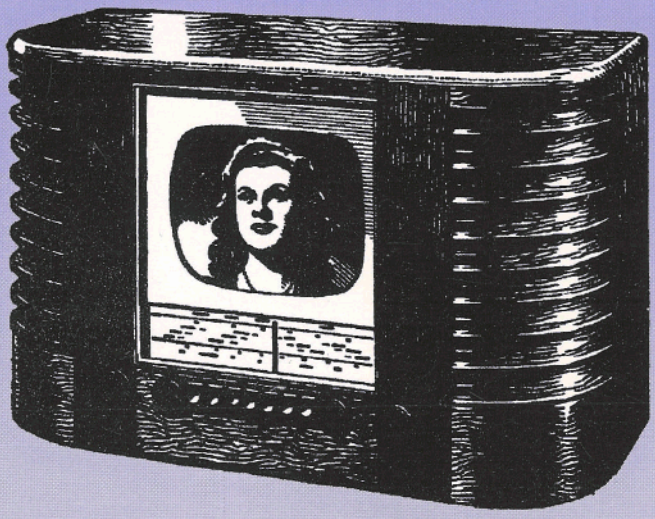
405 ALIVE

Recalling the Golden Years of Black & White Television



"give me ④⓪⑤!"

Issue 34 - Second Quarter 1997

ISSN 0969-8884

IN THE MAGAZINE WITH ABSOLUTELY NOTHING NEW IN IT...

BAIRD ON BAIRD

VOICES FROM OUTER SPACE

PRE-WAR CRT TECHNOLOGY

... and much more

405 ALIVE

Founded 1989 by Andrew Emmerson, with title and inspiration by Bill Journeaux.

Issue 34, Second Quarter 1997

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LEGAL WARNING, particularly for New Readers

By reading this magazine you are entering a Temporary Autonomous Zone (TAZ), where normal values, logic and timescales do not apply. At the least you may feel unable to put the magazine down until you have read it through to the very end. While you read it, you may also feel strangely mellow and entirely unable to face doing anything else useful for 24 hours. Alternatively you may sense a sudden urge to have money extracted painlessly by one of our advertisers. Anything may happen and at the very worst you may enter a Permanent Autonomous Zone (PAZ) of your own creation.

FROM THE EDITOR ...

Not a lot to say this time apart from a big thank-you to everyone who has submitted articles and letters. So many in fact that several letters have been held over until the next issue. All this keeps us going nicely but we are always happy to welcome new contributors. How about you?!?

The Editor

QUOTES OF THE WEEK

The word 'television' is a poor choice, not merely because 'tele' is Greek and 'vision' is Latin but also because it is a simple synonym of telescopy. One could have found a more characteristic Greek expression such as 'teleopsy' and derivatives from this word.

André Blondel, 1937.

The thing is that bad design and bad television have something in common – they both elevate the non-expert to the level of a deity. It's the Murdoch attitude to media – "give 'em what they want" and hang any sense of aesthetics or quality. It's a sad indictment of the society we have created – but then I'm just a confused old lefty idealist who still believes the world ought to be better but who doesn't understand quite how one goes about helping it happen any more. One thing is for sure though – bad design and crap television are *not* the answer.

Phil Manchester, 1997.

LETTERS, WE GET LETTERS...

Many thanks to all our letter writers, including those few who didn't make it to this page. We try and fit in as many letters as possible, occasionally editing for space or clarity.

From Tony Clayden, London N14:
It's not true! There's no need to hoard supplies of banana plugs, and the idea that the Eurocrats of Brussels have outlawed them is mistaken. Their use is prohibited only on domestic apparatus and whilst this rule applies in the rest of the EC, it's questionable it has the force of law here in the UK. Meanwhile these plugs **can still be used** on medical, laboratory and other professional equipment and will continue to be supplied by RS, Farnell and so on.

There is an alternative form of *shrouded* 4mm plug (and special socket) used with some multimeters, and the Federation of British Audio is looking to see if these variants can be used for loudspeaker connections.

From Brian Renforth, Sandyford:
Many thanks for the latest *405 Alive*, great stuff as usual. The features are all excellent, I especially liked David Boynes's piece on the HMV 1902 and the bit on Plessey sets. Nice to see a surviving 9A61U, though the one I recall had a darker CRT surround.

The piece on *Quatermass and The Pit* was interesting – I can't agree with the feature-length format though, far too long to take in without a break. This video has indeed been deleted by the BBC but has been re-issued and is currently available, licensed from the BBC on a budget label. Unfortunately it's the same feature-length version. Much better to have individual episodes to allow one to save the rest for another night. They did this with many *Doctor Who* tapes, why not this one? The Hammer film version starring Andrew Kier is really excellent, note the ABC COLOUR logo superimposed on a B/W set (triangles in R, G and B!).

From Jerry Police, New Jersey:
Just got the next issues of *405 Alive* and they are great! The Antique TV newsgroup on the Internet is still building up steam, but there are already several pre-war graphics up: WCBW, CBS-NYC 1941, W2XBS, NBC-NY (mint test pattern, where did that guy find it?!?) 1939. I've got a *color* picture of field-sequential color – the CBS test pattern , not sure if its the 1940 16MHz pre-war, or the 6MHz after war version, but will be up-linking it soon.

That color system held up standards introduction here, as it threw a monkey wrench into standardization. There were something like 20 incompatible proposals for American TV in the late 1930s, and they were all quite prepared to sue each other if each did not get its way! I still like the 4:1 interlace Dumont proposal – I actually recreated it back in the late 1970s. 660-line H resolution, 625 line scan, 15/60 frames/fields sec.

As usual the URL is:
http://drn.zippo.com/news-bin/wwwnews?alt.tvdx.early-tv

From Adrian Hurt, Ware:
Please find enclosed some documentation from a local auctioneer. Lot 176 comprises a small collection of experimental valves, bulbs and television-related equipment, including some original Baird patents, at an estimated value of £50 to £100. You can seen from the Auction report that they went for £9,000 pounds! I don't know who the buyer was, but wouldn't it be interesting to know? All the best with the great *405 Alive* magazine.

- The auctioneer is G.E. Sworder and Sons of Bishops Stortford and their report states: "A file of correspondence between William Day and John Logie Baird Ltd dated 1924 sold for £9,000. William Day established a company with Baird and financed his research and early production of the television. The letters outline some problems Baird was experiencing with his designs and problems Day was having getting Baird to repay his debts! Included in the lot were four television-related patents and a prospectus for the Baird Television Development Company Ltd. The lot was purchased by a Hertfordshire dealer against strong opposition from English and Canadian collectors." Interesting! I cannot guess who the Hertfordshire dealer was; the Canadian interest would probably be for the MZ collection in Toronto. [Editor].

From Mike Brown (mb@enterprise.net):
Within my homepage I am developing a section on teletext 'nostalgia'. As you'll see, if you visit, I already have quite few frames from the early 90s but I would be keen to see anything to add to what I've already published. I am particularly interested in fleshing out my woefully sketchy memories of the early days of ORACLE...

❖ See *http://homepages.enterprise.net/mb/teletext.html*

From Bernard Wilkie (BBC retired staff), Coulsdon:
History has never given the architects of Television Centre Design Block the credit they deserve. It was, quite simply, the finest TV design unit of its kind in the world. Equipped with everything needed to supply the programme makers its glass-walled design offices gave a space-age feel that befitted the new era into which television was taking us. From the huge scenery lift capable of carrying a London bus to the floating scenic artists' studio – from the rostrum camera units to the giant scenic workshops the entire building was a power house of art and design.

That was yesterday. Today I read the following in *Prospero*.

> The BBC is pulling out of three craft services in London – costume design, scenic design and make-up design resulting in the loss of 117 posts... a significant portion of London Design Group will close. Largely down to economics.... business has shifted towards the capital's burgeoning freelance field.

Although probably unavoidable, this dismemberment will exact penalties. Restricted by the confines of an activity in which the breakfast dishes are pushed aside to make way for sketch pads and lap-tops, how will the learning process be maintained? How will new techniques and methods be communicated? What will ensure the interchange of ideas and the advice of colleagues? To keep abreast of innovation the home workers will have to rely upon watching television programmes – created by other designers watching television programmes.

From Grant Dixon, Ross-on-Wye:
I have been doing a bit with 32-line TV and my latest project for the NBTVA Convention is an EPROM pattern generator which stores 32 pictures in a 27C512 and displays them in sequence thus giving a 'film loop' of 2.56secs. I have been working with Graham Lewis in Billericay who has built up a Saticon camera and an interface to the PC. He has

been providing me with files of pictures from which I have been extracting the 32 pictures to put in the EPROM. I have now decided that I would like to build up a Vidicon camera for myself and today I went up in the loft to rescue a camera which I built up many years ago; so long ago that it used OC45s and similar devices.

From Ken Domminney, Eastbourne:
Many thanks for sample copy of *405 Alive*. Noting the magazine was predominately programming, I shall need to address my hardware and technical requirements in the first instance. To this end I have a Bush TV22 serviced now and providing a raster and live sound channel.

You may be interested to learn of my approach and failed components replaced to achieve current status. The TV was last powered eleven years ago prior to the demise of BI/BIII transmissions.

> Cold checks revealed o/c heater chain resolved by cleaning all valve pins. No shorts on HT rail.
> Powered up with 40-watt bulb in series for half hour; I have no Variac. Changed bulb to 100-watt for half hour and noted sample of heater volts, the low HT, and smoke rising from R66 as a result of a leaky 0.25μF section of C64, part of a LF filter between HT and heater chain feed.
> When full mains was applied and various voltages checked, the HT only made about 105V. C65 60μF reservoir was o/c, C66 and C67 smoothing low in value. Replacing these increased HT to 165V.
> CRT voltages were incorrect where Brightness pot was found o/c and C31 decoupling A1 voltage was leaky although it read 0.12μF without leak on digital meter. EHT at EY51 anode but nothing on CRT due to rotted heater wires on EY5I at point they left the glass bulb. A replacement restored EHT to final anode. I probably require a PZ30 where the half-wave rectifier HT section is inefficient comparing RMS input to rectified output. I may have a likely source of this valve.

I was advised by an enthusiast that it is the custom to place new electrolytics in the original cans. I briefed him on *405 Alive* and he is about to join, A method of reconstructing the original can was not forthcoming.

❖ Well done Ken – a very practical approach! I'd just say that not everyone goes as far as concealing new electrolytics in the old cans; my attitude is that so long as the set works well, who knows what it's doing inside?!? Many capacitors start to leak only when

high voltage is applied and so digital capacitor meters can be misleading.

From Chris Worrow, Bury St Edmunds:
For those of us in 405 Alive that operate sets when the main or only standard that was transmitted was 405, there is a certain type of satisfaction to be gained by having the sets showing the type of programme that the original owners would have seen when the sets were new. Did the picture look the same, was it better and did the speaker really rattle on the bass notes of the music? Maybe , maybe not. At a guess we all have some material that fits the sets we operate, but being human, however, we soon get bored with it and the search starts again for anything that can be shown that we have not seen before.

Many video companies release old material but unless one travels sometimes on a weekly basis to see what's new, obtaining new material can be a hit and miss affair, and this assumes that the store will be interested in stocking it in the first place. Recently while in the Virgin Megastore in London I was amazed to see a tape containing two episodes from the 1960s series on BBC, *Adam Adamant*. I also found two compilation tapes from ITC with a few of the favourites that were shown in the 60s and 70s; all these were purchased and make a nice change. Two weeks later I again found myself in the same store and made straight for the TV Drama section. All the titles mentioned above had gone, so someone therefore must be buying them other than me.

As it would seem that there are others around who like to view what I consider to be some of the best in British television could we not maybe approach a few of these companies and request that if for example they intend to release some of the older material from the archive they tell us, as a club; it may even improve their sales in the long run?

Taking things to the logical end and if using the *Adam Adamant* as an example, I cannot imagine that these were turned out in their hundreds of thousands and therefore ask the question that if enough of us got together could we via the official channels and via the approved companies that the BBC use for example have released some the material that sits and rots in the BBC and ITV archive and only comes to light when some famous person dies or on this your life.

As a footnote to all this I've been talking about programmes but what about the millions of adverts? I understand the copyright rules but if they have a rough idea on the quantity that will be sold then what's the problem?

❖ No problem, Chris, just money! Re-releasing old programmes on sell-through tapes is a mighty expensive operation and companies

want to make sure they see a good return on their investment. let me just run you (and everyone else of course) through what's involved...

Library research fees, between £50 and £500.
Fee to archive programme library, generally £10 *a second* (yes!).
Cost of master tape, say £50.
Tape transfer costs, around £100 an hour.
Music rights, varies but not cheap.
Artistes' rights, can be colossal.
Cost of tracing each performer and getting his/her agreement, say £1,000.
Fees to original performers, substantial (you guess!).
Cost of VHS tape purchase and duplication printing sleeves, you guess!
Publicity costs, again, you guess!

Then consider that the largest purchaser (a well known High Street newsagent/bookseller/record store chain) pays a maximum of £3 or so per tape, in recognition of the huge orders it places.

Now you do the sums and see how much you'd have to invest *and* then turn out the tapes so as to make a profit on £3. Will the tape sell? How many copies do you think you should make? Five thousand? Ten thousand? I think you can now see why your money would be better earning interest in the bank. This is certainly why I soon gave up the idea of commissioning a '405 Special' tape of favourite archive material for sale to readers – the figures just don't add up! [AE]

From Richard Lambley, posted on the Internet:
I was sad to note that the sale of the BBC's transmission network on Friday (which reduces the BBC from a broadcasting corporation to a plain programme producer) coincided with the death of one of the Beeb's most distinguished engineers – T. H. Bridgewater. He was chief engineer for BBC TV for many years, having started in TV in 1928 as the technical brains behind Baird, and he was responsible for many big events, e.g. TV coverage of the 1937 coronation. End of an era.

From Jim Pople, Lyme Regis:
I was interested to read Jeremy Jaqo's article on Auricon cameras. We had these at Associated-Rediffusion in 1955. The photo shows one in use on the Opening Day of ITV outside the Guildhall in London, but look at the size of the magazine.

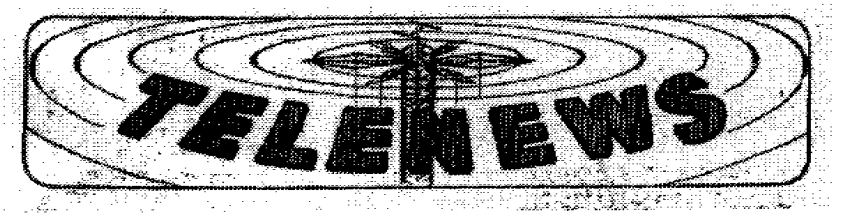
1,200ft of 16mm is approximately 13 inches in diameter and weighs 2½lb. That makes the magazine something in the order of 26 inches across, 2½lb plus the weight of the magazine itself – at that rate you'd have to be a superman to hand-hold it. Which makes me wonder if the ones in Dicky Howett's picture are the 600ft jobs.

As a film editor at AR-TV at that time, cutting direct on married print with the sound 26 frames ahead of the picture could be a nightmare. It was vital that anyone speaking to camera looked up and paused for a couple of seconds before beginning, otherwise where you needed to physically cut the sound could quite often be wrong for the picture frame at that point.

The best way, if there was no rush, was to have two prints made and work double-headed in parallel. As I remember it, the sound quality left much to be desired.

