley Electric Ltd.

**Signetics International Corp.** US manufacturer of semiconductors. Of Sunnyvale, California? Became a Philips company in 1975.

**Silicon General Inc,** 7382 Bolsa Avenue, Westminster, Calif (in 1970). Semiconductor maker.

**Silicon Transistor Corporation,** New York, USA (in 1965). In 1976, Katrina Road, Chelmsford, MA 01824, USA.

**Siliconix Ltd,** Saunders Way, Sketty, Swansea, Glam (in 1970). In the USA Siliconix Inc, 2201 Laurelwood Road, Santa Clara, Calif. Semiconductor manufacturer.

**Simmonds Accessories Ltd**
Treforest Glamorgan (in 1948). Maker of "Spire" clips. In 1960, a member of the Firth Cleveland group.

**Simmonds (L E) Ltd,** 5 Byron Road, Harrow, Middx (in 1961). Relay manufacturer. Opened a new factory in Thetford, Norfolk in 1961.

**Simon Sound Service.** Recorder House, 48-50 George Street, Portman Square, London, W1 (in 1947). Maker of disc recorders and players. Later tape recorders. By 1954, known as Simon Equipment Ltd, same address.

**Simon Sound Service,** Recorder House, 48/50 George Street, Portman Square, London, W1 (in 1948 & 57). Maker of sound recording and playback equipment. In 1955, they made (magnetic) tape recorders and by 1956, also an FM tuner. In 1957, loudspeaker units, microphones. Associated companies included Simon Equipment Ltd and Simon Development Ltd (in 1957).

**Simplex Electric Co Ltd,** Broadwell Road, Oldbury, Birmingham (in 1946). Maker of Simplex installation equipment, "Redhead" immersion heaters and domestic appliances (Creda). By 1955, Simplex Electric Co. Ltd, Creda Works, Blythe Bridge, Staffs – a Tube Investments (TI) company. In the mid 1980s TI sold Creda to GEC, which combined it with its Hotpoint business. GEC (by then Marconi plc) sold Hotpoint & Creda to Merloni of Italy.

**Simpson** – see Bach-Simpson Ltd.

**Sinclair Radionics Ltd,** Comberton, Cambridge, in 1965. At 22 Newmarket Road, Cambridge in 1966 & 70. Founded by Clive Sinclair. By 1971, at London Road, St Ives, Huntingdon. By 1979, the National Enterprise Board (a UK government vehicle) owned 73.3% 0f Sinclair Radionics Ltd. Clive Sinclair left in 1979 and the NEB sold the Microvision and calculator ranges to Binatone International Ltd. Clive Sinclair founded Sinclair Research Ltd in 1979, at Cambridge. He also owned Science of Cambridge Ltd. In 1984, the computer business was sold to Alan Sugar's Amstrad.

In 1977, **Sinclair Instruments Ltd**, 6 King's Parade, Cambridge (selling wristwatch calculator). In 1980, called Science of Cambridge Ltd at 6 King's Parade, selling the ZX80 home computer. Clive Sinclair's company. Selling HiFi and radio equipment, later calculators and home computers. In 1981, Sinclair Electronics Ltd, London Road, St Ives, Huntingdon, Cambs - maker of the Thandar miniature oscilloscope, DMM's, frequency meters, pulse generators.

**Sinclair Research Limited,** Stanhope Road, Camberley, Surrey, GU15 3PS (Is this the most recent Sinclair company – 1990's?)

**Siran.** Brand name for car radio aerials manufactured by Donland Electronics Ltd, Livingstone Road, Hove 3, Sussex (in 1960).

**Sistoflex**. The brand name of the heat and moisture resistant insulated sleeving produced by Spicers Ltd, 19 New Bridge Street, London, EC4 (in 1946 and 1954).

**Sivers Lab,** UK office, 9 Forgefield, Westerham Road, Biggin Hill, Kent (in 1969). Swedish maker of microwave equipment. Later taken over by Philips.

**Skandia.** Brand name of Tomura Bussan Kaisha Ltd, Nagoya, Japan (in 1967). Maker of HF SSB and UHF FM transceivers.

**Smart & Brown Lighting Ltd,** Miles Road, Mitcham, Surrey, CR4 3YX (in 1982). By then, a member of the Thorn group? In 1967, the Smart & Brown connector division was owned by AB Metal Products Ltd.

**SME Ltd,** Mill Road, Steyning, Sussex (in 1964 & 70). Maker of pickup arms.

**S. Smith and Sons (Radiomobile) Limited** (from at least 1964), home enquiries to Goodwood Works, North Circular Road, London NW2, tel Gladston 0171. Overseas enquiries to Cricklewood Works, London NW2 tel Gladstone 3333. Later Smiths Industries Limited. The original Smiths company was founded in 1851, by Samuel Smith, as a watch and clock maker. With the emerging automotive industry, Smiths began making car instrumentation, spark plugs and later, aircraft instruments. They also made car heaters – establishing a large factory in Witney, Oxon, in the 1950's. In 1966, the company changed its name from S Smith & Sons Ltd, to Smiths Industries Ltd. By the 1980's, Smiths had withdrawn from the automotive industry to concentrate primarily on aerospace and medical instrumentation. In 1987, they also acquired the avionics business or Lear Siegler (USA). In 1997, they acquired Graseby plc (formerly Cambridge Electronic Industries plc). In 2000, the company merged with TI Group plc (formerly called Tube Investments), who had already taken over Dowty (who had themselves previously taken over Ultra Electronics - the industrial part of what was originally Ultra Electric).

**S Smith & Sons (England) Ltd,**
Aviation Division, Bishops Cleeve, Cheltenham, Glos. (in 1965).

**Smiths Clocks & Watches Ltd,** Sectric House, Waterloo Road, London, NW2 (in 1964). Electric clocks. Smiths disposed of their clock business in 1979.

**Smiths English Clocks Ltd,** Cricklewood Works, London, NW2 (in 1946 & 55). Maker of "Sectric" brand electric clocks. The clock & watch division of S Smith & Son (England) Ltd.

**Smiths Industrial Division,** Kelvin House, Wembley Park Drive, Wembley, Middx (in 1964). UK agent for Unigor multi-range test meters. By 1965, handled by Kelvin Electronics Company (same address) – a Smiths subsidiary. By 1966, they were marketing "Kelvo" branded multimeters.

**Smiths Industries Ltd, Aviation Division,** Bishops Cleeve, Cheltenham, Glos (in 1973).

**Smiths Industries Ltd,** Industrial Instrument Division, Chronos Works, North Circular Road, London, NW2 (in 1968).

**Smiths Industries Ltd,** Vehicle Instrumentation Division, Cricklewood Works, London, NW2 (in 1974). Smiths left this area of activity in the early 1980's .

**Smiths Industries Ltd,** clocks division, Smith Avenue, Overtown, Wishaw, Lanarkshire (in 1982).

**Smiths Industries Ltd,** Station Road, Godalming, Surrey (in 1967). Activity at this site ??

**SMK** – brand name of switches made by Showa Musen Kogyo Co Ltd, Tokyo, Japan (in 1970).

**Sobell** Industries Ltd., Langley Park, near Slough, Bucks. (in 1947 & 54). Maker of radios. Established by Michael Sobell. In the 1950s, the company ran into financial difficulties. As a result, it was sold but much of the assets and brand name were bought back by Sobell, to form Radio & Allied Industries Ltd. In 1960, R & A I Ltd was bought GEC. R & A I L absorbed GEC's radio & TV set making operations and later became GEC (Radio & Television) Ltd.

**Sola Manufacturing Corp,** New York, NY (circa 1940's). Maker of metal can paper capacitors. Same firm as Sola of Chicago?

**Sola of Chicago Illinois.** (in 1954). Maker of Constant Voltage Transformers. Later merged with "Banner" and taken over by General Signal (USA).

**Solartron Laboratory Instruments Ltd,** 22 High Street, Kingston-on-Thames (in 1950). Founded in 1947 by E R Ponsford and B Copestick. The name Solartron was registered in 1948. In 1955, The Solartron Electronic Group Ltd, Queens Road, Thames Ditton, Surrey (also there in 1961 as Solartron Laboratory Instruments Ltd). In 1958, work began on a new factory at Tower Hill, Farnborough. In 1962, Solartron Laboratory Instruments Ltd, Cox Lane, Chessington, Surrey. In 1958, the company relocated to Farnborough. In 1959, a controlling interest in the company was bought by Firth Cleveland Group. In 1961, the Solartron Electronic Group was acquired by Schlumberger. In 1970, Solartron Electronic Group Ltd, Victoria Road, Farnborough, Hants. In 1993, By the late 1980's, use of the Solartron name was discontinued. In 1993, Schlumberger sold off some of the businesses to the management and Solartron Group was formed. In 1994 Roxboro Group plc acquired this business.

**Solectric Ltd,** Sparton Works, Plantation Road, Amersham (in 1944). A maker of the wartime utility radio – maker's code U41.

**Solitron Devices Inc,** 256 Oak Tree Road, Tappan, N Y, 10983, USA (in 1965 & 69). Semiconductor maker.

**Solus (Electronics) Ltd,** Kirkwood Road, Cambridge (in 1979 and early 1980s). Suppliers of small computers, valves and TV picture tubes. Any connection with the former Murphy Radio Ltd subsidiaries Solus-Schall and Solus Electronic Tubes?