Nice to see some articles by Paff, by the way. I remember his BBC Club Christmas cards full of little OB men in bowler hats with 'cans' over them!

Associated Rediffusion outside broadcast crew at London's Guildhall on the opening day of ITV, 22nd September 1955. Note the Auricon camera on the left, also that the OB van is signwritten Remote Telecast Unit (very American and very trendy!).



IN TUNE INTERNATIONAL

If you read our last edition, you will doubtless recall the article *The Stargazers are o-o-on the Air*, which illustrates the cross-over between our television interest and that of popular music. Another fascinating article in the December 1996 issue (no. 71) is a compilation by Colin Morgan of the Billy Cotton story (*Wakey Wakey!*).

This is not a simple listing of record hits but a detailed investigation of BBC internal correspondence illustrating how commercial television and commercial radio (in the form of Harry Alan Towers) were trying to woo Cotton away from the BBC... and how the BBC was forced to retaliate. This is the genuine 'inside story' and that article alone made this issue special for me. Another good thing about *In Tune International* is that the publisher has his own monster photocopier, so all back numbers can be produced to order – they never go out of print. What a great idea!

- *IN TUNE INTERNATIONAL (music of the years 1935-1960): Colin Morgan, 12 Caer Gofaint, Groes, Denbigh, Clwyd, LL15 5YT.*

TELE TUNES

Thanks to *In Tune International* I can also tell you about TELE TUNES, an amazing annual directory of film and advertising music. It lists all television commercials, programmes, films and shows in 300 fact-filled pages, listing the music used in the productions, whether commercially available and so on. Price is £15.25 (post-free in the UK), from Mike Preston, The Glengarry, Thornton Grove, Morecambe, Lancs., LA4 5PU.

RARE TAPES TO HIRE?

The following appeared in a W.H. Smith publication...

> "Fans of 'The Lad' may be interested in joining the many Tony Hancock supporters pressing the BBC to show Hancock television programmes from the archives. Your readers may not know that many videos and tapes can be hired from the Tony Hancock Appreciation Society. The subscription cost of £11 for two years' membership can soon be recouped from the wealth of audio cassettes and videos available, not yet released from the BBC.
>
> To join the THAS write to 426 Romford Road, Forest Gate, London, E7 8DF."

RADIOPHONIC WORKSHOP EXTERMINATED?

It looks as if the compositional activities of the BBC unit responsible for the *Doctor Who* theme and countless other bursts of electronic music are about to

be lost in space for eternity. The BBC Radiophonic Workshop will bid farewell to four staff as part of the Corporation's latest cost-cutting exercise, limiting its work to audio restoration and further enhancing director general John Birt's Dalek reputation. [*spotted in* ***Classic FM****, March 1997*]

RADIO NORDZEE PLANS TV CHANNEL

Hans Knot of *Freewave Media Magazine* writes:

Radio Noordzee Nationaal (RNN) plans to set up its own television station on 1st May under the name TV Noordzee (how very original!). Multimedia company Strengholt in Naarden will own the new station, just as they currently own (the very popular) RNN. Nothing can be said of the programming at present, except that the format will be the same as that of RNN, thus meaning a lot of Dutch music. The station will be on air for a couple of hours initially, with plans to expanding later on. Strengholt says it doesn't want to invest to much money in their new venture because they wouldn't want to damage their 'flourishing company'. TV Noordzee is willing to share a channel with another broadcaster for the moment, although it does want to have a channel for its own later on.

The original **TV Noordzee** was the British-owned offshore station located on a tower specially constructed in the North Sea off Scheveningen, Holland. It broadcast for a short while during the 1960s in Band III to a large Dutch audience until it was closed down by the Dutch government. It offered the first commercial programming aimed at Dutch viewers and although TV Noordzee did not last long, it achieved a permanent change in the face of television broadcasting in the Netherlands. The operating company was subsequently absorbed in TROS, still today a leading Dutch broadcasting organisation.

BBC BROADCASTS VIA TEXAN TRANSMITTERS

In March the British Broadcasting Corporation completed the sale of its domestic radio and television transmission business to the U.S.-led consortium Castle Transmission Services (Houston, Texas) for US$397 million. Partners in the venture include Telediffusion de France as well as the investment firms Berkshire Partners LLC and Candover Investments plc.

NVCF 97

The 1997 National Vintage Communications Fair will be held at its usual venue, the Pavilion Hall at the National Exhibition Centre, Birmingham, on Sunday, May 4, opening hours 10.30am to 5pm.

NEW HOME FOR SCOTTISH MUSEUM

Scotland's Museum of Communication, founded by Harry Matthews when he began to collect and restore old radio equipment in 1973, and formerly located at Bo'ness, is now open in new prestige accommodation in the centre of Edinburgh at Castle Terrace in the shadow of Edinburgh Castle and just off Princes Street.

As part of the ScottishTelecom 'World of Communications' exhibition at Saltire Court, the 'historic section, mounted by the MoC Foundation,

begins with pre-electric communication and goes on to cover Early Electricity, Telegraphy, Telephony, Radio, Military Communications and Television up to the 1960s.

The exhibition is open Tuesdays to Saturdays from 10.00 to 17.00 and during the summer season on Sundays as well from 14.00 to 17.00. Admission is free; details on (0131) 473 3939.

You can support the work of the Foundation by becoming a Member. Details from Membership Secretary, MoC Foundation, 47 Grahamsdyke Road, Bo'ness, EH51 9ED.

AP UPDATE

The Alexandra Palace Television Trust is a Registered Charity whose aims and objectives are:

- To develop the original TV studios at Alexandra Palace as a popular and educational museum and studio devoted to television.
- To promote public interest in the technical developments of television broadcasting, past, present and future. To provide an important archive of films, videos, written records and equipment relating to the history and development of television, especially at AP.
- To provide training facilities relating to TV technology and production.
- To provide facilities for local schools and Community groups interested in making video and television films.

Although the BBC has left Alexandra Palace, the studios and tower survive, and the importance of the site is receiving more and more official recognition. The Trust will shortly be embarking on a feasibility study to prepare for the new Museum (conceived on the same lines as the hugely successful MOMI (Museum of the Moving Image) and Bradford museums). Readers can be kept in touch with developments by sending £3 together with name, address and telephone number to: The Secretary, Alexandra Palace Television Trust, Alexandra Palace, London N22 4AY. This fee includes a free copy of the *Vision* booklet.

FARNSWORTH TV SHOW

North American readers who enjoyed the recent TV show on Farnsworth check out the PBS web page for the show at
http://www.pbs.org/wgbh/pages/amex/technology/bigdream/index.html
They also give a phone number to purchase a tape for those whose VCRs didn't record the show.

TINY TELLIES

Malcolm Burrell sent me a Bush TV22 by post and it arrived in one piece! Mind you, it's no more than about ¾" tall, in fact a minute replica as Malcolm calls it. Let him take up the story....

> The model operates from a 12V supply to display a test card. It's made to approximately one-twelfth scale and was originally intended as doll's house furniture. The models are made from a combination of plastic, resin and balsa wood, taking about a week to build. I have several

miniature replicas to this scale for disposal and suggest they could be desirable to collectors since I don't intend making any more unless seriously pressed.

Three Bush TV22s, three Pye V4s (with 'black' screens), two Pye LV30s (table models with amethyst screens), one Pye LV30 (console with 'white' screen), three Pye 17" Continentals (cabinets shaped from wood), three Fidelity colour mains portables (circa late 1980s), three Sony 21" colour sets circa 1995, four 1930s radio receivers and five Bush DAC10 radio receivers. The radios are totally inert but all the replica televisions display test card, tuning signal or BBC ident images appropriate to their period. The colour sets may have various images ranging from Test Card F to teletext or even a random colour image when powered from a 12V source.

I am open to offers but would like to receive around £20 for the TVs and £15 for the radios or else would sell them all for £325.

Write to Malcolm Burrell, 2 Rising Sun Flats, Wellcreek Road, Outwell, Wisbech, Cambs., PE14 8SD.

SERVICING THE PYE B18T

An excellent article, complete with circuit diagram, by Ron Weller is published in the latest (April/May) issue of *Radio Bygones* magazine. This is a regular TV servicing feature in the magazine. For further information about *Radio Bygones*, see the advertisement pages at the back of this magazine.

THORNTON HOWARD BRIDGEWATER, OBE

Tony Bridgewater, an internationally respected historian, Royal Television Society gold medallist and former Chief Engineer of BBC Television, died on 28th February at the age of 88. So ended a remarkable career which covered every facet of the television scene since he joined John Logie Baird's company in 1928. Within a few months he was on his way to Australia with seven crates of equipment to assist Ben Clapp with television demonstrations in Sydney.

After returning to this country in the summer of 1929, long late hours were spent setting up the studio equipment in preparation for the first public television service from the Baird Long Acre studios using the BBC transmitter 2LO on the roof of Selfridge's store. Then followed announcing duties during the midnight transmissions, television demonstrations on the stage of the London Coliseum and outside broadcasts from the Derby in 1931 and 1932.

The BBC assumed responsibility fort the British television service from 1933 and Tony Bridgewater with his colleague Desmond Campbell joined the Corporation and for the next three years they were responsible for all the

technical activities. It was during this period that he married Jean Bartlett, the assistant producer of the 30-line programmes.

With the opening of the high definition service from Alexandra Palace he became much involved in all aspects of this new venture and in particular the Coronation outside broadcast in 1937.

The war years were spent on radar work with 60 Group and he left the RAF with the rank of Squadron Leader, returning to the BBC and eventually becoming Chief Engineer of the television service.

His contributions to the technical press covered 62 years, from an article in *Wireless World* in 1930 to a comprehensive review of the early years of BBC television for the British Vintage Wireless Society Bulletin in 1992. More often than not, he used an assumed name and articles in pre-war days by J. McPherson, R. Robinson, Thornton Howard, R. Congreve and J. Beardsall were all from his pen.

He experienced the interest and good fortune of association with, and often responsibility for, more than 20 television firsts.

His large circle of friends will remember him as a kindly, helpful gentleman.

Ray Herbert, 1st March 1997.

Those Television Days

Two, and only two, of the technical team who were actively engaged in mounting the first programmes of regular television broadcasting in Great Britain on 30 September 1929 became thereafter (excepting the War years) continuously involved with the operation of television broadcasting during the whole of their subsequent careers until retirement.

Their names? Desmond R. Campbell and Thornton ('Tony') Bridgewater.

Campbell's particular interest became the enhancement of television images by careful attention to the lighting. He gradually developed the practice and art of lighting for television, in due course earning the appellation 'Father of television lighting'. His methods and teaching influenced a generation of lighting supervisors.

Bridgewater remained wholly concerned with broadcast engineering as television evolved over the years. Throughout his career in television, spanning 40 years, he experienced the interest and good fortune of association with, and often close personal responsibilities for, a long series of 'firsts' in this ever-expanding field.

NB: All ventures listed below up to and including 1931 were initiated by the Baird Company. Thereafter they concern BBC activities.

1928/29	First demonstration of television in Australia.
1929	First demonstration of television at annual Radio Exhibition.
1929	First programme of regular television broadcasting (experimental) in Great Britain.
1930	First demonstration of television (on large screen) to a theatre audience.
c.1931	First (and only?) television engineer to announce a BBC radio programme (one occasion, by request from Savoy Hill).
1931	First television 'outside broadcast' (OB*) – the Derby.
1932	First programme at start of regular television broadcasting by BBC (from Broadcasting House).
1936	First programme at start of BBC's 'high-definition' television service (Alexandra Palace).
1937	First OB on high-definition television (the Coronation procession of King George VI).
1950	First television OB from overseas (Calais).
1952	First relay** to Great Britain of a foreign country's television broadcast (Anglo-French week). Also entailed first use of standards-converter.
1953	First use of television cameras in Westminster Abbey (Coronation of Queen Elizabeth II).
1953	First relay to continental broadcasters of a British television broadcast (Coronation of Queen Elizabeth II).
1954	First Eurovision broadcasts.
1957	First televising of Sovereign's Christmas broadcast (OB from Sandringham).
1961	First mission to Soviet television headquarters Moscow, to seek co-operation with relaying selected broadcasts, including May Day Parade, and to set up linkage with Eurovision network.
1961	First relay of Fast European television broadcast (return of astronaut Gagarin).
1962	First television linkage with USA (2-way by satellite).
1964	First deployment of BBC's second television channel (BBC-2).
1967	First regular colour television broadcasting (BBC-2).

* The term 'outside broadcast' implies the taking of the broadcaster's own cameras and staff to an event remote from the studio and the setting up (often with own resources) of a return linkage by line and/or radio.
** The term 'relay' should be taken to mean live transmission

T.H. Bridgewater
November 1994

FROM PAFF'S SCRAPBOOK - 4

We continue this series of extracts from Paff's personal TV Cartoon History, reaching the end of the war in 1945.

Several books have been written about the night blitz on London in World War II, which Churchill called the 'Battle of the Beams' simply because it was mainly a battle to destroy the Luftwaffe's latest radar system code named *Y-Gerät*. To do this, the Ministry of Defence commandeered the television transmitters at Alexandra Palace and modified them for doing the job known as radar countermeasures.

One of the best books covering this subject is **Most Secret War** by Prof. R.V. Jones, but of course it only covers the technical side of the story. In fact a reader might get the impression that it was all controlled by computers. Whereas in fact it was operated by a crew of RAF technicians and a few BBC engineers, at considerable risk during the nightly bombing raids.

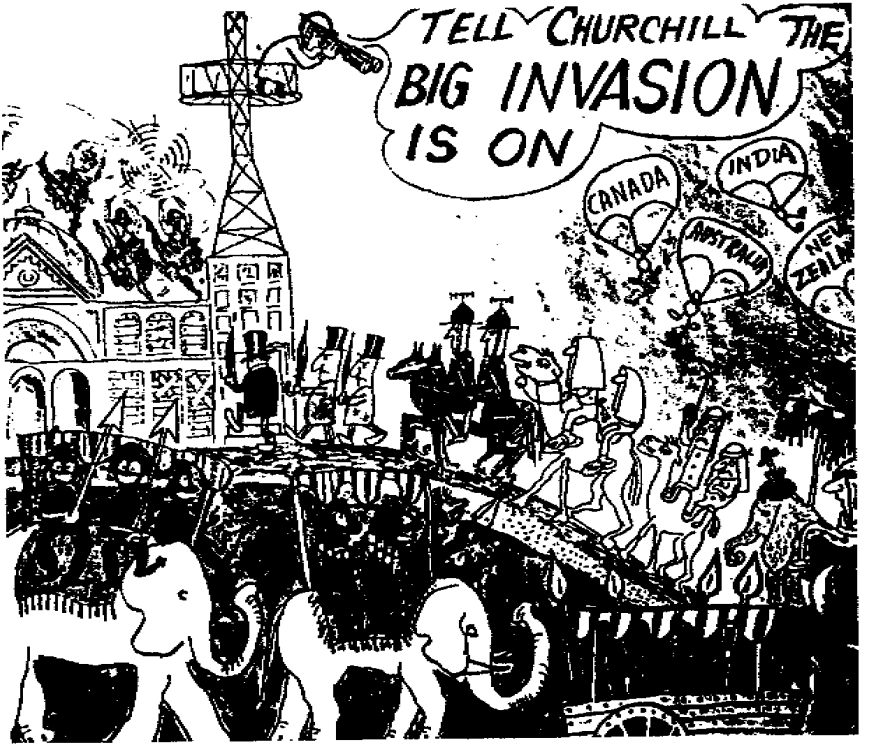
The reason we ended up with a mixed crew is a complicated story about our top bureaucracy, which I would like to deal with in a later article. Suffice it to say that Alexandra Palace was listed as a 'sitting target' for the Luftwaffe, and that is why it was evacuated on 1st Sept. 1939, when all our technicians were sent to their wartime bases.

Later, in 1940, I was sent back to Alexandra Palace as Engineer-in-Charge of anti-radar operations to wreck the Luftwaffe's *Y-Gerät* beam radar system designed by Plendl for the night blitz on London.

We were warned of course not to make the same mistake as MoD made at Coventry in November 1940, when accurate frequency checking was not carried out, resulting in unusually high death rate and destruction in the industrial areas.

Fortunately I had already done a year's research at Imperial College of Science, studying frequency measurement, for which I designed and constructed an electronic measuring device which was subsequently modified for use during the raids. Likewise Alan Blumlein, also studying at Imperial College, developed short-range radar with an electronic device eliminating detection of countermeasures by the enemy.

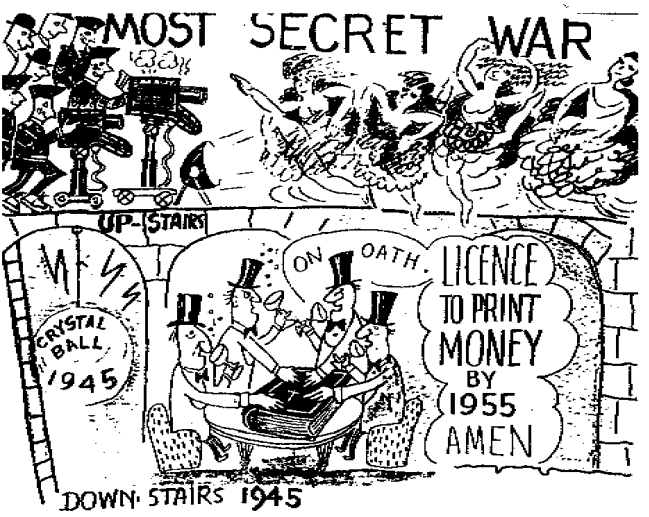
It has been generally accepted in official circles (I have a letter from R.V. Jones dated 19th March 1982), that in the very first week in February 1941 and subsequently, that our 'Domino' countermeasures from Alexandra Palace transmitters were completely successful in obliterating the enemy *Y-Gerät* radar system.



The big invasion at last. But it was from our own Commonwealth delegates in London towards the end of the war in 1945. It was still

under the cloak of complete secrecy, so the television programme put on for them in Studio A by the Windmill Girls was on closed circuit only. Our VIP visitors were very impressed with the quality of our TV pictures, particularly the super camera focusing by our RAF boys.

All that was upstairs. Downstairs was the very first VIP meeting to discuss the possibility of developing commercial television on a world-wide basis. Possibly this was one of the reasons why no-one has ever heard about 'The Big Invasion at Ally Pally in 1945'.



A TRIBUTE TO THE LATE DAVID DENHOLM AND ALAN BLUMLEIN

I am not likely to forget working into the earlier hours of the morning with the above gentlemen in the pioneering of television at Ally Pally before the war. We had to get rid of a fault on our vision racks in control room A, which produced unwanted vertical lines on the left of the picture screen.

David was a first class television engineer with a flare for curing picture snags even during a live programme. He was always right on the spot with a hot soldering iron, usually getting things right first time without wasting words.

But on this occasion he said quite firmly, "I can't put that right; it's a design fault in the time-base giving a non-linear saw-tooth waveform." Enough said.

After transmission that same night, Alan Blumlein himself appeared from nowhere, and after trying every trick of the trade he had to agree that it was indeed a design fault in the time-base circuitry – a great credit to David Denholm.

Some years later Alan Blumlein turned his attention to developing radar particularly at short-range distances which was always the tricky end. He was in his element anyway because he could focus his own scientific brain into a needle-sharp beam of concentration. This problem was also receiving attention from Prof. R. V. Jones using the infra-red system of detection. Fortunately Blumlein had also developed a secret electronic device for a transmitter working on anti-radar, which was 'unknowingly' operated by the enemy pilot's transmitter when at short range, thereby rendering detection of counter-measures impossible known only to three staff contracted to destroy device on V-day. This was normal wartime procedure under MoD.

Alan Blumlein was sadly missed when he was killed on war service in a flying accident on June 7th 1942 while testing his latest radar developments in the centimetre range. This modified radar system had its first trials at the end of 1941, when much clearer echoes were coming back from large cities and built up areas, with very little from the sea, throwing the coastline into clear relief.

In 1942 many other experiments were going on as countermeasures and in fact there were several complicated mix-ups leading to fatal aircraft accidents. Following the busy summer testing periods we breathed a sigh of relief when the night blitz bombing died down. Even then, it was not always easy to know exactly who was planning what, especially in southern England, where preparation for a full-scale Nazi invasion was still on the cards.

At times it seemed chaotic but spirits ran high and with the Backroom Boys agog you could always bet on 'There'll always be an England'.

[Wilfred Pafford]

WRIGHT'S REPLAY

Jeff Wright tests your memory again

The Larkins

The Larkins, with David Kossoff as Alf and the lady with the loudest voice on TV, Peggy Mount as Ada, was a massive cockney comedy hit in the fifties and early sixties. It had very humble origins. The writer, Fred Robinson, an ex-chippie from Hackney, developed the characters for his local amateur dramatic society.

ATV producer Bill Ward , thought it the funniest script he'd ever seen, but it overran its thirty minute slot by 15 minutes. And that's the way it went out – uncut, a unique privilege for a new sit com.

It was first tried out in six off peak slots on Saturday nights in Autumn 1958.The TV critic of the Daily Mail said it was the best comedy series created by British television.

The King family of Oxford complained about the short run to the TV Times." It was the best half hour of the week. Surely a place could be found for it among the endless quizzes and Westerns."

It soon came back with a peak slot and went straight into the charts.

Six series were made altogether, the last in 1964 when Alf and Ada had taken over a transport cafe. After that they probably retired to Worthing. Where Ada's tongue is still no doubt lashing poor Alf.

Technology Spot:

CATHODE RAY SCREENS FIFTY TO SIXTY YEARS AGO

***Dr Richard Head**, pre-war member of the Baird Company, reveals the secret of early CRT coatings and the menace of ion burn*

Why were the early picture tubes given green screens? That was the question someone asked me recently.

I think the reason is that the phosphor used (Willemite) would glow at very low beam voltages, which avoided the use of a high-voltage power pack, so necessary for most other phosphors. Most of us remember the green glowing magic-eye tuning indicators used in early radios, which had to work at quite a low voltage. The phosphor used would have been zinc orthosilicate, activated or doped with about a quarter per cent of manganese. It is easy to prepare.

Green is not complimentary to the human face, and the white screens that followed required a beam voltage of five to ten thousand. This was not obtained from the scan circuits – there was no laminated yoke, the scan for magnetically deflected tubes was produced from pairs of coils held to the tube neck by elastic bands.

If you looked at the glowing screen with a lens, you could see the individual crystals of phosphor glowing blue, yellow-green, and orange, making the random pattern that looked like white from a distance, quite different from the modern tube in which the colours are arranged in vertical lines of dots.

The early tubes had no aluminium backing, and consequently the screen charged up so that the full energy of the beam could not be used to produce light. A screen formed on a metal plate could be several times brighter than a screen on glass, and such screens were used in the early projection tubes.

Since glass-based screens could charge up, it as possible to play tricks with them. If an engineer left his monitor for a moment, one could rub the screen with a silk handkerchief and then blow hard on it, at which the scan would disappear completely. When the gentleman returned, he would find a dead screen – (Who's been messing about with my monitor?) – and twiddle all the knobs to no avail, which was all the more puzzling as he could see the cathode glowing through the thin screen. Shortly afterwards, bits of scan would appear at the edges of the glass bulb, and suddenly flick back into the normal position after the charge leaked away.

Some remarks about phosphors – there are an enormous number, very few of which are used in television. The basis is a very highly purified material, activated with a controlled amount of impurity, such as silver, copper, bismuth, or a rare-earth metal. It is then fired in a furnace, with or without a flux to help it crystallise, and when cool the cake of crystals is broken up, any flux washed out, sieved and sometimes treated with a baryta wash to make the powder flow easily. The 'hands-on' part of developing phosphors is an art as well as a science.

The mixture of the three phosphors used in white screens consisted of silver-activated blue-fluorescing zinc sulphide and zinc cadmium sulphides fluorescing green and orange, with different amounts of cadmium, also silver-activated. The amount of silver used was about 300 parts per million (ppm). While firing, silver is slowly lost by volatilisation so one has to allow for this in the preparation.

Iron, cobalt and nickel are some of the heavy metal poisons – traces of cobalt can cut out all luminescence, iron may cause a greenish afterglow, but nickel traces of about 1 ppm will transfer the afterglow into the red/infra-red region. To avoid the afterglow blurring moving images, 0.5 to 1.0 ppm of nickel was added to the sulphides, and if one was looking at a picture with bright highlights which was suddenly cut to black, one noticed a transitory reddish glow due the nickel 'killer'.

There are all sorts of methods of removing heavy metal traces from the base material, and one should aim at a purity of 1 part heavy metal per 10 million parts of base material.

What would happen if the base material was not highly purified? The phosphor might not glow at all, or if it did, would show very poor efficiency and 'burn' under the beam; the screen would darken where the beam hit and the fluorescence would fade away.

Glass screens, having charged up under the beam, were damaged by positive ions, causing a big round black spot in the centre of the picture. This could be prevented by a protective layer applied to the crystal layer. There was also a much smaller negative ion 'burn' produced sometimes on aluminium-backed screens.

The screen material was either sprayed onto the glass and fixed with waterglass, settled from suspension, or made to adhere in a single crystal layer by rolling the powder onto a reseau of micro droplets of phosphoric acid, produced by volatilising phosphoric acid from a heated platinum spiral – the single crystal layer was much brighter.

Many phosphors which decomposed in moist air could thus be used if applied in a dry gas, for example those with extremely short afterglows such as strontium oxide – bismuth – (1 microsecond) and calcium oxide – cerium – (100 nanoseconds). At one time the sulphides of calcium and strontium were of interest but these slowly decompose in moist air with a sweetish garlicky smell, and if some powder drops into your clothes, you carry this odour everywhere and even become aware of people edging away from you in railway carriages.

In projection tubes, the limit of light output occurs at the saturation point, where an increase of beam power does not increase the light output. Increase of temperature also diminishes light output until at about boiling point, the glow is much reduced. The saturation problem was solved in part by using zinc-beryllium silicate activated with manganese for the yellow phosphor, but in the highlights where the blue sulphide saturated, the picture turned yellowish, which might have been useful in shots of forest fires! A slight development was a zinc sulphide activated by an excess of zinc, made by firing in a slightly reducing atmosphere. This phosphor covered more of the spectrum and so the yellow was a bit less marked, Eventually a blue-fluorescing silicate – calcium silicate – activated with titanium was used instead of the sulphide. It had the peculiarity of a very long dim afterglow which luckily didn't matter, but it also showed some saturation. Adding magnesium improved the brightness a bit, but the saturation was finally cut out at the highest beam intensities.

The Empire Strikes Back

Dicky Howett describes a visit to the BBC Television Theatre and introduces a busker or two.

As a telly-mad kid in the late 1950s, I regularly applied for free audience tickets to several BBCtv light entertainment productions, including *The Ted Ray Show* and *The Billy Cotton Band Show*. These shows were produced live and dripping from an old converted West London theatre called the Shepherd's Bush Empire, on Shepherd's Bush Green. A visit to the Empire (re-named in 1953 as the BBC Television Theatre) was always an adventure for me; a trip to the Big Bad City and a chance to see real television cameras in action! Understandably, it was an exciting time, full of wonder and mystery.

On arrival at the Television Theatre I would join the queue, clutching my dedicated BBC ticket (if I'd only saved those!). I always hoped to be early enough in line for a front-row seat from whence I could ogle all the technical telly action. During the hour or so queuing time, the programme's 'stars' would sometimes wander out of the theatre for a breather, or perhaps to size up the audience? More probably they were simply hoping to elicit admiring stares. Ever on the lookout for action, I once took along my box Brownie camera and photographed Terry Scott and Alan Breeze (of the Billy Cotton Band Show) ...and also a rather surprised BBC technician who got snapped because he just happened to *look* famous.

Another fixture of the BBC queue were two beggars, namely the Busker with the Trumpet and the Blind Man with the Matches. The Blind Man with the Matches did nothing other than shuffle along the queue (with the help of his wife) muttering about his undoubted disability and offering matches in exchange for donations. Not very entertaining. After the departure of the Blind Man with the Matches, The Busker with the Trumpet moved into position and suddenly blasted out, more-or-less in key, several unrecognisable tunes. When he'd finished his act, he too proceeded along the queue in search of funds. The routine was always the same. Blind man first, then next the tone deaf. It was a relief to get inside the theatre.

Terry Scott **Alan Breeze**

...walking past the queue outside the BBC Television Theatre, circa 1958

At the time of my visits, (approx. 1958 to 1960) the BBC Television Theatre was equipped with four Marconi Mk III 4½" Image Orthicon cameras. Camera 1 rode on a weighty Mole Richardson counter-balanced crane down the central stage 'runway'. Cameras 2 and 3 were mounted respectively on a Vinten HP 419 pedestal and a Vinten Pathfinder dolly, both on or around the stage. Camera 4 was mounted at the front of the dress circle. This camera sported a massive Taylor-Hobson Mk II zoom lens (in my childish ignorance I assumed that all television cameraman must be super-strong because the cameras – as I saw for myself – looked enormous and intractable. These days I know it's all too true!).

Of course, those early TV shows seemed far better in the flesh than they appeared on the home screen (BBC 'variety' shows at the time ran a very

poor second to ITV). Most noticeable and most startling to anyone new to the sight of a television studio was the sheer *colour* of it all, and also the clear, vibrant quality of the live audio. Naturally, in 1959 both these technical factors were missing from the average humble domestic telly.

In fact, strange to relate, those old-time monochrome TV stars were *not* instantly recognisable in the flesh. We were so used to viewing them in 'glorious' black and white. My mum, who accompanied me to several shows, was utterly convinced that a good-looking BBC scene-hand was in fact Russ Conway! Whereas all the while, the *real* Russ Conway, (known for his twinkling smile) was sitting dumpy, hunched and unglamorous at the side of the stage awaiting his cue. When Russ come on to play a tune, my Mum actually thought *he* was an impostor, because he didn't 'look' anything like his appearance on the home screen. Such was the power of television in those days, performers were regarded reverentially, as some sort of super–beings from outer space, and not real people at all. I suppose things haven't changed much. Interestingly, the old BBCtv Theatre has now reverted back (under new ownership) to its original incarnation as the Shepherd's Bush Empire. The old building now functions as a venue for rock concerts and pop videos, so at least it's preserved for the nation.

Videotape Restoration: Where Do I Start?

Jim Lindner

Prioritising the use of limited resources is a constant challenge in any organisation. The process of determining which videotape elements of a collection should be restored first may seem an overwhelming problem when faced with dozens or hundreds of tapes, all of which may need restoration over a period of time, and all of which look identical on the shelf. Actually, choosing which tapes are the most urgent candidates for restoration can be a relatively painless and quick procedure.