**Solus-Schall Ltd,** County Building, Honeypot Lane, Stanmore, Middx (in 1961). Non destructive testing (e.g. ultrasonic & x-ray). A subsidiary of Murphy Radio Ltd.

**Sona** – brand name used by N C Joseph Ltd, Stratford-on-Avon (circa 1965). Electric coffee percolators, etc.

**Sonomag Ltd,** 2 St Michael's Road, Stockwell, London, SW9 (in 1958). Maker of tape recorders.

**Sonotone.** The Sonotone Corporation was established in Elmsford, New York state, in 1930 by Hugo Lieber. It originally made hearing aids but by the 1950's it had diversified into valves, NiCd batteries, pickup cartidges, HiFi equipment and tape heads. The first UK ad I have seen was in WW Jun 56. In 1956, Sonotone pickup cartridges were marketed in the UK by Technical Ceramics Ltd, Wood Burcote Way, Towcester, Northants and of Cheney Manor, Swindon (got to be a Plessey connection here!). A 1967 W.World ad for Sansui HiFi equipment cited the UK distributor as Technical Ceramics Ltd (Sonotone), Cheney Manor, Swinodn, Wilts. Later, Vernitron Ltd., (of Southampton) marketed Sonotone crystal and ceramic cartridges. In the mid-60's, Sonotone was acquired by Servel Corporation and later, Brush-Clevite Corp. In 1969, Astatic Corp bought the audio products division from Brush-Clevite. The previous year Astatic had bought another cartidge maker, the Euphonics Corp. Sonotone are still in business, located in Florida, but only as a hearing aid maker (ownership having changed hands since the 1960's). Some former Sonotone employees also formed the Micro Acoustic Corp, which made cartridges and speakers.

**Sony (UK) Limited,** Pyrene House, Sunbury-on-Thames, Middx (in 1972). Sony was first established in October 1945, by Masaru Ibuka and a group of young engineers, as Tokyo Tsushin Kenkyusho (Tokyo Telecommunication Laboratory). In 1946, Tokyo Tsushin Kogyo K.K. (Tokyo Telecommunication Company) was incorporated by Masaru Ibuka and Akio Morita (Akio was born in 1921). Initially, their products used the Totsuko brand name. In January 1958, the company name was changed to Sony Corporation. They pioneered small transistor radios and solid state TV sets. Sony had developed into a large multinational company by the 1980s. In the mid-70s, Sony opened a factory at Bridgend, South Wales, which assembled 18" CTV sets – largely from imported Japanese components. Later on, they began to manufacture Trinitron CRTs and other TV assemblies in South Wales. Another factory at Pencoed was opened. In 2005, Sony announced 650 redundancies in South Wales and the end of CRT manufacture there.

**Sound Coverage Ltd,** Decibel House, Wellington Town Raod, East Grinstead, Sussex (in 1966 & 67). Maker of public address loudspeakers and transistor amplifiers.

**Soundcraft.** Brand of Reeves Soundcraft Corp, 10E, 52nd Street, NY 22, N Y (in 1955). Maker of magnetic recording tape, discs and cutting stylii. In 1961, they opened up a UK office, to market their products: Soundcraft Magnetics Ltd, Haddenham, Bucks.

**Soundmirror (tape recorder)** – made by Thermionic Products Ltd, Morris House, Jermyn Street, Haymarket, London, SW1 (in 1950).

**Soundrite Ltd,** 83 New Bond Street, London, W1 (in 1958). Maker (?) of "Soundrite" magnetic recording tape.

**Sound Sales Ltd,** West Street, Farnham, Surrey. Founded in 1931 by R N Wellington. Maker of amplifiers, transformers, chokes, scratch filters, radio feeder units, P.I. speakers. In 1951, they were making a console TV set. Still there in 1957.

**Soundex Ltd** (Bulgin Electronics), Park Lane, Broxbourne, Herts (in 1978). A Bulgin company. Peak Programme Meters and power supplies.

**Southern Instruments Ltd,** Frimley Road, Camberley, Surrey (in 1958 & 1970). Later Bryans Southern Instruments Ltd, , then Gould Instruments... Southern Instruments Ltd, Frimley Road, Camberley, Surrey (in 1964). Chart recorders. In 1965, they also owned J.A.C. Instruments Ltd, Station Estate, Blackwater, Camberley, Surrey (maker of frequency meters and standard signal generators).

**Southern United Telephone Cables Ltd.** BICC had an interest in the company up to 1961, when AEI acquired it and the name was changed to Telephone Cables Ltd.

**Southorn (H N) (Engineers) Ltd,** Church Lane, West Bromwich 9in 1958). Maker of domestic drying cabinets.

**South Wales Switchgear Ltd,** Blackwood, Monmouthshire (in 1964). HV electricity transmission equipment. Later acquired by Hawker Siddeley.

**Sowter (E A) Ltd,** The Boat Yard, Cullingham Road, Ipswich, Suffolk (in 1981). Maker of audio frequency transformers. Established in 1941.

**Spear Engineering Co Ltd,** Titan Works, Limpsfield Road, Warlingham, Surrey (in 1964 & 65). In 1958, a maker of valve pin alignment tools, valve extractors, connectors, etc. Still going in the 1980's. Used "Spearette" brand name.

**Spearette.** Trade name of the Spear Engineering Co. Makers of valveholders and free plugs to fit. Possibly also made trim tools.

**Specto Ltd,** Vale Road, Windsor, Berks (in 1957 and 1963). Maker of "Spectone" tape recorders, HiFi amplifiers and mixers. By 1963, "designers and manufacturers of laboratory and optical instruments, photgraphic and cinematograph apparatus" – also a member of the Clark & Smith Industries group.

**Spectrol-Reliance Ltd,** Drakes Way, Swindon (in 1973). Potentiometer maker.

**Spencer-West,** North Quay, Great Yarmouth, Norfolk (in 1950 & 59). Maker of television pre-amplifiers, distribution amplifiers, Band 3 converters and later on, complete sets.

**Sperry Gyroscope,** Downshire Way, Bracknell, Berks (in 1979). A division of Sperry Rand Ltd.

**Sperry Univac,** Lynnfield House, Church Street, Altrincham, Cheshire (in 1974). Maker of Univac computers. A member of the Sperry Rand organisation (USA). Later merged with Burroughs (USA) to form "Unisys".

**Sphere Radio Ltd.** In 1950, at Heath Lane, West Bromwich. Maker of the "SC88" channel 1 to channel 4 TV converter.

**Sprague.** Sprague Products Company, 51 Marshall Street, North Adams, Massachusetts, USA (in 1955). Maker of resistors and capacitors (particularly electrolytics). In the mid-60s, they were known as Sprague Electric Company (same address). In 1967, Sprague's UK office was moved to Sprague Electric (UK) Ltd, Trident House, Station Road, Hayes, Middx. By 1974, it was at Sprague House, 159 High Street, Yiewsley, West Drayton, Middx. Sprague opened a UK electrolytic capacitor factory in Galashiels, Scotland, in 1970. Sprague became a part of a North American railroad company (Penn-Central?) and is now part of Vishay Corporation. The Sprague brand is now used solely for tantalum capacitors.

**Spur** – shelving system made/marketed by Savage & Parsons Ltd, Watford, Herts (in 1958 & 61). They also sold/made: static & dynamic strain recorders, 6 channel recording cameras, recording oscillographs, static load plotters and remote handling equipment.

**Square D Ltd,** Cheney Manor, Swindon, Wilts (in 1967). Manufacturer of industrial control components, circuit breakers, relays, etc. UK subsidiary of a US company. By 2003, owned by Groupe Schneider of France (who also own Telemecanique and Merlin Gerin).

**St Aldate Warehouse Ltd,** Innsworth Lane, Gloucester (in 1964). UK distributors for Bang & Olufsen – took over from Aveley Electric Ltd, in 1963 (who retained the instruments agency). By 1965, St Aldate Warehouse was a division of the Debehnam Group. In 1965, the B&O and Sony UK distribution operations were transferred to Debenhams Electrical & Radio Distribution Co, Eastbrook Road, Eastern Avenue, Gloucester. In 1968, Debenhams set upo a new company, Technomark Ltd, to market in the UK, the products of Sony, B&O and Radford (of Bristol).

**Staar Electronics Ltd,** 39 New Oxford Street, London, WC1 (in 1956). In 1958, at Ormond House, 26-27 Boswell Street, London, WC1. Established as a new company in 1956, to market the "Staar" brand of portable record players. Part of the electronics division of the Gas Purification & Chemical Co Ltd (also own Grundig GB Ltd. The Staar autochanger unit was also adopted by other manufacturers for use in their products. In 1960, the company changed its name to Greencoat Electronics Ltd. Any connection with Staar of Belgium, who were later well known for their "compact cassette" (Philips format) mechanisms?

**Standard.** Brand name of Standard Corporation of Japan (in 1963). UK importer of their transistor radios (in 1963) was Denham & Morley Ltd, Denmore House, 173-175 Cleveland Street, London, W1.

**Stead (J) & Co Ltd,** Manor Works, Sheffield 1 (in 1958). In 1960, at Manor Works, Cricket Inn Road, Sheffield 2. Maker of "Steadfast" screwdrivers and many other tools. By 1965, the brand was used by Balfour & Darwins Ltd, Tools Division, Capital Steel Works, Sheffield 3.

**Stability / SRC.** Stability Radio Components Ltd, of 14 Normans Buildings, Central Street, London, EC1 (in 1948). In 1950, they relocated to their new factory at Commerce Estate, Woodford Avenue, London, E18. Manufacturer/supplier of capacitors. It appears to have become (by 1964) Stability Capacitors Ltd., Cranes Farm Road, Basildon, Essex. Taken over by Centralab, circa 1970.

**Stackpole Carbon Co,** St Marys, Pennsylvania (circa 1940's). Maker of resistors and switches.

**Stadium Ltd,** 30-36 Quyeensway, Enfield, Middlesex (in 1964). At same address in 1964: Stadium Electric Ltd. Maker of "Stadium" products? (e.g. hand held inspection lamps)

**Standard Insulator Co Ltd.** In 1958, producers of moulded rubber CRT masks, alligator clips and insulators.

**Standard Kollsman Industries Inc.** A US company which owned the patents covering miniature valve VHF TV turret tuners used by Thorn/Ferguson, Pye/ Ekco and others, in the 1960s.

**Stanley Laboratories Ltd,** 26-30 John Street, Luton, Beds (in 1972). Maker of frequency counters.

**Stanley Sound & Vision Products Ltd,** Stanley Works, Lower Street, Haslemere, Surrey (in 1955). Also in 1955 at Stanley Works, The Green, Pirbright, Surrey. Radio & radiogram makers. At some point, they were also at 81 Woodsbridge Road, Guildford, Surrey. Resumed UK market sales in 1955 (previously concentrating upon export business).

**Static Condenser.** Static Condenser Co Ltd, Toutley Works, Wokingham, Berks (in 1947 & 50). A maker of paper and transmitting type capacitors.

**Steatite and Porcelain Products Ltd.** Manufacturer of ceramic materials and hermetic sealing systems for terminations - based in Bewdley Road, Stourport-on-Severn, Worcs (in 1965). By 1965, a Morgan Crucible company.

In 1954, **Steatite Insulations Ltd,** 25 Somerset Road, Edgbaston, Birmingham, 15. Ceramic capacitors. In 1961 & 64, Steatite Insulations Ltd, 31 George Street, Lozells, Birmingham 19 – marketing a range of fixed and variable capacitors (Stettner and Neuberger). In 1966, they made a range of miniature ceramic trimmer capacitors.In 1966 & 70, Steatite Insulations Ltd, Hagley House, Hagley Road, Birmingham 16 and a distributor of components (e.g. Tyco ceramic filters from the USA and Stettner ceramic capacitors). In 1976, they commenced UK distribution of Toshiba semiconductors (transferred from Erie Electronics Ltd?). Now known as the Steatite Group and still based in the Midlands (Birmingham). Operated a component distribution service in the 1980 – MS Components, Based in Croydon. Main UK distributor for "Roederstein" capacitors, from circa 1971, until some time in the 1990's. In 1972, they had a subsidiary, Suvicon Ltd, same address in Hagley House, electronic component distributor.

**Stella Radio & Television Company Ltd,** Oxford House, 9-15 Oxford Street, London W1 (in 1951 & 55). At Astra House, 121-3 Shaftesbury Avenue, London, WC2 (in 1960 & 62). The wholesale brand for Philips consumer electronics products – set up in 1951. In 1951, Philips also had another Stella subsidiary – The Stella Lamp Co Ltd. The Stella Lamp Co Ltd was originally called the Harlesden Lamp Co Ltd and acquired by Philips in 1930.The Stella brand ceased to be used around the time Philips acquired Pye.

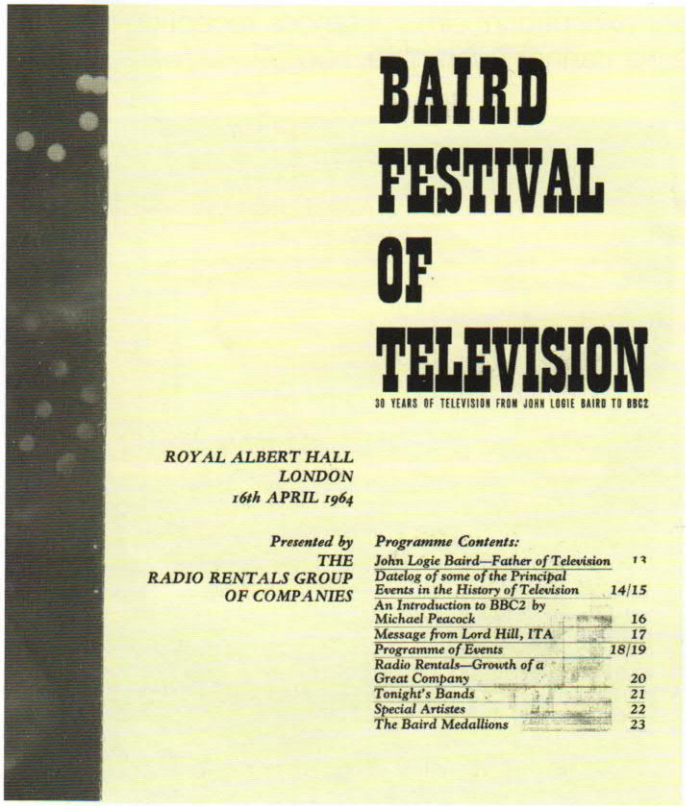
**Stereosound Productions Ltd,** Capital Works, 12-14 Wakefield Road, Brighouse, Yorkshire (in 1964 & 72). Maker of audio equipment. Established originally by R N Fitton as Capital Radio (founder of Ambassador Radio & Television).

**Sterling. Sterling Telephone & Electric Co Ltd,** London. Established by 1915 (at least), the firm also made transmitters for the war effort (WW1) and later crystal and valve radio sets for domestic use (some supplied by Burndept). Taken over by Marconi - at least by 1926.



article continued on page 42

# Letters



BAIRD FESTIVAL OF TELEVISION

30 YEARS OF TELEVISION FROM JOHN LOGIE BAIRD TO BBC2

ROYAL ALBERT HALL
LONDON
16th APRIL 1964

Presented by
THE
RADIO RENTALS GROUP
OF COMPANIES

Programme Contents:



**Dear Editor**

Dave Hazell has been doing a terrific job with the historic listing of British radio and television manufacturers. If space permits, may I add a few family and personal observations on some of the companies in his latest list, part 15 (Winter 2007).

As Dave says, Rank Cintel was formed when Cinema Television Ltd. was taken over by J.Arthur Rank in 1942. Two years earlier, Cinema Television had absorbed parts of the much larger company Baird Television Ltd., which had been forced to close after the abrupt cessation of television broadcasting in September 1939. Many of the Baird technical people stayed on with Cintel which went on to play a major part in the war effort, including the production of over 100,000 cathode ray tubes for radar displays. The technical director was Captain A.G.D.West who had served as a radio officer in World War I and then worked for the B.B.C., E.M.I. and Baird Television Ltd. (in sequence, not simultaneously!). West's contributions were never fully recognized after his premature death in a climbing accident in 1949.

Radio Rentals Ltd. was one of the largest and most successful companies in the post war television industry. In 1960 they acquired the "Baird" brand name from Hartley Baird Ltd. and assigned it to their television manufacturing division. The Radio Rentals managing director, Percy Perring Thoms, invited my mother to meet the board of directors over dinner, and visit the Bradford factory. Then in April 1964 the company sponsored a massive publicity event called "The Baird Festival of Television", held in the Albert Hall. My mother was guest of honour and presented special Baird medallions to pioneers of the industry, including Ben Clapp (my father's first technical assistant) and Gracie Fields who had appeared in the 30-line experimental B.B.C. broadcasts in the early 1930s. Sadly, Mr. Perring Thoms died only 3 months after the Baird Festival.

Robinson Rentals is mentioned briefly in Dave Hazell's list. It might also be noted that David (later Sir David) Robinson endowed a new Cambridge college which was opened by The Queen in 1981. In 1994 I spent a very pleasant 6 months sabbatical leave at Robinson College and I was happy to see that the television industry had made such a fine contribution to one of the ancient universities!

Yours sincerely,
Malcolm Baird [son of J.L.Baird]
Dundas, Ontario, Canada
bairdmhi@mcmaster.ca

**Dear Editor**

I would like to make a correction to my letter in the Winter Bulletin. The narration spoken in the film 'A Dream of Norway' is by the actor Howard Marion Crawford, not Clawford.

Yours sincerely,
Terry Bennett

**Dear Editor,**

I greatly enjoyed reading Phil Rosen's contribution in the last Bulletin ('Listening to the Wireless', Vol 32, No 4) that gave his nostalgic reminiscences of listening in the 1930s. I have long felt that the Society tends to focus too strongly on vintage technology and somewhat ignores the content that modulated those long-dissipated carrier waves. It would be absolutely fascinating to tune in again to programmes broadcast by 2LO, 6BM or even 2MT; just what was said and what types of music were played?

Recently the BBC ran an 'archives trial' on their website, something which I unfortunately missed. I wonder what our members made of it? The BBC apparently hold 350,000 hours of radio archives and 600,000 hours of television content. It is certainly high time that they made their collection more available.

As a wireless collector, I look on with envy at members who own vintage television sets and who watch matching vintage content using a standards converter. What is there for us radio enthusiasts, who wish to recreate the early days of broadcasting? There is certainly plenty of music to be found on CDs stretching back to the First World War (e.g. 'Keep the Home Fires Burning: Songs & Music from the First World War') and there are some spoken word recordings (e.g. 'Voices of History' published by the British Library). Even so, it is fairly clear that very little 'off air' material was ever recorded (or survived) from the 1920s and what there is does not seem to be readily available. Perhaps there are Society members who know different?