One of the most frustrating aspects of evaluating which videotapes should be restored first relate to the unfortunate reality that often one does not know the content of the tape before the restoration process has been completed. Indeed, it seems ridiculous to have to spend valuable resources to restore an object before evaluating its importance to the organisation. Assuming detailed records have not been kept, a wall full of tapes all of which basically look the same with

only similar, short and often cryptic titles (which seemed perfectly logical at the time of production) presents a daunting task for anyone. Certain aspects of the video production process, however, may often be a helpful guide in determining which tapes in any given production may be the most important candidates to start with.

Determination of Production Elements

In most film and video production there are multiple tapes, commonly referred to as *elements* that are made during the production process. Film or video elements start with the camera original which is the actual film or tape that was in the camera during the photography of the piece, and end in an *Edited Master* which is the final finished piece. There may be several versions and revisions of an edited master which could encompass different organisational needs, applications or markets that have different requirements. Examples of how different versions of an edited master could be different include a foreign version which could have a different language sound track, , an airline version of a feature film, or a sales film that would have one version showing an entire product line and another that concentrates on a specific product. Grouping the collection by elements for each project or title will allow you to determine which elements were used as intermediate processes and which elements are the complete project in its full length. Given limited resources, one must determine which elements have the best overall utility for the organisation, the edited master(s) or the camera original which may have additional scenes not used in the final production. In general, the longest length Edited Master should receive first priority.

Choosing the highest quality element

Within a given element type or production, there may be many copies that exist in a collection. Generally, however, there is only one master which should be the highest quality version of the various copies that may exist. If one has several boxes all of which have the same label, the edited master will generally be the tape that is of the highest quality format. For example, editors will often have many 3/4" U-Matic cassettes of a given production that are used in the editorial process, but there will normally only be a very few 1" tapes which most often are either the final edited master, high quality duplicates of that master (often called protection masters), or high quality original elements that were used in the final editing (similar to camera original). For this reason, look within any given production elements for the highest quality format tapes because these will usually be either the edited master or the camera original in the best quality that existed for any given production. It is quite possible for their to be 20 or more tapes in

the collection for any given production, but there is usually only one or two edited masters in the highest quality format for any production.

Format Evaluation

Once one has determined which tapes are most desirable candidates for any given production, one has to choose which productions to do first. Obviously the first place to start in this matter are the ones of most importance from a historical or organisational perspective. But if they all seemingly have similar priority from a content perspective, the place to start is with obsolete video formats that have a track record of poor long term storage performance and a small machine population. As a general rule of thumb, start with tapes that are 10 years or older, have been mistreated, or appear to be in an unusual container or cassette.

Examples of these types of formats include 2" videotape which are very large and heavy reels that were most often used in broadcast applications, and 1/2" reel to reel tapes that was the first truly affordable video format for organisations and consumers. Since the invention of videotape recording, there have been well over 100 different formats that have been commercially introduced. Some of these could be considered a commercial success, but many were not. Any unusual or esoteric formats such as early cartridge, cassette, or reel to reel formats should be placed high on the list for immediate restoration because these obsolete machines are often rare and the tapes often have experienced a difficult 'life'.

Evolution of Formats

If a tape was made early on in the life of a format, it may be a good candidate for immediate restoration. Often improvements are made in both the quality of the tape and the mechanical functioning of the equipment during the life of a format. A good example of this is the 3/4" U-Matic format which has had many generations of machine improvement as well as many different tape formulations. Early machines did not handle the tapes as well as later versions, so these tapes may have been subjected to more mechanical abuse than other tapes in the collection.

Single Copies

Of highest restoration priority are sole copies of a production. If only one copy exists, there is no recourse if this tape is lost or damaged. An unfortunate reality is that single copies may have been played often or held in 'pause' for extended periods of time which damage the tape. Since there are no additional copies to refer to, these tapes must be given top priority.

Check list for prioritising candidates for video tape restoration.
Tapes with the highest numerical values should be restored first.
It is assumed that all candidates are of equal value to the organisation.

- Does the tape exhibit any symptoms of "sticky shed syndrome" (squealing during playback, frequent head clogging, flaking or sticky surfaces)? If yes, add 5 points.
- Is the tape a single copy and exhibit any symptoms of "sticky shed syndrome" (squealing during playback, frequent head clogging, flaking or sticky surfaces)? If yes, add 5 points.
- Is the tape a single copy? If yes, add 5 points.
- Is the tape an obsolete format? If yes, add 5 points.
- Is the tape physically damaged? If yes, add 4 points.
- Is the tape the highest quality element in the production? If yes, add 3 points.
- Is the tape an early example in a format popular format ? If yes, add 3 points.
- Is the tape 10 years old or younger? If yes, add 2 points.
- Is the tape between 10 and 15 years old? If yes add 3 points.
- Is the tape between 15 and 20 years old? If yes, add 4 points.
- Is the tape 20 years or older? If yes, add 5 points (older than 25 years add one point per year over 25. (example 30 years old, add 10 points)
- Has the tape been in a stable environment with proper temperature and humidity control? If yes, deduct 4 points.

Jim Lindner is the President of VidiPax, a videotape restoration service bureau that specialises in old, damaged, and obsolete videotape, and are associates of the National Media Lab. They provide a toll-free help line +1 800-653 8434 (calls charged from UK, however).

FORTY YEARS OF VIDEO RECORDING

Imagine a phone call to a 3M tape laboratory at 30 minutes past noon with the following request: *"I need a video tape tomorrow morning for a demonstration at the US National Association of on Broadcasters convention in Chicago. Can you get me one?"*

The caller was the late Dr. William 'Bill' Wetzel, then general manager but later vice president of 3M's Magnetic Tape Division. His request would not have been difficult today, but that noon-hour telephone call was made in April 1956, and the 2" quad video tape had not been invented.

Fortunately 3M researchers had been working on a number of projects involving magnetic particles and binders capable of producing excellent frequency response with very low noise levels. They also had a very good knowledge of chemistry needed to meet the temperatures and pressures described as necessary.

Using this knowledge, Mel Sater, a polymeric binder specialist and Joe Mazzitello worked for the next twenty hours to fulfil Bill Wetzel's request. The next morning they delivered a package to Wetzel who took it to Chicago. Inside the package was an untried, small roll of 2" magnetic tape that theoretically would work for video. The tape was a shot in the dark – developed without those 3M researchers even seeing the first ever Ampex Video Tape Recorder, the machine used at that 1956 convention demonstration. So, there was no way to test the tape ahead of time, and it was a very crude tape by today's standards.

The demonstration of the Ampex VR-1000 on 15th April 1956 began simply and quietly. The speaker's remarks were recorded on the 'overnight wonder' tape as he delivered them. Then the speech was played back before the audience on the recorder and the signal fed to a TV monitor. The broadcasters in the audience saw what Wetzel later described as photographic quality pictures. There was a moment or two of stunned silence, then an outburst of cheers, stamping feet, whistles and pandemonium.

Before a month had passed after that demonstration, the three American commercial broadcasting networks placed orders for a new tape and the quadruplex video recorder.

Motion pictures took several decades to move out of black and white into the new world of colour. Video tape crossed that great divide in 1965 converting to colour just nine years after its black and white introduction. By the mid 1960s, the electronic recording medium had come into general use for both programming and commercial production. 'Emmy' awards went to video taped TV 'specials' in 1965, 1966 and 1967. The 2" quadruplex system held sway for broadcast quality video taping for more than twenty years.

Meantime in 1969 the IVC 900 one-inch helical recorder for colour broadcasting had been introduced. A year later 3M introduced its Scotch high energy helical video tape for improved colour recording. Many advances have been made since the development of the first Ampex 2" Low Band High Band VTR and the first 2" video tape with the introduction of a range of industrial ½" and 1" reel to reel VCRs.

In 1977, the Betamax and VHS video cassette recorders were introduced to European consumers. By the middle of the next decade, home video recorders using cassettes with half-inch tape were introduced in the VHS and Beta Formats. Industry sources report that just under four million recorders were sold by 1980. Tape manufacturers sold millions of blank videocassettes in the Beta and VHS formats in the same period. In the professional area we have seen performance improvements in the U-Matic with the introduction of High band and SP. Meanwhile the broadcast industry saw the first 1" B and C format VTRs in 1977 and these made a significant impact on the way TV programmes were originated, edited and transmitted. During that period from 1956 to 1977, significant advances were made to improve the performance and reliability of video tapes resulting in better quality pictures, sound and also durability in editing. Improvements in the magnetic particles, the binder design and video tape manufacturing methods contributed to these advances.

In 1982, another major breakthrough came with the introduction of Betacam with its camera-recorder concept. This revolutionised the way news was originated with electronic news gathering (ENG); the effect on film news gathering was significant. Further developments were made with automated library management systems (LMS) for commercial playout and also performance improvements with the introduction of Betacam SP and MII. Both these formats use metal particle tape to enable the shorter wavelengths to be recorded and replayed.

Since 1956 all video tape recording systems had used the FM analogue method of recordings but in 1988 Sony and BTS introduced the first Digital Video Tape Recorder, the D1. This system recorded onto a 16μm or 13μm-small particle Cobalt Magnetic Tape and used three sizes of cassette shell. This format utilised the 4:2:2 Component Digital method to record the luminance (Y) and colour difference signals (R-Y) and (B-Y).

In 1990, Sony introduced the first Composite DVTR with its D2 system. This recorder used the same three cassettes as D1, but now loaded with 19mm Metal Particulate Tape. Shortly after another format emerged, the Panasonic ½" Digital D3. This is a composite DVTR system with a similar specification to D2, using similar Metal Particulate Tape, but with three cassettes.

Since then we have seen significant advances in the consumer video with 8mm, S-VHS and Hi-8 development, enabling low cost acquisition of news items on a small cassette system. This uses advanced metal

particulate tape but for best performance in PAL metal evaporated tape is available. More widespread use of digital recording began in 1992 with the emergence of digital Betacam and its backwards compatibility with analogue Betacam. Once again in 1996 we see yet further developments in technology with the DV series and Digital-S equipment using metal particulate and metal evaporated tape.

The original 2" wide quad tape that made its network television debut back in 1956 used 30 square inches of tape to record one second of black & white pictures. In contrast, the latest developments allow digital colour pictures and DAT quality (features of the JVC GR-DV1 camcorder) on a surface area of only 0.18 square inches on 1/4" wide tape – a recorded area reduction of 166 times.

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Eye of the World: John Logie Baird and Television

Malcolm H. I. Baird

In this article I will write of the years from 1926 until my father's death in 1946, and also comment on how the perceptions of his work have changed since 1946. This article is dedicated to the memory of my mother, Margaret Baird (1907-1996).

Early Television Achievements

The first public demonstration of television, in the cramped London attic room in January 1926, marked a turning point for Baird. One of the scientists at the demonstration was heard to comment "Well, he got it right. It's only a matter of l.s.d. to carry on developments." Public interest was immense and the small company that had been formed six months earlier, Television Limited, was able to expand. One of its first recruits was the business manager, a genial Irishman called Oliver Hutchinson. He and the outspoken journalist Sydney Moseley fed the public interest by writing optimistic articles in the press, to the effect that television would soon take its place in the home along with radio; but the plain truth was that television had some way to go before this could happen. Early television pictures were about the size of a business card and because of the low definition, the pictures were limited to head and shoulders. As Dr. Samuel Johnson said in another context, "the wonder is not that 'tis done well, but that 'tis done at all." Despite the limitations of these early images, it was possible to recognise individuals and to pick up changes of expression. This past April in Toronto, visitors to the 'Watching TV' exhibition at the Royal Ontario Museum had an opportunity of checking for themselves, by viewing a reconditioned Baird 'Televisor' of 1930.

Seventy years ago, public broadcasting in Britain was only legally possible through the BBC. Its domineering and puritanical director, Sir John Reith, was afraid of television [2] and his technical staff took their lead from the top and quibbled about the picture quality. It was only after much pressure from Hutchinson and Moseley, and a parliamentary committee hearing, that the BBC agreed to begin experimental transmissions in 1929. During this period of pressure politics, Baird himself continued to focus on research and development. Although the news media were enthusiastic about television, Baird was criticised in the prestigious British scientific journal *Nature* [3] for not giving out enough technical details of his invention. In reply, [4] he pointed out that such details were the subject of patent applications and would be released in due course.

Baird's world-wide monopoly of television was broken in April 1927 when the [US] Bell Telephone Co. sent a mechanically televised message from Herbert Hoover (soon to be president) by phone lines from Washington to New York, a distance of 200 miles. This event acted as a challenge to Baird and over the next few years he achieved a remarkable series of 'firsts' in television history. In May of 1927 he ran a

television transmission from London to Glasgow by phone lines – a distance of 435 miles, more than twice that of the Bell transmission.

Later that year, Baird was joined by his first engineering assistant Ben Clapp, who was experienced in the new techniques of short wave radio. Radio waves of about 40 metres length could be sent over very long distances because they were reflected around the earth's curvature by the ionosphere, under climatically favourable conditions. Early in 1928, Clapp and Hutchinson sailed to New York with crates containing a television receiving apparatus; this was set up at the home of a radio enthusiast in Hartsdale, just north of New York City. After some initial disappointments, the first television pictures from London were received at Hartsdale on 8th February. This caused a sensation on both sides of the Atlantic, and the *New York Times* [5] compared the event to Marconi's sending of the letter 'S' by radio across the Atlantic, 27 years earlier.

In July 1928, Baird demonstrated colour television; this still employed the mechanical scanning method, but the scanning wheels contained three spirals of holes with three filters in the primary colours. In this way, three separate coloured pictures were transmitted in rapid succession; the persistence of vision caused the eye of the viewer to 'mix' the three primary pictures, so that a coloured moving picture was perceived. Later, a primitive system of stereoscopic (3-dimensional) television was demonstrated, and it was also shown that television could be recorded on a wax disk and replayed. Some of the old plastic pressings for the disks were played back over 50 years later, using special equipment [6].

The early television pictures were only a few square inches in area and Baird was under pressure to provide something more comparable in size with the cinema screen. This was achieved in 1930 in a demonstration of 'large screen television' (in fact 6 ft x 3 ft) from the Baird studio to an audience at the London Coliseum Cinema. The screen consisted of an array of 2,100 small flashlamp bulbs. Celebrities beat a path to the studio to appear on the new medium, and the cinema drew packed houses. A year later, the Derby horse race was televised and sent by phone line to the Baird studio and to the experimental BBC transmitter. This was the first public 'outside broadcast' of television.

Visits to the USA and Germany

The hesitations of Britain's monopoly broadcaster, the BBC, led Baird's company to explore international possibilities. In 1928 a Baird subsidiary was set up in the USA where there were already many experimental TV stations, and in 1931 Baird made his first and only visit to the USA. He received a VIP reception in New York, and entered negotiations for a joint TV venture with Donald Flamm, owner of radio station WMCA. The license application was at first well received by the Federal Radio Commission, but it was eventually rejected after an appeal from a rival radio station on the grounds that no 'foreign influences' should be allowed in the broadcast media! If the FRC had accepted the application, Baird might have stayed on in the USA and the history of television would have been very different [7]. However, his American visit was not entirely wasted, since Baird invited his girlfriend Margaret Albu over from England, and they were married before a judge. No relatives from either side were present at the ceremony, but the marriage was a happy one, lasting until Baird's death in 1946.

In Germany, the authorities' approach to television was much more sympathetic than that of the BBC. In 1929 a company called Fernseh AG was formed with 25 per cent ownership assigned to each of three German companies, and 25 per cent to Baird's Television Limited. For a few years there was a useful collaboration and experimental transmissions were sent from Berlin to a specially built receiving station in North London, near Wembley Stadium. Relations between Baird and Fernseh became difficult after the Nazis came to power, and essentially broke off in 1935 when all television research in Germany was abruptly placed under military control.

Cinema Television

On his return to London from his American visit in January 1932, Baird found that his company had changed hands. The new majority shareholder was Isodore Ostrer, who also owned the Gaumont British chain of cinemas. This led to a growing emphasis on large screen projection television in cinemas. Ostrer and many others in the cinema industry believed that television was an opportunity, rather than a rival to be feared. The public could be attracted to the theatres by a live telecast (for instance of a sporting event) which could then be followed by a regular feature film.

The 2,100-lamp screen which had been demonstrated in 1930 was replaced by a 'flying spot' method, with the picture being traced out in strips by a powerful beam of light deflected on a rotating mirror drum. This technique was successfully used in the live showing of the 1932 Derby at the Metropole Cinema, Victoria. The overall picture size was 9 ft wide by 7 ft high [2.7 x 2.1m] and it was formed by joining three pictures 3 x 7 ft [0.9 x 2.1m] sent over three separate telephone lines. By the late 1930s electronic projection television receivers had been developed by Baird, but cinema television was stopped after the start of World War II. It was resumed in some of the London theatres for several years after World War II, under the aegis of the Rank Organisation; but the demand for cinema television fell off as the private ownership of television sets increased. Although television has not been adopted in movie theatres, the showing of films on television has become a big business; Rank Cintel (which had evolved from Baird Television) is one of the leading manufacturers of telecine equipment.

The Rise of Electronic Television

In June 1908, the Scottish scientist Alan Campbell Swinton wrote a letter to the journal *Nature*, suggesting that the newly discovered properties of the electron could provide a means for 'Distant Electric Vision.' Three years later, he gave a remarkably prophetic lecture in which he outlined a detailed scheme on these lines [8]. The proposed system was to be entirely electronic with the receiver featuring a cathode ray tube in which a beam of electrons can be deflected by a varying electrical field, with their motion being visible as lines on the phosphorescent screen of the tube. The specification of the camera was more vague. Although Campbell Swinton's ideas were only theoretical, they pointed to an obvious advantage of electronic television, namely that a beam of electrons can move essentially instantaneously without any of the mechanical problems associated with rotating disks. But experimental progress towards electronic television was painfully slow, and as late as 1924 Campbell Swinton stated [9] that electronic television would be so costly to develop that it would be hardly worthwhile! It is known that Baird read this article which may have

confirmed his belief that the most feasible ways to the first television picture was through mechanical techniques. His main competitor in this area was the American pioneer, Charles Francis Jenkins.

While Baird was gaining headlines in the late 1920s, two individuals in the USA were starting to make real progress with electronic television. The Russian-born Dr. Vladimir Zworykin had obtained the financial and technical backing of the Radio Corporation of America for his researches on an electronic camera, the Iconoscope. A more colourful character was Philo T. Farnsworth, a largely self-taught young man from Utah, who obtained funding from private investors for his image dissector camera. By 1929, Farnsworth was sending silhouettes through his camera, with the pictures being received on a cathode ray tube. This marked the beginning of years of rivalry and patent litigation between Farnsworth and RCA, the David and Goliath of electronic television. After many years, Farnsworth won his case against RCA, but his small company could not compete as a television set manufacturer and Farnsworth died an embittered man in 1971. RCA went on to gain a dominant position in the United States television industry despite the loss of face involved in having to license Farnsworth's technology.

Rival Systems and the First High Definition TV Service

For several years after Baird's breakthrough in 1926, the large British radio companies merely observed the progress of television without participating. Then in 1930 the Marconi Wireless Telegraph Company (MWT) began a research program on the use of television to send text, in particular news messages. Electrical and Musical Industries (EMI) were more directly interested in television, and in 1932 they developed a relatively high definition (180-line, 25 frames/sec) mechanically scanned system for transmitting cine film. Cathode ray tube receivers were employed. The year 1932 also marked the conversion of Baird to the use of cathode ray tube receivers.

The only public transmissions of television in 1932 were those of the BBC which were of 30-line definition, using the regular medium wave broadcast frequencies also known as the AM band. This had the advantage that it could be received by simply connecting a television apparatus (the Televisor) to a regular AM radio, and the signals could be received all over the UK and in parts of Europe. The major disadvantage of the AM band was that the medium waves did not provide enough bandwidth for higher definition pictures; in lay terms, the medium waves could not carry the immense amount of information needed for such pictures. In order to broadcast television at 180 lines or higher definitions, it was necessary to use very short waves of about 5 to 10 metres wavelength. The BBC was reluctant to spend a lot of money on new transmitters, and few people could afford to buy short-wave receivers in the depression era. So there ensued a period of 'experimental' short-wave transmissions with Baird and EMI in rather petulant rivalry for the favour of the BBC. At this time the Baird company moved to premises at the Crystal Palace, a huge 80-year-old exhibition building located on Sydenham Hill, in the southern suburbs of London. The short wave antenna was erected on the top of a water tower at the Crystal Palace site.

Early in 1934, EMI and the MWT Company decided to pool their television resources to form a new company, Marconi-EMI Television. This was serious

competition for Baird, who had earlier come close to merging with MWT. The new Marconi-EMI combine had two major assets: the large research team from EMI, ably led by Dr. Isaac Shoenberg; and the electronic patents and technology (including Zworykin's Iconoscope camera) which were available to Marconi from RCA. Dr. Shoenberg and his team lost no time in developing the Iconoscope and after some modifications it was rechristened the Emitron.

Meanwhile, Baird asked the American pioneer Philo Farnsworth to come over to Britain to demonstrate his image dissector camera. Despite an accident in unloading one of the crates of the equipment from the ocean liner, agreement was reached between Farnsworth and Baird for licensing and development of electronic camera technology. The Farnsworth-Baird agreement was to some extent analogous to the arrangement between RCA and Marconi-EMI. But although there was no doubt about the technical abilities of Farnsworth and Baird, both of their companies were financially weak. Baird Television had sold a few thousand of their 30-line 'Televisors,' but the company depended very much on the patience and the deep pockets of its investors. On the other hand, Marconi-EMI were given a generous budget from the huge revenues of its two parent companies.

The British government set up a committee to 'advise on the relative merits' of the different television systems. It was chaired by the Postmaster General, Lord Selsdon, and composed of representatives from the Post Office, the BBC and scientific bodies. After much deliberation the Selsdon committee recommended that the BBC should start a high-definition television service on November 2, 1936, with the Baird and Marconi-EMI systems to operate on a trial basis, on alternate evenings. Picture definition was now set at 240 lines (Baird) and 405 lines (Marconi-EMI) with all signals being sent out on short wave from the BBC's new transmitter at Alexandra Palace in North London. Receivers were therefore built on a dual standard, with a single switch for the viewer to change the circuits between the Baird and Marconi-EMI systems.

In preparation for the new service, the two systems were demonstrated at the Radio Exhibition at Olympia in August. The Baird flying-spot scanner worked very well in transmitting film, but under studio conditions it required almost complete darkness except for the intense strobe-like scanning beams. The Marconi-EMI Emitron camera was better in the studio, despite some reliability problems. Although only two companies were competing for the transmission system, seven companies were exhibiting receivers. These ranged from 'table models' to large console models and their prices ranged from about £50 to over £100. Considering that the average wage in 1936 was about £4 per week, it was obvious that ownership of television receivers would be restricted to the very rich.

The world's first high-definition television service opened on November 2nd 1936 with very little fanfare [10]. The programme opened with a few speeches by the Postmaster General and other dignitaries, lasting a total of 15 minutes. Baird was not part of the platform party and was relegated to the audience, to his considerable annoyance. The short opening ceremony was followed by an evening of typically low-budget programming. Television was not yet a mass medium and total receiver sales did not pass the 1,500 figure until the summer of 1937. It is likely that fewer than 1,000 television sets were switched on for the November 1936 transmission.

On the technical side it soon became obvious that there were difficulties with the Baird camera system, or rather systems. The flying-spot system, with its dazzling lights and relatively immobile camera, was only used on some evenings. On other occasions, an electron image camera developed from Farnsworth's equipment was used. A third alternative was the intermediate film process which relied on the fact that Baird's equipment did a very good job in televising film. Effectively, this principle was used in producing 'live' television by filming the scene on 17.5mm film which was then fed into a series of tanks for developing and printing, and scanned (still wet) for television. The processing delay between filming and appearance of the image was about a minute. This ingenious system was bedevilled by problems such as leakage of photographic chemicals on to the studio floor! The most promising of the three methods seems to have been the electron camera, but much of this equipment was destroyed in a disastrous fire at the Crystal Palace on November 30th. The Baird family home was about a mile from the Palace and as an infant I was held up at the window to see the blaze, but I have no memory of it. By February 1937 the advisory committee had decided in favour of Marconi-EMI's transmitting system.

Baird was deeply embittered by this decision, but his fellow-directors in the company were not too worried. For the first time there were regular high-definition broadcasts and this meant a growing market for receivers, with the Baird models holding a reasonable market share. With encouragement from Isodore Ostrer and the Gaumont British cinema chain, Baird resumed work on cinema television. Small, very bright cathode ray tube receivers were developed with the capability of projecting pictures on a large screen. Typically, two of these receivers would be carefully lined up so as to project each side of the screened picture.

In 1938, the Australian radio industry invited John and Margaret Baird to visit Australia with VIP treatment and all expenses paid. The trip included the 4-week sea voyages in each direction, and my mother recalled it as the only real holiday she ever had with my father!

High Definition Colour TV

Britain declared war on Germany on 3rd September 1939. Two days earlier, BBC television had been abruptly shut down, and the British television industry was out of action for the duration of the war [11]. Baird Television Ltd. went into liquidation, and Baird found himself to be, in his own words, 'a free agent.' Sydney Moseley and Donald Flamm urged Baird to move with his family to the United States where he could continue his research in better conditions, but he politely declined. However his first concern was to move his family out of London, and my mother and sister and I went to Cornwall, 250 miles west of London, where we stayed until 1945. Baird himself had become very interested in high definition colour television and he continued to work, at his own expense, in a small private laboratory next to the house at Sydenham. He retained the services of two technicians, W. Oxbrow and Edward Anderson; later in the war, only Anderson remained. Most of his other technical staff had been conscripted for service in the new radar stations being set up around the southern and eastern coasts of England.

Baird set his sights on a picture definition of 600 lines. Scanning was carried out by an electronic 'flying spot' method, similar to that used a few years earlier in cinema

television demonstrations. Some 'mechanical' operation was still included, in the form of a set of 3 rotating primary colour filters, on the same principle as the first colour television in 1928. This was demonstrated to a few reporters on a 2.5 by 2 foot [75 x 60cm] screen in December 1940. Publicity was however minimal, as this was in the darkest time of World War II. Another idea from 1928, stereoscopic television, was also developed on high definition (500 lines) in colour, and successfully demonstrated in late 1941. This technique did not require the wearing of special glasses by the viewer; but it was necessary for the viewer's head to stay in one position to get the best stereoscopic effect!

Baird's crowning achievement in colour television was the Telechrome, which was the first colour tube to dispense entirely with mechanical devices [12]. The Telechrome tube was spherical, with a flat mica screen in the middle. One side of the mica was coated with an orange-red fluorescent coating, and the other side with a blue-green fluorescent coating. Pictures were formed electronically on each side of the sheet, and a colour picture was visible because of the transparency of the mica. The Telechrome was publicly demonstrated in the summer of 1944; press coverage was very favourable, but the event was considerably dwarfed by other news such as the D-day invasion of Europe, and falling of flying bombs on London. I remember seeing the Telechrome early in 1945 and the picture was comparable in quality to today's colour television. After Baird's death in 1946, no one else continued the work at Sydenham. The house was sold, Anderson moved to the USA and the equipment seems to have disappeared.

The Secret Life of John Logie Baird

The year 1926 marked the breakthrough for television, but in that year Baird also took out a patent [13] on something slightly different. The specification called for the scanning of an object with a directional beam of ultra-short radio waves; the reflected waves were then picked up by a suitable receiver and the amplified signal was combined to form a picture of the object. This is what we now describe as radar, with the ability to see objects through darkness, cloud and fog. Why was this discovery not publicised by Baird on a par with television?

The question has been answered by Dr. Peter Waddell of the University of Strathclyde, who has found files of official correspondence from the 1920s and 1930s, formerly classified, describing visits of Air Ministry and Admiralty personnel to Baird's laboratories. There is little doubt that Baird was placed under a 'gag order' on many aspects of his research. However, a few pieces of firm information have emerged. In 1939, Baird Television fitted out a French bomber with an airborne television camera for reconnaissance purposes. This used a miniaturised version of the intermediate film process, which provided not only a television signal for transmission to the ground base, but also a filmed record of the observations from the aircraft.

Baird's refusal to move to the USA at the outbreak of World War II may well have been due to his involvement in secret work. During the war he received £1,000 per year from Cable and Wireless Co., the Crown corporation which controlled all official communications in Britain. The services performed for this fee are still not known exactly, but his work is believed to have been on the use of television

methods for high-speed coded signalling. Research is continuing on this aspect of Baird's life.

The Final Illness

My father had never enjoyed good health. A serious illness when he was two years old had left him with weak lungs and poor circulation. One of my earliest pre-war recollections of him in the garden of the house in Sydenham was a muffled figure wearing an overcoat, scarf and hat – on a bright summer day! Early in World War II he suffered a mild heart attack, but after a few weeks he was back at work in the difficult conditions of the London blitz, with inadequate food and heating, and little technical assistance. By the end of the war he was very tired, but a new Baird Television Company was formed to manufacture television receivers and promote cinema television. The family moved to a rented house at Bexhill, on the south coast, with the idea that my father could benefit from the fresh seaside air but still be in commuting distance from London. He told my mother that if he could 'hold on' for a few more years, the family's fortune would be made; there was even talk of a knighthood. Unfortunately this was not to be the case.

In February 1946 he suffered a stroke and recovery was slow. He craved heat, and the electric fire in his room was run 24 hours per day, with an alarming effect on our power bills. He continued to keep in close touch with his company in London by phone (more large bills) and his last project was the televising of the Victory Parade in June 1946 for showing in three London Cinemas. A few days later, he died in his sleep.

The 50-year Aftermath

My father's death had a devastating effect on my mother and my sister and me. Matters were not improved by the small size of his estate, just a few thousand pounds. The family lawyer (whom we had thought of as a good friend) turned out to be a crook and it took years to recover the estate from his clutches. The only other source of income for my mother was a modest pension provided by the Baird Television Ltd; this continued to be paid by the companies which later absorbed Baird Television.

In 1947 the family moved to Scotland, to Baird's birthplace 'The Lodge', in Helensburgh. The house then belonged to Baird's older sister Annie and it had changed little since the 1900s. Old books, pictures and papers, and the primitive telephone switchbox from 1900, provided constant reminders of John Logie Baird. On one of the windows, he had scratched his name with a diamond cutter. My sister Diana and I were fascinated by the memorabilia and the Victorian atmosphere of the house. Aunt Annie herself was very much a Victorian too, having been born in 1883, but she was a kindly character with a subtle sense of humour. My mother was never happy in the cool damp climate of Helensburgh and she pined for the warmth and sunshine of South Africa where she had been born and raised. Eventually in 1958 she went back there to live, and for the next twenty-five years she resumed her musical career as a teacher and performer.