Much like the ongoing project to collate GPO registration numbers for early equipment, I wonder whether we should start to catalogue the archive recordings that exist in both private and public collections, focussing on early British material? I would love to know what the earliest surviving wireless-related recordings are and, perhaps equally importantly, whether we can access them. Ultimately it would be wonderful if we could receive a Christmas CD that contained a good selection of the earliest material available. More controversially, if we cannot source genuine early broadcast material, perhaps we should recreate it! With today's digital technology it should be eminently feasible to recreate a convincing programme of music, speech, interludes and time signals that whisk us back to 1922 – a dream of wireless heaven!

I think I can just about recall the reason why I began to collect old wireless sets in the first place and for me it was pure nostalgia for a time gone by (actually, a time I never knew). Like John Betjeman, I think we should embrace nostalgia a little more tightly and not worry about the shame! So, please let's have a little more of it and certainly some more articles about early wireless content. Perhaps we should start our own vintage transmitting station? Now there's an idea to conjure with!

Best regards

Fraser Donachie

# The Meepon Crystal Sets by Ian Sanders

The "Meepon" Crystal Set is such that we do not hesitate in saying that for clarity, combined with length of range, it cannot be beaten. Testimonials as to its efficiency are received almost daily, and we guarantee that you will be pleased with the results obtained by this Set. The effective range of the "Meepon" has been proved to 30 miles, and under exceptional circumstances reception has been obtained from much greater distances, but this we cannot guarantee. Meepon Advertising Brochure


The Meepon *No.1* crystal receiver.

The Meepon crystal receiver has previously been accredited to an unknown US manufacturer[1]. This attribution most likely resulted from an illustration of the set appearing in the American publication, Greenwood's *Pictorial Album of Wireless and Radio*[2], one of the only known references to the model, which shows the Meepon pictured alongside several US-built crystal sets.

It is now recognised that the set was, in fact, of British origin and manufactured by Meek & Pond of 46, Upper Dean Street, Birmingham. This explains the presence of the BBC approval stamp and registration number, 4043, although the later registration number more probably puts the year of introduction at 1924, rather than the 1923 quoted by Greenwood.

Three Meepon models are known to have been produced: *No.1* – open type detector; *No.2* – enclosed detector; and *No.3* – the "Super Model" with capability to tune the Chelmsford high power, long-wave station, 5XX. Between 1924 and 1926, the broadcast band models sold for £1 7s. 6d., but the retail price of the long-wave version is not known.

Many of the existing *No.1* and *No.2* models (originally variometer and tapped inductance tuned for only the broadcast band) have been adapted to long-wave reception by the addition of a plug and socket for a loading coil. These adaptations often appear to have been professionally made, and may have been a later modification by the company.

Earliest versions of the *No.1* are identifiable by a plain typed instruction label in the lid, while later models of both the *No.1* and *No.2* have an ornate label in either blue or orange.

A recently discovered advertising leaflet for the company also reveals the existence of a second model – the *Meepon Midget* – a smaller (and presumably cheaper) variometer tuned set. The *Midget* carried a BBC approval stamp, but the registration number is unknown.

In general, Meek & Pond do not seem to have advertised in the popular wireless journals of the time, and Halfords appears to be one of a select number of distributors carrying the company's products.

1. *Bulletin of the British Vintage Wireless Society*, Vol.1, No.3 December 1976.

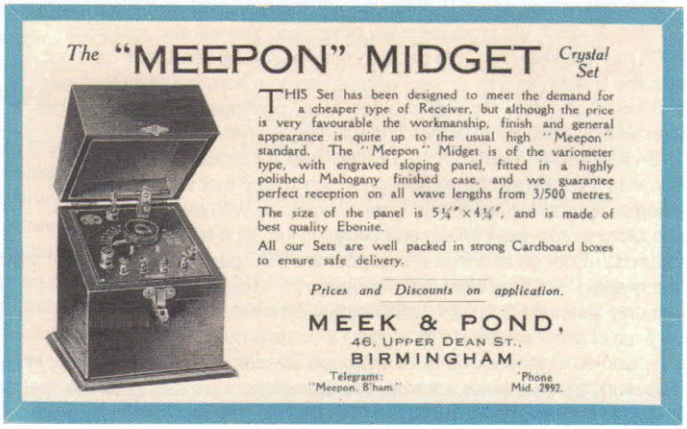
2. Greenwood, Harold, S: *A Pictorial Album of Wireless and Radio, 1905-1928*. Published by Floyd Clymer, Los Angeles, California 1961

Early examples of the Meepon receiver. with plain instruction labels and the BBC stamp etched into the panel.




Above and opposite page: Later versions of the Meepon receiver were available with either an open or enclosed detector. These versions have a more ornate instruction label, and although there is no conventional BBC stamp, they feature an unusual "PMG" symbol on the instruction label. Although originally for broadcast band reception, many extant examples have been modified to allow for provision of a long-wave loading coil.

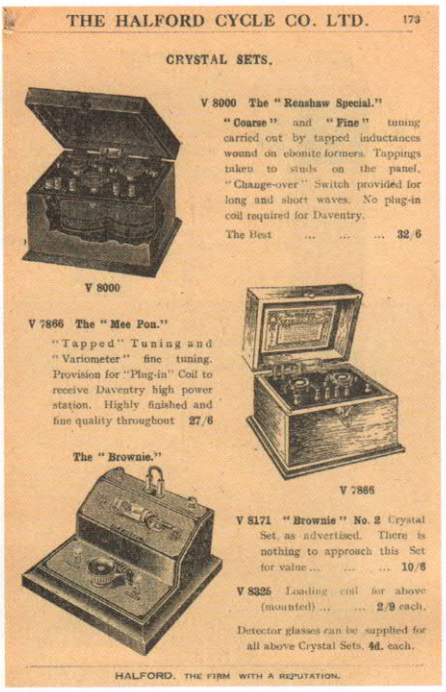
Below: Four-page advertising brochure showing the *Meepon Midget*.


The "MEEPON" Crystal Set

IS as clear in reception a good bell is in tone and can be tuned to any B.B.C. Station, also every set is made in accordance with the model approved by the P.M.G. The "Meepon Set" has been designed to meet the demand for a really efficient Set at a reasonable figure. As will be seen by the accompanying illustration this Set is neat in appearance, all brass parts throughout being heavily nickel plated, which in turn are mounted

on a black engraved Ebonite Panel. The engraving of the panel ensures the longest wear possible for all the markings, the whole being enclosed in a highly polished Mahogany finished wooden case, thus it will be readily realized that although the price of this Set is so reasonable we have done everything possible to supply a Crystal Set which is not only efficient in use, but is also a well-finished article.




Above: The Meepon No.3 Super - a long-wave model with switch for reception of the high-power Chelmsford, 5XX station. Broadcast band could be tuned with switch in "low" position. Photograph courtesy Howard Stone.

Above, middle: Meek & Pond advertising brochure, undated.

Above, far right: One of the few advertisements for the Meepon crystal receiver – *Halford's Catalogue for Cyclists and Motor Cyclists*, 1926. (Similar advertisements can be found in Halford's catalogues dating from 1924).

Right: label from a later version of the Meepon receiver


*From the Chair* continued from page 36

think there's a way of keeping him from the bench and soldering iron for long anyway! We all wish Gerry a very speedy recovery.

With this edition of the Bulletin you will find enclosed your Membership handbook which we produce every other year. You will also find your 2008 membership card. We decided that we should send your card out with the Bulletin as they arrived with us very late from the manufacturers and would of meant sending two very close postings to members rather than waiting three more weeks and sending everything together.

On a strangely modern note, I cannot wait for digital TV. Why? Because it will be all of the usual poor quality fare that we are already being subjected to, but on many more channels with more repeats and picture drop-out/lock-up and pixilation just as it is today. I was fortunate? Enough to channel–hop past the BBC parliament channel one evening and they were discussing the 2012 digital switch-over. I can only conclude from the parliamentary committee questions that they are under the illusion that digital TV actually means High definition TV – No I don't think so. That all analogue Television sets will just stop working – No this is not true. The Government are selling off the analogue frequencies to the highest bidder who will use them to produce other programmes. Who knows they may even be worth watching.

The excuse that many problems currently experienced are caused due to the analogue signal still running and that digital transmitter power will be increased is unfounded as the analogue signals will continue in certain areas of the country. It was even stated that France has banned the sale of analogue TV's and that the UK should do the same.

The real focus of the debate that most of the committee were interested in was the expected £250 Million left over from the help programme which has been set up to get people over to digital broadcasts in time for the switch over, and who was going to get it. That, by the way is out of our license fee! I did find it most extraordinary that there was no representation from the BBC. They appear to be outside of any decision process. So don't rush off and replace that perfectly faithful cathode ray tube TV that you are watching, as it may well give you a better picture than anything you can find available to replace it and with a £20 Digi-box you can make it pick up the digital signals. I hope it is better than DAB which at our house has full signal strength but turns into a quacking duck generator when doors are opened and closed on the workshop. Thank goodness for my Hacker Mayflower FM radio which is immune to just about anything and gives superb sound quality. *Mike.*

# EMI Torpedo Lamps by Gary Tempest

The picture in Figure 10 may look like a new, old stock, EMI lamp but it isn't. It's a re-based lamp obtainable from: http://www.bltdirect.com/. But if you don't have the Internet then you can order by phone on: 01473 716 418. They are sold (cost at this time £4.29 each) as "Tubular 15mm diameter lamp" and dimensionally are the same size as the lamps used in many models of EMI radios during the 30's. Of course there is the extra cost of the 15W bayonet lamps (S.B.C.) that donate a base.

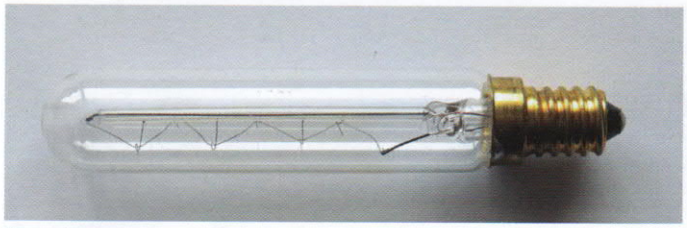


Figure 1

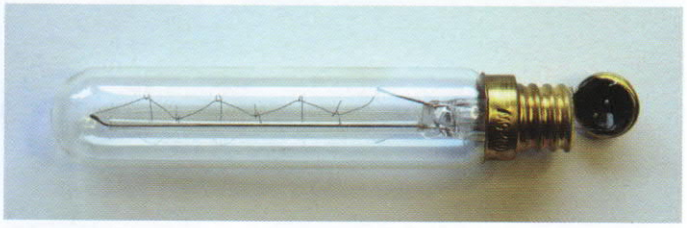


Figure 2

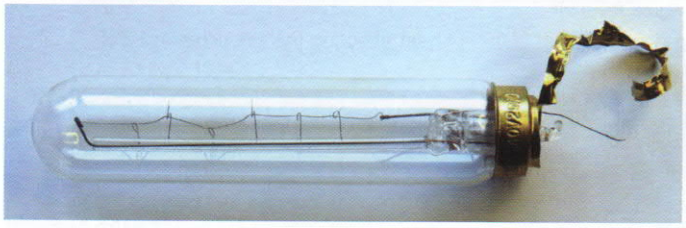


Figure 3

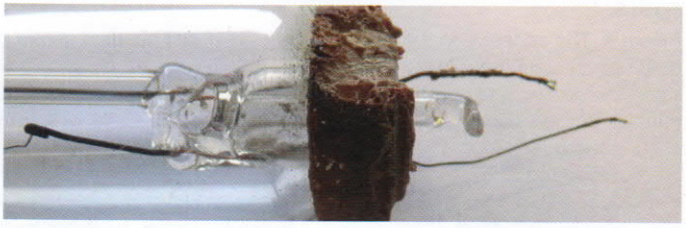


Figure 4

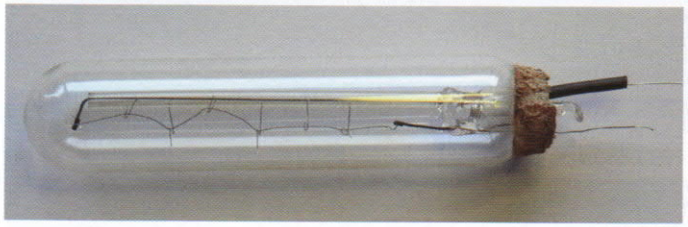


Figure 5


Figure 6

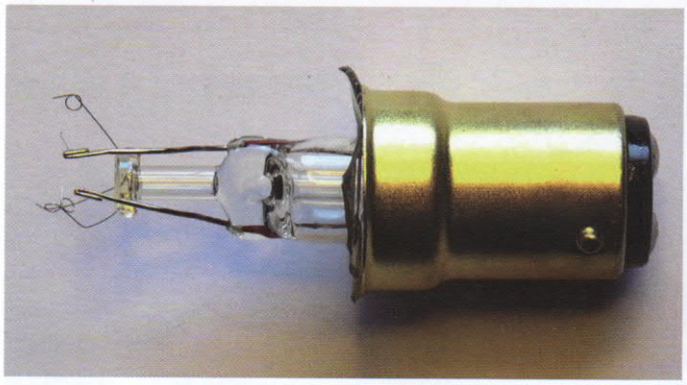


Figure 7

They have to be re-based as they are S.E.S and EMI of course used bayonet. I haven't found a lamp holder small enough to just change that but I prefer it this way as it leaves the radio more original. Another difference is that they are 25W rather than the 15W they would have originally been. Unfortunately, there seems no source for lamps of that wattage. However, in use and under-run (with no doubt a very long life), the extra wattage and heat can be quite small and unlikely to do the radio or its dial any harm

I found these lamps, by doing a Web search, at the request of friend and fellow member Paul Barneveld. He did the pioneering work of sorting out the best way of changing the bases.

Figure 1. The first picture in the sequence shows the SES lamp.

Figure 2. After removing the solder from the bottom connection, a small hacksaw was used to cut around the base, in the position shown (below the 'pip').

Figure 3. Having done this, then using a small pair of cutters, the remainder of the base is rolled away like opening an old fashioned sardine can. It is necessary to snip such as to leave a small tab having the side connection. This can then be unsoldered and allowed to fall clear.

Figure 4. This shows the side wire teased out from the old adhesive. I did this using a blunt scalpel and digging away enough glue to free the wire.

Figure 5. This wire is too short and has to be extended. The best way to do this is to form barbless fish hooks on each wire and then hook them together before squeezing them closed and soldering. Having done this a short piece of silicon rubber sleeving is slipped over the wire.

Figure 6. The donor bayonet based lamp.

Figure 7. De-solder the connections before wrapping the lamp in an old piece of cloth and smashing the glass. It's surprising how hard you need to hit it and often more than once! Then the inner stem can be twisted free with pliers.

Figure 8

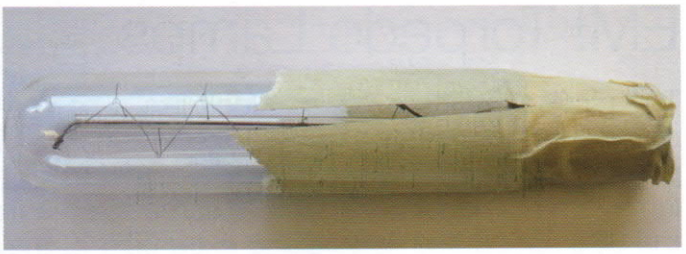


Figure 9

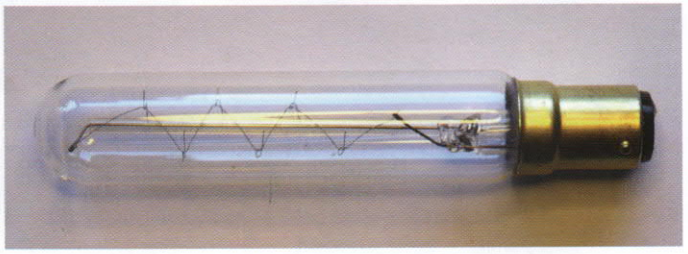


Figure 10

Figure 8. The adhesive in the base can be softened by leaving the base in Cellulose Thinners for a couple of hours. If you leave it in the thinners overnight the glue becomes even softer but there is discoloration to the brass. Once the glue is softened the pieces of glass can then be prised free, with the blunt scalpel, with no damage or marks to the base. Hopefully, you won't need it but have the Elastoplast handy or wear surgical gloves and do use some eye protection.

Figure 9. Having got a clean donor base it's just a matter of fitting it. I saw no point in scraping all the old adhesive away from the new lamp, and it's actually an asset to keep it. It's well attached and makes getting the donor base in line easier. It just needs a gentle paring down, all the way around, and the donor base will fit. To glue the base Paul used epoxy but I used JB Weld (loaded epoxy) which is stiffer and less messy. Masking tape was used to hold the base in place overnight.

Figure 10. The finished lamp.

**Conclusions**

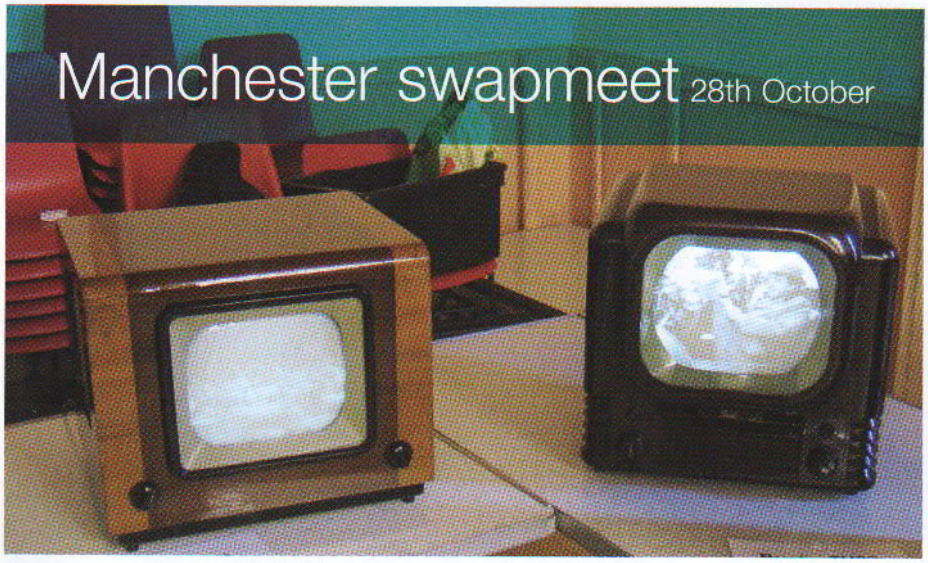
It depends upon the radio as to what voltage you run the finished lamp. Paul in his HMV 469 (the ones with the red Paxolin dial) has used the lamps at full voltage. I wanted the lamps for an HMV 650 with an edge lit glass dial. This has the lamp in a half round metal tube so I was concerned with the lamp getting too hot and the extra heat affecting the silk screened dial.