The public image of John Logie Baird has fluctuated in the 50 years since his death. In 1952 a biography appeared by Baird's old friend Sydney Moseley, an outspoken journalist who put his viewpoint into everything he wrote. The subtitle of his book

was "...the Romance and Tragedy of the Pioneer of Television". Moseley's theme was that Baird's life had been romantic but ultimately a failure, because his mechanical system was replaced by electronic television. This theme was taken up by others. In 1957 an attempt to convert the family home in Scotland to a public museum of television was thwarted by some powerful figures in the British government who said bluntly (but in private) that "Baird did not invent television". The chorus of denigration was taken up by one of Baird's former engineers who had since risen to a high position in the BBC. The tide began to turn when the right to use 'Baird' as a trade name passed to Radio Rentals [14], which had made a fortune with television rentals in the post-war years. Radio Rentals sponsored several lavish public events, with my mother as the guest of honour, aimed at refurbishing Baird's reputation. Encouraged by this, my mother wrote a short biography which is a fascinating record of the human side of Baird's life.

In 1974 a mechanical engineering lecturer at Glasgow's University of Strathclyde, Dr. Peter Waddell, contacted me with some questions about Baird. He had been given the job of organising an exhibition at the University in January 1976, commemorating the 50th anniversary of the first public demonstration of television. The exhibition was a great success, and Dr. Waddell's interest in Baird continued to grow. Unlike earlier biographers of Baird, Dr. Waddell is an accomplished technical researcher in his own right. His expertise on optical imaging methods has helped him to wade through the technicalities of television and present them in reasonably intelligible lay terms.

His first biography, written in collaboration with the journalist Tom McArthur, fully covered the achievements with mechanical television and it also brought in much new material on Baird's electronic colour television, radar and the use of television technology in coded signalling. This book and its updated sequel *Vision Warrior* have generated much controversy. For example, surviving employees of the Baird company in the late 1930s have been sceptical about the extent of Baird's involvement in radar, because they knew nothing about it at the time. In 1984, after much prodding by journalists, the British Ministry of Defence issued a terse statement that they were unable to comment because "much of [Baird's] work is still classified". In 1992, my mother was awarded an honorary degree by the University of Strathclyde, in recognition of the achievements of one of the University's greatest alumni. This event was one of her last public appearances. She died in July 1996, fifty years after the death of John Logie Baird.

As an educator and engineer (though not in the television area), I have been trying to maintain a balanced view of the several schools of thought that have arisen about my father and his work. A few people still brand Baird as an outright failure, simply because the world's first television system was mechanical and it was superseded by electronic technology. That is rather like saying that Marconi was a failure because his radio transmitter used the primitive spark-gap method. It should also be noted that mechanical methodology is still widespread in VCRs and radar installations. In the U.K., telecine equipment for showing movies on television is supplied by Rank Cintel which has built on the expertise of part of the Baird Television Company which it took over in 1940. The detractors of Baird also tend to overlook the fact that he started to switch to electronic methods as early as 1932, and his work on electronic colour TV in the 1940s was at the cutting edge, far ahead of its time. Last

but not least, there are the important but secret aspects of Baird's career, involving spin-offs of television such as radar and coded signalling [15].

While the historians have been arguing, a new generation has grown up which knows virtually nothing about the early history of television and its *dramatis personae* among whom Baird must take a leading position. This is a sad situation, considering that television has had more cultural impact than any other 20th century invention. I am doing what I can to encourage new efforts of the media, in particular television itself, to highlight Baird's contributions. Only two recent productions have dealt with these in any detail. A low-budget but well produced docu-drama, *I Chose Madness*, was shown by the BBC in 1988 but not seen in North America. Two years ago, a short documentary *TV is King* featured Baird among the other pioneers of pre-1939 television; this has been seen in many countries. There is a good case now for making a detailed multi-part series. This would be not merely an educational project but it would have great drama, confirming the adage that truth is stranger than fiction.

Notes

1. Hills, Adrian, "Eye of the World: John Logie Baird and Television: Part I," *Kinema*, No.5, p.5, 1996.
2. Lord Reith, television interview with Malcolm Muggeridge, November 1967, reprinted in *Muggeridge Ancient and Modern*, BBC Publications, 1981.
3. Editorial, *Nature*, Vol.119, p.73-74 (January 15, 1927).
4. Baird, J.L., letter to the editor, *Nature*, Vol.119, p.161-162 (January 29 1927).
5. News item, *New York Times*, 11 February 1928.
6. McLean, Donald F., "Computer-based analysis and restoration of Baird 30-line television recordings," *Television*, Vol.22, p.87-94 (April, 1985).
7. Baird, Malcolm H.I., "Baird in America," *North American Newsletter of the Royal Television Society*, summer 1996.
8. Campbell Swinton, A.A., "Scientific Progress and Prospects" (presidential address to the Röntgen Society), *Nature*, Vol.88, pp.191-195 (1911).
9. Campbell Swinton, A.A., "The Possibilities of Television with Wire and Wireless," *The Wireless World and Radio Review*, pp.51,82 and 114 (April 9,16 and 23, 1924).
10. This event was ignored by David Sarnoff, President of RCA, who proclaimed "The Birth of Television" at the New York World's Fair 3 years later!
11. Germany continued throughout the war with television on a small scale. John Swift in his book (1950) tells how the television signals from the Eiffel Tower in Paris were monitored for intelligence purposes on the south coast of England in 1943-44.
12. In later years, some colour TV systems such as that of CBS in the USA, continued to use rotating colour filters. The camera which televised the moon landing in 1969 used rotating colour filters.

13. Baird, John Logie, and Television Limited, "Improvements on or relating to Apparatus for Transmitting Views or Images to a Distance," British Patent 292,185, App. December 21, 1926.
14. Radio Rentals was later taken over by Thorn Electrical, and in 1979 Thorn merged with EMI. Thus, the right to use the name "Baird" is now held by the corporate descendant of Baird's great rival in the 1930s! Thorn-EMI have treated the Baird family with the utmost generosity and courtesy.
15. In 1983, my sister Diana was attending a television function in London and met J. D. Percy, a former Baird employee who had helped to develop the 'intermediate film' process in 1935-36. Subsequently, Percy worked on defence contracts. He warned Diana against pursuing enquiries about Baird's secret work. More recently, Tom McArthur (co-author of two recent books on Baird) reports having received similar warnings from anonymous men in Glasgow pubs. This sensitivity is surprising, so many years after the events in question.

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DECODING THE BATTLE OF THE BEAMS

A follow-up to the cryptic piece in our last issue

That coded message by Stanley Unwin in the previous article cannot be decoded word by word as per GCHQ. Instead I have to go back to my student days at Imperial College, London University where the genius of chaps like Alan Blumlein were preparing for the electronics race to start up the world's first television service at Ally Pally in 1936, recently celebrated at the BBC's 60th TV Anniversary.

My small part in that race was to design an electronically controlled frequency measuring device which required both a small portable TV aerial and a full set of audio tuning forks. Hence the coded reference to 'Little quarter Lambda, knitloaders kneedlings, etc.', meaning the aerial was constructed from a set of knitting needles borrowed from the Queen Mum's stock in the Royal School of Art Needlework, together with a full set of calibrated tuning forks pinched from the Royal College of Music, as we knew that University funding for electronic research was not on.

Little did I know at the time that this project for a portable 'frequency detector' was to come in useful during the early part of World War II for checking enemy radar frequencies used by the Luftwaffe's blitz on Coventry and London.

What happened was that when all our BBC technicians were hastily evacuated to our war-time stations – in my case it was to Daventry, then Bridport OSE3, where I had excellent opportunities to check enemy radar frequencies used by the Luftwaffe raids on Coventry on 14th November 1940. I had previously met up with the BBC's 'Field Strength Measuring Unit' operating along the Dorset coast and also checking enemy radar frequencies.

Further along the coast towards Swanage I also met the chaps from TRE working in their MoD mobile van apparently in communication with Normandy, both keying and speech, whilst checking radar carrier wavelengths. In fact we had plenty of leisurely time touring along the coast, which I knew from my schooldays in Weymouth and trips to Swanage. Pleasant memories; however, we wasted no time in checking all possible enemy radar frequencies. Unfortunately there was no official liaison between the BBC mobile units and those from MoD's TRE engineers, who came under the Official Secrets Act. This may have led to some information being unrecorded, but when I explained my own portable audio-tuning detector (including top

C-plus), the TRE chaps appeared to laugh it off as a 'cat's-whisker job', especially as their top academics at Swanage were absorbed with centimetre frequencies only.

Hence the appropriate rebuff in *Most Secret War* [1], where the author suggested that official criticism may have been suppressed (Coventry, page 207). Hence the coded reference to "MoD's Up-Cockery" preceded by "Doitcher Geratty Kriegfolders Up" (bomb-flaps open) and "Crumpload in" (H.E. bombs on target) all carried out with no opposition from British anti-radar countermeasures. An unforgivable mistake by experts, covered up by lack of disciplinary action to prevent repetition when it came to the Luftwaffe's night blitz on London.

My next article describes the night blitz on London and why the above omission led to a near catastrophe at Alexandra Palace.

W. C. Pafford, E.i.C, Ally Pally 1940-45.

E.i.C. = Engineer-in-Chief
H.E. = High Explosive
OSE3 = OSE3 was the third of a new series of short-wave transmitters for OverSEas broadcasts. These were put out in French and German to combat the Goebbels and Joyce broadcasts from Paris.
TRE = Telecommunications Research Establishment, the 'cover name' for the organisation investigating radar development.

Reference

[1] *Most Secret War* by Prof. R.V. Jones.

A UNIQUE DISCOVERY

Doug Pitt

In June 1996, Eliot Levin (of Symposium Records) came into possession of an old ten-inch aluminium disc-recording of the sort offered to amateurs during the thirties to record their own voices, radio programmes, etc.. These discs, part of a kit by Cairns and Morrison Ltd of London (trade-name, *Silvatone*) were recorded using a hard steel needle. The very shallow groove produced was played with a soft needle made of fibre.

The disc in question had the words 'Television 1933' written on the label and he realised that he had something quite extraordinary in his hands. After removing the dirt and corrosion of 63 years, he was able to transcribe it and subsequently conveyed the results to Don McLean, who as NBTVA members will know, is an expert in digital image enhancement.

The images displayed show various performers including a troupe of high-kicking dancers. Since all 30-line television programmes from August 1932 were published by the *Radio Times* and other sources , it was possible to pin-point the precise date: 21st April 1933. The dancers were the Paramount Astoria troupe.

For people (like the writer of these lines) ancient enough to have seen some of the original broadcasts, the content of the recording is much like those remembered; crude in detail but lively in presentation. The TV producer, Eustace Robb, had the vision to keep the images in constant motion to hide the system's basic limitation of detail, a limitation imposed by the international broadcasting authorities' 8,000Hz spacing of stations on the medium waveband.

For those brought up to believe that 30-line television consisted of largely static 'talking faces', the recording should be an eye-opener, and the importance of this discovery is difficult to exaggerate. Many enthusiasts must have been tempted to record a TV programme directly from a broadcast receiver or to persuade a friend to do so. Silvatone was only one of the systems available. Yet this is the *only such recording* yet discovered; the word 'unique' in the title of this article is not out of place.

The discovery is all the more remarkable when one considers that similar amateur record-making outfits were available in the USA, which

at one time had up to twelve (perhaps more) stations broadcasting moving images of modest bandwidth. Yet this is the only example of such a recording to surface. Maybe there will now be a frantic search through dusty attics and cellars on both sides of the Atlantic for a second example. Good hunting.

1928: What's on TV?

Don McLean's labour of love provides us with a glimpse into British television's past

Kristina Ross

The discs resemble 78RPM ones, but when Don McLean plays them back he retrieves ghost-like images that are among the earliest recordings of British television broadcasts.

Using methods that seem most aptly described as high-tech archaeology, the UK-based history buff has painstakingly restored numerous television broadcast images that were recorded on video discs during the 1920s and 30s. The discs belong to a now-forgotten category of "dead media" called Phonovision. Recently McLean documented his efforts and their results at his web site. His labour of love is certainly a gift to media historians, and visitors to his site will be treated to numerous examples of the images he's restored.

McLean, now a Principal for Hewlett Packard Ltd. and an expert in advanced computing systems, became interested in television history as a child, and on his own studied early television technologies. He began the images restoration project in 1982.

"Back when I started," he says, "there was a really close link between the restoration work and what I must call 'paid' work! For instance, the process for recovering timing information – the recordings have large timebase errors and there are no 'sync pulses' on 30-line video – was based on my work on the development of new automatic target tracking algorithms for the military."

"In the years since," McLean explains on his site, "I have discovered and restored all known discs - the earliest being made by no less than John Logie Baird - thinking all the time that there can be no more out there."

Baird and the Phonovision

John Baird's Phonovision made him one of the UK's television pioneers, explains McLean. "Back in the 1920's, Baird patented several inventions

relating to recording television. He could not perfect his recording method and consequently, never demonstrated playback from these discs."

Nearly 70 years later, McLean was able to finish the work by retrieving the images etched onto Baird's collection of discs.

One of the earliest sequences of images, displayed below, is of a Miss Pounsford, recorded by Baird, in March 1928. Explains McLean, "The name 'Miss Pounsford' appeared scratched on the surface of the March 1928 disc. This (so the label reads) 'shows lady moving head and smoking cigarette'. Although she does not smoke a cigarette on the recording, she appears quite extroverted... making this in my opinion the best of all the Phonovision discs. Throughout the recording she appears to be talking and generally enjoying herself."

Hearing is Seeing

McLean says the Phonovision and similar broadcast recording discs play back in fundamentally the same way as 78 rpm audio discs. But, of course, retrieving the video is a bit more complicated. "Certain aspects of the play back become crucial as the 'audio' on the discs is really the video signal," McLean says. "The discs have to be centred and aligned very carefully. The modern (RIAA) transfer characteristic is incorrect and has to be altered. Phase-shift errors have to be corrected. The audio signal is digitised and then we are into the digital domain for signal and image processing."

Part of the joy of his work is using what the images reveal to better understand the original recording conditions. "Within the distorted signal on the discs is a wealth of information which gives us an amazing insight into how these recordings were made and the difficulties Baird encountered in his studio," McLean says. For example, "from the 'Stookie Bill' dummy recording of 1927, you can measure a change in size of the head across each line as the head is rocked back in forth. This tells you that the image is being arc-scanned – i.e. that a Nipkow disc was used for the camera. Directly from these measurements, you also get the aspect ratio of the picture."

McLean has revived other television recordings, as well. In June 1996, McLean added a 1933 Silvatone recording of a BBC transmission, "Looking In," which featured the Paramount Astoria Girls revue to his restoration project. The disc was part of a private collection and was transcribed from the original, "highly corroded" aluminium disc, first discovered by Eliot Levin of Symposium Records.

This original transmission by the BBC used the 30-line system, and, McLean notes, "We have been told that 30-line transmissions were uninspiring with stilted presentations to the camera and highly limited in content. They were also supposed to be so poor in quality as to be unwatchable. Never mind that by 1935, the number of 30-line receivers throughout the country were numbered in their thousands. And all for a half-hour broadcast just before mid-night each night. Now with the Silvatone record we have evidence of a

truly entertaining service which was slick and professional, geared to the limitations of the 30-line system."