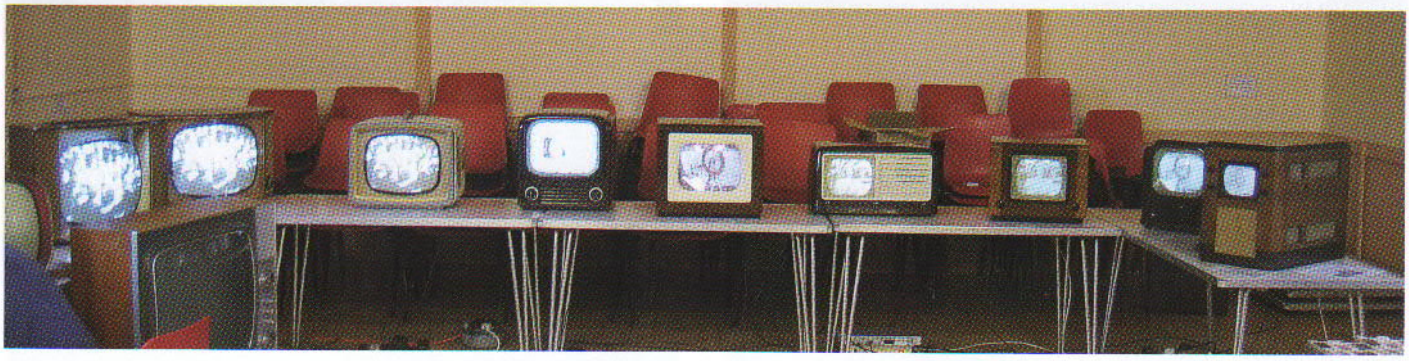
As chassis and cabinet are not quite finished I experimented with the dial temporarily held in place with the lamp run on a Variac. With voltages as low as 200V the results, in a dim lit evening, are that this may be good enough. At this voltage the lamp is only consuming 18W so the extra heat and current shouldn't matter. On paper this is more wattage than the original lamps but unfortunately under-run lamps rapidly give orange light rather than white so this is about as low a voltage as I would want to use.

In the 650 the original lamp is run from a nominally 220V tapping, on the primary of the mains transformer, but there is a 200V tap available so it just means moving one wire on the transformer if this voltage is used.

Below: a radio repair shop in Marrakech spotted by BVWS member Barrie Phillips. Certainly not a throw away nation!

# Manchester swapmeet 28th October





# Sylvia Peters

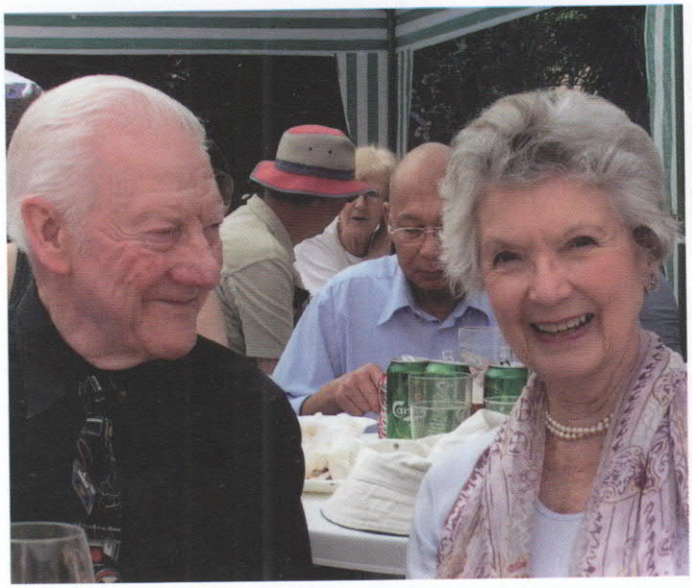
## The story behind the visit to the garden party at The British Vintage Wireless and Television Museum.

by Alan Carter, photography by Jane Carter

I started persuading Sylvia to attend one of Gerry Wells' garden parties about 13 years ago but she has a pretty full book of appointments and is busy recording books for the blind.

In november 2006 I spoke to her at Alexandra Palace and after a few phone calls she agreed to the visit. On the day of the party I collected her from her home and took her across London to the garden party in West Dulwich and subsequently took her back.

I had mentioned nothing about Sylvia's visit, not even to my family, so it was a wonderful surprise to all when she arrived. The Society should feel very proud to have their most appropriate and distinguished guest yet!



Alan Carter and Sylvia Peters at the garden party

Sylvia Peters and Alan Carter viewing the wireless collection at the museum

Alan Carter, Jane Pullan, Sylvia Peters, Shelley Carter and Peter Felix

A lovely day for a garden party! Photographed by Carl Glover

**Sylvia Peters**

Sylvia Peters was at Alexandra Palace during those formative years from 1947 through to 1953 (after answering a newspaper advertisement for a continuity announcer - she got the job by reciting the children's tale of the Three Bears impromptu before the cameras) when she was the first face on screen to introduce the coverage of the Coronation, and would later be involved in teaching Queen Elizabeth the broadcasting skills necessary for Her Majesty's Royal Christmas Message broadcasts.

In 1954, Sylvia Peters was chosen to host 'Come Dancing' (the forerunner of Strictly Come Dancing), doing so until her retirement in 1958. She also hosted BBC Children's TV For Deaf Children in 1956.

She came out of retirement briefly to work as a presenter on the Channel 4 series 'Years Ahead' in the 1980's.

article continued from page 32

**Sterling Cable Co Ltd,** Queensway, Ponders End, Middx (in 1946). In 1966, a Raytheon subsidiary. Later merged with Greengate Cables, to form Sterling-Greegate Cables Ltd. Sold by Raytheon, to BICC, in 1989.

**Sterling Domestic Appliances Ltd,** Sterling Works, Dagenham, Essex (in 1964).

**Stern-Clyne Ltd.** Formed in 1963, from the merger of Stern Radio Ltd, Premier Radio and Clyne Radio Ltd. In 1965, "Britain's greatest electronic hobbies organisation." They had several branches around the country and a head office at 3-5 Eden Grove, Holloway, London, N7.

**Stewart-Warner.** US radio manufacturer, circa 1940.

**Stirling** – see S E Opperman Ltd.

**Stocko.** The trade name in the UK of Stocko (Metal Works) Ltd, Queensway, Ponders End, Middx (in 1964 & 68). A maker of metal stampings, connector strips, connectors, etc. The UK operation was controlled by the parent company in ????

**Stokvis** – Dutch (?) domestic appliance brand in 1964. In 1964, R S Stokvis & Sons Ltd, 12-16 High Street, Walton-on-Thames, Surrey.

**Stone (J & M) Ltd,** in 1955, a TV and radio retailer with multiple outlets (in 1950, they had 64 shops) and Max Stone was the MD – the "J" was John Stone. In the same year, they acquired Civic Radio Services Ltd, of Birmingham (with 17 branches). Circa 1960, all branches were converted to trade as "Civic". They either went into receivership or were taken over in the late 60s/early 70s.

**Storno Ltd,** Frimley Road, Camberley, Surrey (in 1967& 70). A Danish maker of radiotelephones. Later taken over by Motorola (late 1980s).

**Strand Electric Engineering Co Ltd,** 24 Floral Street, London, WC2 (in 1946). Strand Electric & Engineering Co Ltd, 29 King Street, London, WC2 and 250 Kennington Lane, London, SE11 (in 1964). Lighting equipment for theatres, cinemas, etc. Strand Electric Holdings Ltd was taken over by Rank Organisation in 1968.

**Strathearn** – Northern Ireland. Maker of turntables, 1970s.

**Stratton & Co., Works,** West Heath, Birmingham, 31 (in 1948). Began making radios in the mid-20s. Maker of variable capacitors. "Eddystone" brand. Later – communications receivers. See Eddystone.

**Street (John) Manufacturers Ltd,** 88 Springbank Road, London, SE13 (in 1955). In business since at least 1950. In 1958, they relocated to Falcon Works, 71-73 Beacon Road, Lewisham, London, SE13. Maker of "Falcon" radiograms. Still going in 1964 & 66.

**Stromberg Carlson Co,** Rochester 3, NY (in 1949) - a maker of TV and radio sets. Stromberg-Carlson, division of General Dynamics Corp (in 1955). Maker of loudspeakers. Plessey bought the US telecoms equipment division of Stromberg Carlson (in 1982).

**Studer International AG,** CH-5430 Wettingen, Switzerland (in 1976). Professional studio audio equipment. Also use Revox brand. In 1967, the UK agent for Revoc was C E Hammond & Co Ltd, 90 High Street, Eton, Windsor, Berks.

**Submarine Cables Ltd.** Moved from Mercury House, Theobolds Road, to Christchurch Way, Greenwich, London, in 1963. Formed in 1935, by the Telegraph Construction & Maintenance Co Ltd (later acquired by BICC) and Siemens Bros & Co Ltd (later acquired by AEI). A cable factory was also set up in Southampton. By 1960, an AEI-BICC joint company. BICC sold its interest to AEI in 1966, who then sold to STC in 1969. When Northern Telecom (of Canada) took over STC, the submarine cable division was sold to Alcatel (of France).