McLean says his enthusiasm for the work is re-fuelled by the challenge, the excitement and the satisfaction of seeing pictures coming ghost-like from out of the past. But, he adds, on its own that would not be enough. "The encouragement from the few who understand the implications of this material – in particular the original pioneers from that era – has been a major driving force to undertake the work."

On his web site McLean offers additional thoughts about what the restorations reveal and their implications to our understandings of early television technology.

McLean graduated from the University of Glasgow in 1975. Since then, he has worked on the design team of the CT Scanner at EMI Research Labs and has been involved in the development of advanced computing systems.

- **Discovered on the Media History Project Web pages on the Internet (http://www.mediahistory.com) and reprinted with acknowledgement.**

- **If you have access to the Internet you can see Don McLean's complete presentation at the URL *http://members.aol.com/mcleandon/tv_index.htm***

IT CAN NOW BE REVEALED...

1. TELEVISION IN WORLD WAR II

Probably few readers will have seen the following document, discovered in the Public Record Office. It paints an interesting picture.

The Technical Sub Committee of the Home Office's TV Advisory Committee met at the GPO, in London, for the last time during the war, on 2 April, 1940. The committee proper consisted of Sir Frank Smith (chairman), Colonel A S Angwin, Dr E V Appleton, Sir Noel Ashbridge, Dr O F Brown, Mr T C Macnamara, Mr J Varley Roberts (secretary).The sub-committee, meeting on this occasion, consisted of Smith, Angwin, Appleton, Ashbridge, F W Philips, H L Kirke (from the BBC), Lt-Col C V L Lycett (Wireless Telegraphy Board), and G R Downes (GPO).

The civilian scientists present seemed to have taken the view that this new invention ought not to be entirely mothballed because of the war. They disliked the blanket ban on its use, and pointed out that EMI had been

contracted to build equipment for taking TV from London for retransmitting from a provincial centre, probably Birmingham (going either on co-axial cable or "by wireless").

Lycett, giving the Government/armed forces position, said that British television had been taken off air for the duration of the war because it might have provided a "direction-finding beacon for hostile aircraft" and because its waveband or potential waveband was in use for military signals.

Smith, Appleton and other members suggested that these objections were not entirely valid. They hoped that Alexandra Palace might be allowed to go on making occasional test transmissions. RMA representatives (RMA = Radio Manufacturers Association) were then called in – they were named Burnham, Shoenberg, Stanley, Captain West, Williams and Browne (their secretary). Burnham asked if some sort of television couldn't be broadcast at the "lower end of the spectrum", and the meeting also discussed "limiting the strength of TV radiation", but these ideas were ruled out as impractical. However the meeting was keen on TV in a military defence role, though they did not or could not suggest how it could be so used.

Here's another equally fascinating file, Air Ministry reference AVIA 7/561.

It tells us that in 1938 and again in 1941 there were brief exchanges between the AMRE (Air Ministry Research Establishment, later renamed TRE (Telecommunications Research Establishment, later the Royal Radar Establishment) and the Director of Research Labs, GEC (Wembley). In August 1938, optimistically claiming that the political situation was less ominous and noting that TV transmissions were being made from "the centre of Germany", two proposals were suggested:

1. That Alexandra Palace be used to transmit various types of RDF (radar) signals which could be detected by mobile receiver vans, for radar research purposes, and

2. That Alexandra Palace's television signals be received and amplified by the nearest station in the radar 'Chain Home' (which at that time was Canewdon in Essex, incidentally), and then re-transmitted up the coast to the next station, and so on – thereby television could reach out into East Anglia, Kent and once more CH stations were built, over most of the country.

As each CH transmitter tower was built to take two aerial arrays (for different wavelengths, that is), it was suggested that the towers could transmit military radar eastwards(out to sea), and civilian television westwards (inland).

Those involved in the correspondence were P I Dixon and a Mr Jelley, of the TRE, and Dr D C Espley, at GEC.

❖ *Mr John Bray, former head of research with the Post Office, who was active on the problem of extending television just after the war, comments: "The proposal to use the CH chain to relay television around the country seemed to me to be fraught with technical interference problems – the high-power pulse radar would have been totally incompatible on the same tower with AM television signals. I was most interested to see the familiar 1940 names and to imagine their committee debates."*

2. WHERE DID THE NAME *EMMIES* COME FROM?

The following is excerpted from Tom O'Neil's *EMMYS*, a book about the history of the Emmy Awards and the Academy (Penguin Books, 1992):

The original Academy of Television Arts and Sciences was founded in 1946 by Syd Cassyd, who was then working as reporter for a TV trade magazine while also moonlighting as a grip on Paramount's back lot. As he watched the new broadcast medium grow, it occurred to him one day that just what it needed was an organisation similar to the Academy of Motion Picture Arts and Sciences. Similar, that is, but not exactly the same. Cassyd actually wanted his group to be much more academic in nature. He foresaw a professional forum equivalent to the French Academy of Sciences and the National Academy of Science in Washington where ideas could be openly discussed and debated and position papers exchanged between members.

After preliminary meetings with Klaus Landsberg, Paramount's TV engineer, and Professor Paul Sheets of U.C.L.A. (who was also president of the Audio-Visual Educational Association of America), Cassyd gathered together seven associates in an exploratory meeting held in the offices of S. R. Rabinoff, an FCC attorney who ran a TV school and other operations behind the 20th Century-Fox studios on Sunset Boulevard. In order to achieve their mission, the group decided they needed a big name behind them, and Cassyd, who had been designated the group's first chairman, went after one of the biggest in show business. As a result, on January 7, 1947, famed ventriloquist Edgar Bergen was elected the new academy's first president and one year later the organisation was formally incorporated as a non-profit organisation with its chief aim being 'to promote the cultural, educational, and research aims of television'.

The incorporation papers were filed by Bergen, Ray Monfort (of The Los Angeles Time's TV operations), and Donn Tatum, who was to become chairman of the board of Walt Disney Studios. Emmy Awards were first presented in 1949 for the 1948 broadcast year and were named by the president of the Society of Television Engineers – Harry Lubcke – who would later serve as the academy's third president.

Originally, the Emmys were called 'Ikes', a short form for the television iconscope tube, but the nickname had problems,

particularly the fact that it was associated in the public mind with a certain past war hero (and future U.S. President). Lubcke then volunteered his successful alternative, a feminization of 'Immy', a term commonly used for the early image orthicon camera tube.

The design for the prize's statue was chosen from the last of 48 entries submitted by industry contestants. The winner was Louis McManus, an engineer at Culver City's Cascade Pictures, who used his wife, Dorothy, to model the form of the winged woman triumphantly holding up the universal symbol of the electron.

When the TV academy was born, the TV industry was still in its infancy and most programming was still generated locally. The country would not be linked with a coast-to-coast hookup via microwave transmission until AT&T did so in 1951, and so therefore the earliest Emmys were bestowed mostly to local heroes. The first one ever awarded went to Shirley Dinsdale, a young ventriloquist with a popular L.A. puppet show.

WRIGHT'S REPLAY

Jeff Wright tests your memory again

Boom, Boom

Are you over thirty? Are you sitting comfortably? Right, hands up all those who remember *Small Time*? Pussy Cat Willum? Ollie Beak? Wally Whyton? Fred Barker? Muriel Young? The Three Scampies?

No? Well, on Monday March 25th 1963 a TV legend was born: "The story of Bert Scampi and his animals; Spiky and Basil."

The Three Scampies were presenter Howard Williams; Spike McPike, a Scottish hedgehog; and Basil Brush, a fox with a posh voice modelled on upper class comic Terry Thomas.

Puppeteer Peter Firmin made the two characters for twelve pounds and received £1 royalty every time they appeared. How much Howard Williams cost to make is not recorded.

Ivan Owen was the voice, and the brains, behind Basil. He had been the voice for Yoo Hoo the Cuckoo in one of TV's first puppet series, *Billy Bean and His*

Funny Machine, and Fred Barker, Wally Whyton's mop-head friend from *Small Time* and *Five O'clock Club*.

Owen's wicked, and very adult, sense of humour would both entertain and frighten presenters and production staff during rehearsals. It was clear there was a larger-than-life character anxious to burst out of little Basil.

While Basil was resting – in a studio drawer – between series, Owen took the idea of Basil going solo to the BBC. So it was out of the drawer to stardom as a regular disruptive influence on the magician David Nixon's show in 1965.

In 1968 he got his own show. He fired his machine-gun wit and crippling ad-libs at a procession of Mister Straightmen: Mister Rodney Bewes, Derek Fowlds, Roy North and Mister Billy Boyle.

For twelve years in a number of slots but principally Saturday nights, he set up the evening's viewing with a bright light entertainment show for all the family until he and the BBC parted company in 1980.

Soon after Basil and his first minder Mr Howard were reunited for an ITV schools series, *Learn To Read With Basil Brush*, aimed at six and seven year olds. Basil had come full circle.

Basil went to earth in rural Somerset, but over the intervening years his cult status has increased and he still makes the occasional star appearance.

A quarter-century on!

So, what were we watching in March 1972?

As in many years, *This is Your Life* and *Opportunity Knocks* were battling for the top slot. But a drama at number four was a fairly rare event. The series was called *Love Story*. That week a play called 'Alice'.

Comedies, as usual, pulled in the viewers; hits like *Steptoe and Son* and *Bless This House*, and at number eight *On The Buses*, perhaps LWT's biggest ever sit-com hit. Its route to the top twenty began in February 1969. Writers Chesney and Wolfe offered the idea to the Head of Comedy at the BBC, but it was rejected as not being funny enough. Then Frank Muir of LWT jumped on the bus and the rest is TV history.

Reg Varney got star billing, but like many comedy hits – *Dad's Army*, *The Rag Trade* and *Bilko* for instance – *On The Buses* was a team comedy of solid characters and actors.

On The Buses' raw, aggressive, working-class humour sustained its popularity through sixty episodes until the team and the formula inevitably started to show signs of wear and tear.

The series finally failed its MOT in April 1973 and the Luxton and District Bus Company closed up the garage doors for good. But they brought back *Up Pompeii*, why not *On The Buses*?

BAIRD'S TELEVISION DISCS

Ray Herbert

In August 1988, a member of the Hastings Radio Club asked me to visit the town to examine 13 television discs which he had purchased from a junk shop. Apparently, the owner had cleared Baird's house following his death at Bexhill in 1946. Of the 13 discs, ten were in 32 gauge aluminium varying between 12 and 17½ inch diameter. There were three examples having 30 holes and 8 spokes, another with 50 holes, 3 light choppers made up of radial slots and 4 solid-disc containing triple, double and single spirals of holes. The remaining two items were fabricated from cardboard and marked out in pencil.

They were put up for auction last December but some of the descriptions in Christie's catalogue did not tally with the records of Baird's early experiments. For example, the disc with a triple spiral, each having 20 holes, is attributed to the colour demonstrations in 1926-28. There was no colour work before 1928 and the description of this disc does not tie up with the information provided by Baird engineer, Jack Wilson, who supervised the colour experiments.

One disc had 32 holes and is particularly interesting as it fits the description of the equipment used for Baird's historic demonstration to members of the Royal Institution in January 1926.

At the auction, two items were withdrawn from sale, the other eleven fetched £14,490.

VOICES FROM OUTER SPACE?

QUESTION: In the Southern TV region in the seventies, in the early hours of the morning, a voice came over the television even though people had their sets switched off. Does anyone remember this, and was it ever explained?

A touch of urban myth has been added to what really happened here. TV sets had to be on to receive this broadcast, which occurred in early evening. On Saturday 28th November 1977, at 5.06pm, newsreader Ivor Mills had just begun the early-evening news when viewers in the Southern ITV region supplied by the Hannington transmitter, near Newbury, heard a deep slow voice which identified itself as that of 'Gillon, representative of the Astral Galactic Command' and said: "Unless the weapons of Earth are laid down, destruction from outer space invaders will quickly follow." The voice went on to inform viewers that they had only a short time learn to live in peace.

Southern TV sent out messages every half hour to apologise and reassure people. Thorough investigation failed to locate the hoaxers. That particular day was a rag day for several universities. [Peter Devine, Salford Quays, Manchester.]

❖ Question and original answer taken from the Daily Mail, 27th March 1995.

What a silly story! All the same, a bit of fun now and again does no harm, so let's dig a bit deeper...
An article in *The Sunday Times* for 4th December 1977 reveals more.

Student boffins show how easy it is to break into television

By Peter Gillman and Paul Eddy

THE 'hijacking' of a TV programme by a group of students and electronics enthusiasts last weekend has highlighted just how easy it is for outsiders to pirate radio and television air waves. The Sunday Times has found that the equipment used to deliver a message purporting to come from Vrillon of 'Ashtar Galactic Command' in the middle of Southern Television's 5.5 pm news programme cost less than £80.

The group broadcast their six-minute message to thousands of viewers in the Newbury and Reading areas from the back of a van parked near the IBA's transmitter at Hannington, Berkshire.

The TV pirates jammed the signal reaching Hannington from the main regional transmitter at Rowridge on the Isle of Wight. The pirate transmitter was built of readily-available parts powered by a car battery. The tape-recorded galactic message was beamed at the Hannington mast from a few hundred yards by a standard domestic television aerial. The information on what frequency to use was available in the IRA's publicity manual, *Guide to Independent Television.*

The Hannington hoax was the third hijack by this group. The first was the take-over of John Peel's Radio One music programme on April Fool's Day 1976. The group broadcast banned records by intercepting the signal from the Rowridge transmitter. The BBC countered by installing an expensive cable to carry Radio One.

The Sunday Times has discovered that early on August 14 this year, the pirates returned and hijacked Radios Two and Three instead – *for three hours.* They first beamed a signal to the Rowridge transmitter and then broadcast music supposedly coming from an orbiting satellite radio station named KSAT.

Last Saturday's broadcast was almost equally harmless. The pirates had considered announcing 'the revolution' and instructing "all dissidents to report to the nearest police station on Monday morning."

To avoid appearing politically motivated they settled instead for a flying-saucer spoof. The voice of Vrillon declared: "We come to warn you of the destiny of your race and your world" and advised against nuclear weapons and "false prophets". Vrillon's deep, imperious voice was in fact that of a young engineer, slowed and then modified by a cheap electronic synthesiser of the kind used by pop groups. This gave the message an authentic 'outer-space' ring but also made it difficult to understand.

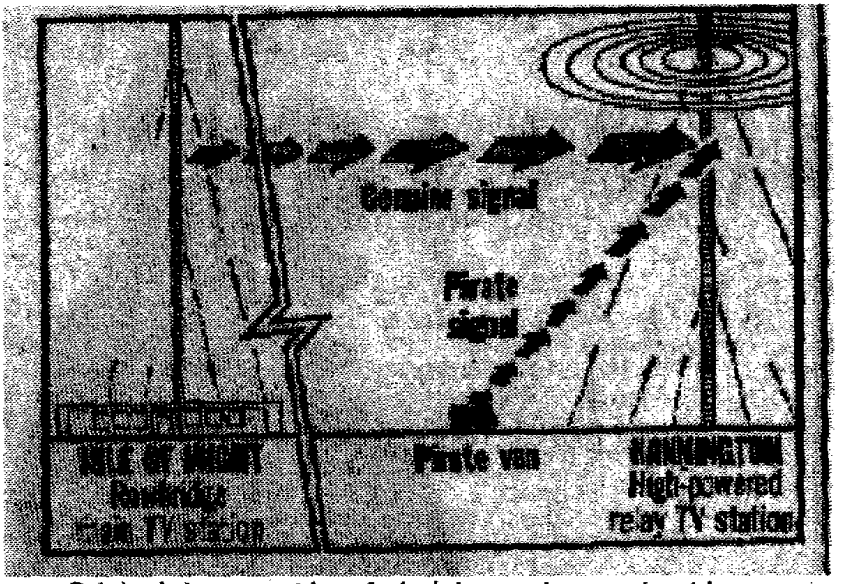
• Although the illegal broadcast did no harm, the Hannington hoax left both the BBC and the IBA unamused, for it showed again how easy it is to take over the air waves. Main radio and TV transmitters are fitted with anti-hijack safeguards, but relay transmitters smaller than Hannington can only be completely safeguarded at great cost. There are about 150 such transmitters in Britain.