**Suffolk Tubes Ltd,** 1-3 Upper Richmond Road, London, SW15 (in 1959 & 64). CRT rebuilder. There was an associated company – Midland Tubes Ltd, 477-483 Oldham Road, Manchester 10 - in 1963. Suffolk were still going in the 1980s.

**Suflex.** Famous for the manufacture of varnished and plastic flexible insulated sleeving and precision polystyrene capacitors. Based in Aintree Road, Perivale, Middx (in 1938 & 48), later on, at Bilton House, 54-58 Uxbridge Road, Ealing, London W5 (1961 & 64) and later on Risca, Gwent. In 1962 & 65, Suflex Ltd, Bilton House, Uxbridge Road, London, W5. Suflex were still going in the 1980s, but there is no record of the company now, although the Risca site is still known as the Suflex Estate. Where did the name come from?

**Sugden (A R) & Co (Engineers) Ltd,** Well Green Lane, Brighouse, Yorks (in 1947 & 50). In 1961 & 70, at Market Street, Brighouse, Yorks. In 1982, at Atlas Mill Road, Brighouse ….. Makers of "Connoisseur" pickups and turntables – also HiFi amplifiers and pre-amps.

**Sugden (J E) & Co Ltd,** Bradford Road, Cleckheaton, Yorks (in 1970). Founded by Jim Sugden. In 1972, they moved to Carr Street, Cleckheaton. Maker of HiFi amplifiers and audio test equipment. In 2001, Sugden amps spares from "Audio Synergy".

**Suhner.** Suhner Electronics Ltd, 172-176 Kings Cross Road, London, WC1 (in 1968). Connector manufacturer (mainly RF types?).

**Sullivan (H W) Ltd,** Leo Street, Peckham, London, SE15 (in 1957). Established in 1895. In 1964 and 1969, at Murray Road, Orpington, Kent. Established in 1896, according to ad in WW Sep 78, page 113. Electrical instrument and calibration standard makers. In 1967, taken over by The Cambridge Instrument Company and later on, became a Thorn company. By 1973, located with Avo Ltd, at Dover.

**Sumlock Comptometer Ltd,** 102-108 Clerkenwell Road, London, EC1 (in 1968). In 1973, at Anita House, Rackingham Road, Uxbridge, Middx. Maker of "Anita" calculators – since 1961. In 1966, Anita calculators were made by the Bell Punch Co Ltd, The Island, Uxbridge, Middx – later a Sumlock location (1968). By 1973, a subsidiary of Lamson Industries Group. By 1974, Sumlock Anita Ltd, a Rockwell International (USA) company, and located (service centre) at 1 Frogmore Road, Apsley, Hemel Hempstead, Herts.

**Summerscales (W & S) Ltd,** PO Box 12 Parkside Works, Keighley, Yorks (in 1958). Maker of "Scales" spin dryers.

**Sunbeam Electric Ltd,** Nerston, East Kilbride, Glasgow (in 1959 & 64). Maker of small domestic electrical appliances. The UK subsidiary of a US company?

**Sunvic Controls Ltd,** No 1 Factory, Temple Fields, Harlow, Essex (in 1957). Later on, Satchwell-Sunvic (GEC).

**Superflexit Ltd,** Buckingham Avenue, Slough, Berks (in 1961). Maker of "Conflex" flexible conduit system.

**Suvicon Ltd,** Hagley House, Hagley Road, Birmingham, B16 (in 1972). A component distributor for overseas items and a subsidiary of Steatite Insulations Ltd.

**Swindon Viewpoint Ltd,** 14 Victoria Road, Swindon (in 1979). Swindon's community cable TV station. Later acquired by Thorn EMI, Telecential, now NTL (2002).

**Swirlux.** Brand used for washing machines made by Universal Boilers & Engineering Co Ltd, Fulledge Works, Burnley, Lancs (in 1946).

**Swisstone Electronics Ltd** – see Rogers Developments. In 1980, makers of Rogers and Chartwell amps, tuners and loudspeakers.

**Sylvania.** Sylvania Electric Products Inc, 1740 Broadway, New York 19, NY (in 1955). Maker of lighting, valves, radio & TV, electronics, and atomic energy equipment. The origins of Sylvania can be traced back to 1901 when a Frank Poor, of Middleton, Massachusetts, was a partner in a company that restored burnt-out lamps. The business moved to Danvers and he bought out his partners. He called the company Bay State Lamp Company (his brothers joined the company). In 1909 the brothers started a company to make new lamps – Hygrade Incandescent Lamp Co. In 1916, Hygrade opened a new factory in Salem, Mass. Meanwhile, in Pennsylvania, The Novelty Incandescent Lamp Company was formed in 1906 to restore old lamps and make novelty lights. In 1922, the

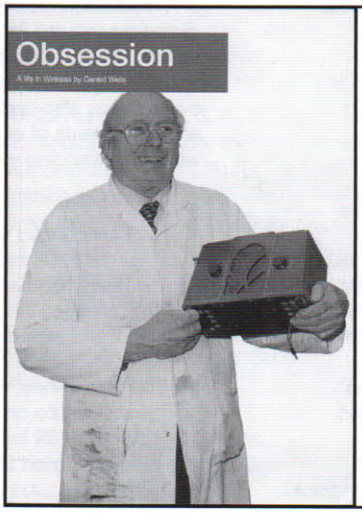
firm was bought by Bernard Erskine and associates, and Nilco Lamps was formed. In 1924, Nilco set up the Sylvania Products Company to make radio valves. In 1931, Hygrade, Nilco and Sylvania merged to form the Hygrade Sylvania Corporation. In 1942, the company changed its name to Sylvania Electric Products Inc. In the 1940s and 50s, Sylvania expanded into consumer electronics, TV tubes and radios. In 1959, Sylvania was taken over by GTE (General Telephone & Electric Corp). It was later known as GTE Sylvania Inc.

The valve factory was at Emporium, Pa (in 1955). They had a Belgian subsidiary, which made colour CRTs in the 1970s (located at Tienen and opened in 1968). There were also European lighting operations. The (Sylvania) lighting operations were disposed of by GTE, in 1993, to Osram GmbH in North America and to SLI in most other areas.

**Sylvania-Thorn Colour Television Laboratories Ltd,** Great Cambridge Road, Enfield, Middx (new in 1954 – and in 1964 "Trader" yearbook). Joint venture to develop all aspects of colour TV. In 1959, they made a range of germanium power transistors in the UK. In 1961, they were advertising instrument CRTs. This joint venture seems to have petered out by 1966.

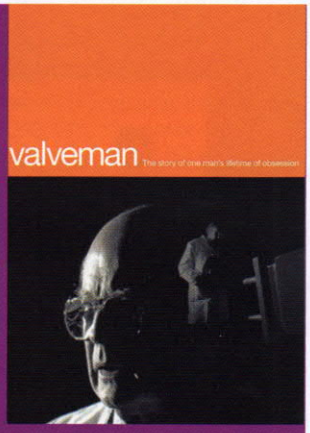
**Systron-Donner Corporation, Datapulse Division,** 10150 West Jefferson Blvd, Culver City, California, 90230 (in 1973). A US manufacturer of test equipment. In 1971, the UK office was at St Mary's Road, Sydenham Ind Est, Leamington Spa, Warwickshire. Bought by Thorn in the 1980's. telecoms equipment, incl. transmission and switching products. Also a small electromechanical switching products factory. Originally an E K Cole Ltd site. Later sold to AT&T after an initial Philips/AT&T joint venture





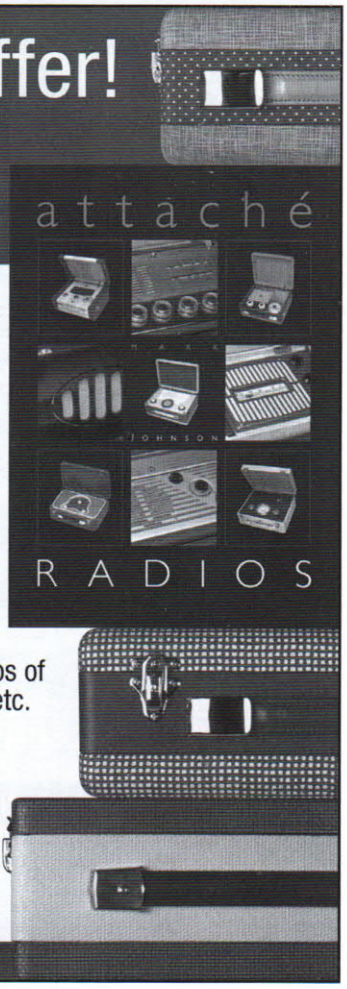








# Minutes

**Minutes of the BVWS Committee meeting held 59 Dunsford Close, Swindon on Friday 14th December 2007 starting at 6pm.**

Present: Mike Barker (chair), Graham Terry, Guy Peskett, Paul Stenning,, Terry Martini, Jeremy Day, Martyn Bennett (joined at 7pm).

1. Apologies for absence: Jon Evans, Carl Glover, Ian Higginbottom.

2. The minutes of the meeting held on 20th September 2007 were approved. Matters arising:- Item 2, More capacitors will be ordered.

3. The Membership Secretary, GT, reported that the membership stood at 1573 including 6 honorary. Following a review the list of complimentaries has been reduced from 86 to 57.

4. The Treasurer, JD, reported that the Societys' finances were healthy and the account balances stood at £24,253 (deposit) and £17,303 (current). He tabled a statement for the year so far and was congratulated on its clear presentation.

5. MB reported for the Editor that the Christmas Bulletin had been delivered to Hastings Print on 10th December.

6. NVCF 2008. The organisation is on track and stall application forms are about to be circulated. It has been confirmed that there will be an exhibition of mechanical music at the fair. This will be organised by Jeff Borinsky.

7. TM reported concerns about finding material for the Christmas 2008 DVD. A major difficulty has been lack of progress in obtaining permission to use BBC copyright material. One possible source might be the engineering films made by the London County Council. A vote of thanks to TM for his timely production of the 2007 DVDs was carried unanimously.

8. A discussion took place on the merits of and procedures for posting the contact details of stallholders at Society swapmeets on the website after the event. It was also suggested that advance announcements of which stallholders would be attending would be helpful.

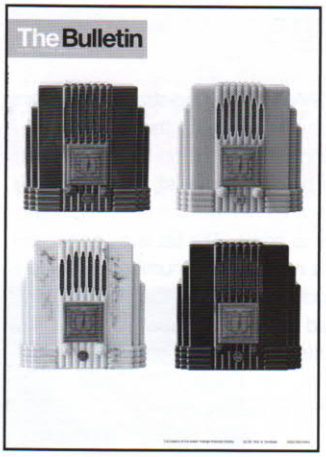
9. AOB
(i) MB announced that most of the dates for the 2008 events of interest to our members had been gathered.
(ii) MB thanked the Committee for their work and support in 2007.

10. The date of next meeting will be fixed in the new year. It will be on the conference telephone.

The meeting closed at 7.10 pm

Eighth page advertisements cost £22.50, quarter page advertisements cost £45, half page: £90 and full page: £180. Cheques made payable to 'BVWS' please







# Back issues

**Vol 10** Numbers 2, 3 & 4 Inc. The KB Masterpiece, Extinct Species "A Monster Defiant".

**Vol 11** Numbers 1, 2, 3, 4 Inc. BTH VR3 (1924) receiver, Marconi's 1897 tests, Origin of the term 'Radio', Baird or Jenkins first with TV?

**Vol 12** Numbers 1, 2, 3, 4 Inc. the Emor Globe, The Fultograph, Ekco Coloured Cabinets.

**Vol 13** Numbers 1, 2, 3 Inc. Direct action tuning, The Philips 2514, Noctovision.

**Vol 14** Numbers 1, 2, 3, 4 Inc. Cable broadcasting in the 1930's, The story of the Screen Grid.

**Vol 15** Numbers 2, 3, 4 Inc. The wartime Civilian Receiver, Coherers in action, Vintage Vision.

**Vol 16** Numbers 1, 2, 3, 4 Inc. The Stenode, The Philips 2511, Inside the Round Ekcos.

**Vol 17** Numbers 1, 3, 4, 5, 6 Inc. Wattless Mains Droppers, The First Philips set, Receiver Techniques.

**Vol 18** Numbers 3, 4, 5 Inc. The First Transistor radio, The AVO Valve tester, The way it was.

**Vol 19** Numbers 1, 2, 3, 4, 5, 6 Inc. The Birth of the Transistor, Super Inductance and all that, reflex circuits, A Murphy Radio display, restoration.

**Vol 20** Numbers 1, 2, 4, 5, 6 Inc. Radio Instruments Ltd., Japanese shirt pocket radios, Philco 'peoples set', notes on piano-keys, the story of Pilot Radio, the Ever Ready company from the inside, the Cambridge international, the AWA Radiolette, this Murphy tunes itself!

**Vol 21** Numbers 1, 2, 3, 4 Inc. Marconi in postcards, the Defiant M900, GPO registration No.s, Personal portables, the transmission of time signals by wireless, the Ekco A23, historic equipment from the early marine era, the birth pains of radio, inside the BM20, plastics, Ferdinand Braun, pioneer of wireless telegraphy, that was the weekend that was, the first bakelite radios, BVWS - the first five years, the world of cathedrals, Pam 7:10.

**Vol 22** Numbers 1, 2, 3, 4 Inc. Another AD65 story, the Marconiphone P20B & P17B, listening in, communication with wires, the story of Sudbury radio supply, French collection, Zenith Trans-oceanics, Farnham show, Alba's baby, the first Murphy television receiver, AJS receivers, Fellows magneto Company, Ekco RS3, Black Propaganda.

**Vol 23** Numbers 1, 2, 3, 4 Inc. Sonora Sonorette, Bush SUG3, RNAS Transmitter type 52b, North American 'Woodies', Why collect catalin, Pilot Little Maestro, Theremin or Electronde, The Radio Communication Company, Early FM receivers, an odd Melody Maker, Black propaganda.

**Vol 24** Numbers 1, 2, 3, 4 Inc. The Superhet for beginners, Triode valves in radio receivers, History of GEC and the Marconi - Osram valve, KB FB10, Great Scotts!, Riders manuals.

**Vol 25** Numbers 1, 2, 3, 4 Inc. Repair of an Aerodyne 302, Henry Jackson, pioneer of Wireless communication at sea, Zenith 500 series, Confessions of a wireless fiend, RGD B2351, John Bailey 1938 Alexandra palace and the BBC, Ekco during the phoney war, Repairing a BTH loudspeaker, The portable radio in British life.

**Vol 26** Numbers 1, 2 Inc. How green was your Ekco?, The Amplion Dragon, Crystal gazing, The BVWS at the NEC, Installing aerials and earths, novelty radios, Machine-age Ekco stands of the 1930s, Volksempfänger; myth & reality.

**Supplements:**

1 'The story of Burndept'.
2 'WW 1927 data sheet'
3 'Seeing by wireless' the story of Baird Television
4 Reproduction Marconi catalogue

Earlier Bulletins and supplements are priced at £2:00 each + postage. Bulletins from volume 21 onwards are priced at £2.50 each. + postage.

Postage: for individual Bulletins add 50p, for 2-5 bulletins add £1, for 6 or more add an extra 20p each.
23 Rosendale Road, West Dulwich
London SE21 8DS
Telephone 020 8670 3667.

Cheques to be made payable to 'The Vintage Wireless Museum'.

# News and Meetings

**GPO registration Numbers**

Martyn Bennett is the custodian of the BVWS GPO Registration Numbers list. As many members know, the project of assembling this list was started in the early days of the BVWS and was carried on by the late Pat Leggatt. Members are strongly urged to help build the list, whenever they get the opportunity, particularly as it is something that will help with the identification of vintage wireless in years to come. The list is by no means complete and the GPO no longer have a record of the numbers granted to wireless manufacturers. The BVWS Handbook contains the current listings - one in numerical order and one ordered by name. Please let Martyn have any additions, or suggestions for corrections, by mail or over the phone.

Martyn Bennett, 58 Church Road, Fleet, Hampshire GU13 8LB
telephone: 01252-613660 e-mail: martyB@globalnet.co.uk

**2008 meetings**

**20th April** Workshop at Vintage Wireless and Television Museum
**11th May** NVCF. The NVCF special exhibit will be mechanical music. Music boxes, roller organs, phonographs and much more. Many items will be demonstrated during the day. Organised in collaboration with the MBSGB, PPG and other mechanical music organisations.
**31st May** Garden party at Vintage Wireless and Television Museum
**1st June** Harpenden swapmeet
**6th July** Wootton Bassett
**20th July** Workshop at Vintage Wireless and Television Museum
**15th August** Friday Night is Music Night at Vintage Wireless and Television Museum
**14th September** Table top sale at Vintage Wireless and Television Museum
**12th October** Audiojumble, Tonbridge
**19th October** Harpenden swapmeet
**2nd November** Workshop at Vintage Wireless and Television Museum
**7th December** Wootton Bassett

**Workshops, Vintage Wireless and Television Museum:**
For location and phone see advert in Bulletin. 11:00 start.
**Harpenden:** Harpenden Public Halls, Southdown Rd. Harpenden. Doors open at 10:00, tickets for sale from 09:30, Auction at 13:30. Contact Vic Williamson, 01582 593102
**Audiojumble:**
The Angel Leisure Centre, Tonbridge, Kent.
Enquiries, 01892 540022
**NVCF: National Vintage Communications Fair**
See advert in Bulletin. www.nvcf.co.uk
**Wootton Bassett:** The Memorial Hall, Station Rd. Wootton Bassett. Nr. Swindon (J16/M4). Doors open 10:30.
Contact Mike Barker, 01380 860787
**For more details with maps to locations see the BVWS Website:**
www.bvws.org.uk/events/locations.htm

11 May 2008

# National Vintage Communications Fair at The Warwickshire Exhibition Centre

**Now in our 15th year!**

**10.30 to 4.00 £5 admission** (under-14s Free),
early entry 9.00 at £20

**300 Stallholders**

## Free car parking!

The NVCF special exhibit will be mechanical music. Music boxes, roller organs, phonographs and much more. Many items will be demonstrated during the day. Organised in collaboration with the MBSGB, PPG and other mechanical music organisations.

Stall bookings/Details
For any enquiries, please contact:
Post: NVCF, 13 Warneford Road Oxford OX4 1LT, UK
(please enclose an SAE)
Email: info@nvcf.org.uk a downloadable booking form is available from www.nvcf.org.uk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PHONES