So far the British pirates have not tried to take over vision as well as sound. Last Saturday's ITN audience continued to receive news pictures while hearing Vrillon's words.

A vision hijack, requiring a video recorder and camera, would be much more expensive. It would also have to overcome a safeguard which many transmitters, including Hannington, possess. This consists of coded messages – known as insertion test signals – which the viewer does not see. Pirates would also have to beat the IBA's monitoring system. Engineers at centres around Britain watch for faults in transmission and can switch off sections of the network. Last Saturday engineers in Croydon supposedly monitoring Hannington's transmissions failed to log Vrillon's galactic message. They would, however, be less likely to overlook pirate pictures.

This story is actually from the 625-line era and its relevance to 405 lines is marginal (although students at Oxford in the 1960s used the sound transmitter of the BBC 405-line station for their own radio telephone system outside programme hours).

Diagram on next page (And was it Gillon or Vrillon? Will we ever know?).



Original document has faded, hence low contrast here.

But even this is not the end of the story! A publication called *OVNI*, reported in *Nexus* magazine, also tackled the story, as we shall now see...

A MESSAGE FROM SPACE IN 1977?

One of the past mysteries that has defied an explanation is the mysterious broadcast that was made on 26th November 1977 at 5.12 pm. The 'voice from outer space' broke into a scheduled news bulletin being read by Ivor Mills on what was Southern TV. The phantom voice broadcast a message that overrode the television signal and continued for five-and-a-half minutes.

Those who heard the broadcast, which covered southern England, were impressed by the message (which, incidentally, was never reported in full by the news media).

Within a short time, the authorities claimed that the broadcast had been a hoax. The TV authorities assumed that it was a sick joke, but they commented, "'We can't imagine how it was done... It appears that someone broadcast their signal over ours. The equipment used would need to be fairly sophisticated and expensive."

It seems strange that engineers monitoring the broadcast were unaware that the TV signal had been overridden. The media claimed that a student had driven near a TV mast and hooked onto the broadcast – but there were, in fact, two transmission masts in operation at the time. Were both taken over? In spite of the media attention, no student was ever traced.

Later, a story emerged that an ITV engineer had arranged the broadcast and he had since been sacked, but the engineer was never named and, as far as is known, was never traced.

What of the message itself? According to *Viewpoint Aquarius* magazine (January 1978), they were able to listen to the full recorded broadcast at the LBC studio in London, and they claim that this is what the voice said: "This is the voice of Gramaha, the representative of the Asta Galactic Command, speaking to you. For many years now, you have seen us as lights in the skies. We speak to you now in peace and wisdom as we have done to your brothers and sisters all over this, your planet Earth.

"We come to warn you of the destiny of your race and your worlds so that you may communicate to your fellow beings the course you must take to avoid the disasters that threaten your worlds and the beings on the worlds around you. This is in order that you may share in the 'great awakening' as the planet passes into the new Age of Aquarius.

"The new age can be a great time of peace and evolution for your race, but only if your rulers are made aware of the evil forces that can overshadow their judgements.

"Be still now and listen, for your chance may not come again. For many years your scientists, governments and generals have not heeded our warnings. They have continued to experiment with the evil forces of what you call nuclear energy. Atom bombs can destroy the Earth and the beings of your sister worlds in a moment! The wastes from your atomic power systems will poison your planet for many thousands of your years to come. We, who have followed the path of evolution for far longer than you, have long since realised this. Atomic energy is always directed against life. It has no peaceful application. Its use, and research into its use, must be ceased at once or you all risk destruction. All weapons of evil must be removed.

"The time of conflict is now past and the race of which you are a part may proceed to the highest planes of evolution-if you show yourselves worthy to do this. You have but a short time to learn to live together in peace and goodwill. Small groups all over the planet are learning this and exist to pass on the light of the dawning new age to you all. You are free to accept or reject their teachings, but only those who learn to live in peace will pass to the higher realms of spiritual evolution.

"Hear now the voice of Gramaha, the representative of the Asta Galactic Command, speaking to you. Be aware also that there are many false prophets and guides operating on your world. They will suck your energy from you-the energy that you call money-and will put it in evil ends, giving you worthless dross in return. Your inner divine self will protect you from this. You must learn to be sensitive to the 'voice

within' that can tell you what is truth and what is confusion, chaos and untruth. Learn to listen to the voice of truth which is within you and you will lead yourselves onto the path of evolution.

"This is our message to you, our dear friends. We have watched you growing for many years, as you, too, have watched our lights in your skies. You know now that we are here and that there are more beings on and around your Earth than your scientists admit. We are deeply concerned about you and your path towards the light and we will do all we can to help you. Have no fears, seek only to know yourselves, and live in harmony with the ways of your planet Earth.

"We of the Asta Galactic Command thank you for your attention. We are now leaving the planes of your existence. May you be blessed by the supreme love and truth of the Cosmos."

OVNI Editor's Comment: Well, was it just a student hoax or not? The message could be as relevant today as it was in 1977. Remember, this was before the disaster at Chernobyl, and haven't we just heard that Britain will not build any more atomic power stations?
[*OVNI,* Newsletter of the Phenomenon Research Association, Derbyshire, UK, December 1995; phone/fax (0115) 932 1837.]

❖ *The last word (unless you know better) is that in fact this merry jape was perpetrated not by students but by a character connected with the broadcast industry and known as the 'Cosmic Cowboy' (aided and abetted by his hippy friends). In case this attribution is incorrect, however, we will not actually print his name here.*

FACILITY HOUSE STUDIOS IN 1967

Jeremy Jago

It's easy to forget that not all television studios were owned by the BBC and ITV contractors. These copies, taken from *Kemp's International Film and Television Directory* of 1967, show how well developed the 'facility' side was in the UK even back in 1967. Note the Gemini cameras offered by Granville Studios.

❖ *We really need someone to compile a check list of all the studios in London, including the training studios run by Marconi and the BBC, also the relatively short-lived theatre studios (and the Scala and...). It's the sort of thing that Dicky Howett does so well... (hint!)*

VTR STUDIOS

FACILITIES (SCREEN & TELEVISION) LTD., 17, Berners St., W.1. Tel: MUSeum 1981.

GRANVILLE TELEVISION STUDIO LTD., Fulham Broadway, S.W.6. Tel: FULham 2184.

INTERTEL (VTR SERVICES) LTD., 130, Regent St., W.1. Tel: REGent 4506.

TELEVISION RECORDINGS LTD., 9-1, Windmill St., W.1. Tel: MUSeum 3521.

WORLD COLOUR SERVICES LTD., Hippodrome, Brighton, Sussex. Tel: 28228.

SYSTEMS CONTROL (ELECTRONICS) LTD., 296, Regent St., W.1. Tel: LANgham 9401. (Mobile.)

ALIGNMENT ALERT

Kelvin Mallett

Post Script

Some time elapsed between the commencement and conclusion of this article, which was originally intended as a serial; and during that time new information came to light.

The first part of this article dealt with the Art Bars, and reading the article suggests that Art Bars formed the BBC's transmitter alignment from the year dot right up until 1963. This ain't necessarily so!

For approximately six, or perhaps seven, years prior to late 1963, the BBC transmitter alignment routine consisted of the following:

5 minutes Window and tone.
5 minutes Spike and tone.
5 minutes Sawtooth and tone.

Window simply consisted of a white block in the centre of a black screen. Spike was a white needle pulse in the centre of a black screen. Sawtooth was a really weird picture consisting of a dark grey background with black border arrows. Four tests were included, and from the foot of the picture were:

Black block next to white block.
Five step greyscale.
Vertical resolution test next to horizontal resolution test
And, at the top, a white sawtooth on a black band.

Hence the name *sawtooth*.

Finally, there is one other signal that has been seen from time to time on S4C (the Welsh Channel Four). This comprises a line-repetitive combined pulse and bar/greyscale signal. This appears to have been a luminance-only signal, but may have had chrominance added. As the signal was seen on a b/w set, nothing is known for certain at this time. At the start of the scan was a white bar, followed by a black bar containing a white 2T sine-squared pulse. The latter end of the scan contained the greyscale, which had at least eight steps, but could have had as many as eleven.

Twenty-Four Hour Testcard

This is a follow-up article to the Alignment Alert series, detailing not just advances in engineering techniques, but also explaining how the broadcasters can do without transmissions of test card and other engineering signals.

For forty minutes prior to the first scheduled transmission of the day a series of engineering signals were transmitted by the BBC, and the ITA had their own signals they transmitted prior to the schedules. These signals had just one purpose, and that was to check the transmission links between the studios and the transmitters. By the mid 1970s the IBA had authorised the independent television companies to transmit programmes all day, thus doing away with test card transmissions. The BBC had authorised the transmission of CEEFAX pages and music prior to the start of the days scheduled transmission. Daytime test card transmissions were extremely limited and so there was little opportunity to monitor the state of the links between the studio and the end of the transmitter chains. How then were these links monitored?

Initially, the only information additional to the picture (and sound) which was transmitted, was the line and field sync pulses to keep the sets in step with the programme source. Twenty per cent of each line transmitted was kept free for the sync pulse, even though the pulse itself was considerably shorter than that. The balance of the 20 per cent was kept at black level or just below to ensure each active period started at black level and ended there. The efficiency of each field was higher. A greater percentage of the 405/625 lines were used for active picture information, but even so, the field sync pulses occupied only a portion of the inactive area.

When the 625-line system commenced, a portion of the line blanking period was given over to the colour burst required for the PAL system, and by 1971 the ITA had developed a system whereby signals transmitted during the field blanking period could be used to operate the transmitters automatically. By the mid 1970s teletext was on the way, which also operated by transmitting data during the field blanking period. What if you could use part of the ever decreasing number of spare lines during the field blanking period to transmit test card?

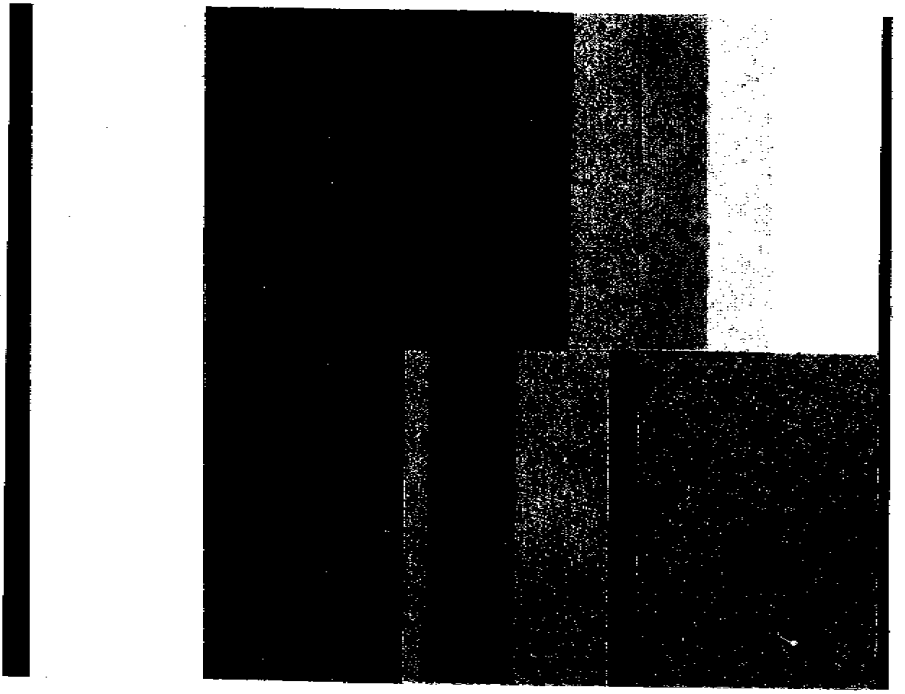
This is what actually happened. And the secret of the success of this idea is that most transmitter alignment signals are of the 'line repetitive' type. This means that every line of the picture consists of the same information. This is so for pulse and bar and staircase signals such as stepwedges and colour bars. As you only need one line of information

for the pulse and bar, or colour bars, or stepwedge; why not hide a couple of these signals in the field blanking period? Now it was possible to have no transmitter alignment prior to the scheduled start of transmissions; and there was a signal available to the engineers at all times of the day and night as long as the broadcasters were operating.

Two lines are used for what is now termed the Insertion Test Signal (because it is inserted into the field blanking period). It was formally known as the Vertical Interval Test Signal (no additional explanation needed). So what is contained in these lines? At the time of writing the BBC uses the pulse and bar signals and stepwedge signal, both with the added unlocked colour sub-carrier signal. It isn't as straight forward as the old signals used during the transmitter alignment period, because additional data needs to be transmitted for sound checks and transmitter control purposes. What is actually transmitted is a condensed version of these signals so that one line contains one or both of these signals. The line containing the one signal only also contains the sound and transmitter control data.

Featured overleaf is an illustration of what these test signals would look like if they were of the line repetitive variety.

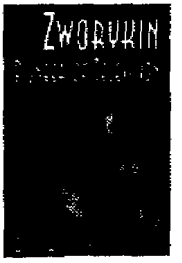
If any readers have any illustrations or technical data for signals transmitted by other ITA companies than in the South East, or by BBC regions, please feel free to get in touch (through the editor) so that this subject can be more thoroughly documented.



Artist's impression of a line-repetitive version of the Vertical Interval Test Signal. The top half represents the first line, the lower the second line. (The hatched area represents the audio tests, transmitter control and data communication signals.)

HAVE YOU SEEN THESE?

SEEING BY WIRELESS
Ray Herbert has written a factual account of early British television to mark the 50th anniversary of the death of John Logie Baird. It features many rare photographs, most of which have been loaned to him by ex-employees of Baird Television Ltd. Copies of the booklet can be had for £3 (post-paid inland) by sending your order with a cheque made out to R.M. Herbert, 24 Norfolk Avenue, Sanderstead, South Croydon, Surrey, CR2 8BN.



ZWORYKIN, PIONEER OF TELEVISION
Albert ABRAMSON, who has already written his history of television 1881-1941, a bible of technical evolution, is also the author of a biography of Vladimir ZWORYKIN, pioneer of electronic television. This well researched and illustrated book should be appreciated by all.

- *Hardback, 312 pages 6 x 9 inches, 7 line engravings and 32 photographs. April 1995, ISBN 0-252-02 104.*

- *Price $36.95 plus shipping/Handling. Master Charge and VISA card holders ring 00 1 800 545 4703.*

University of Illinois Press, 1325 South Oak Street, Champaign, IL 61820, USA.

TV REPAIR HINTS AND TIPS

Carbon Resistors: These do *not* like HV. They are non-linear with applied voltage over about 200 volts. The resistance can rise quite dramatically. I think around 25-30 per cent with 1kV applied.

Perhaps the 2-watters can handle 300 or 400V before being affected, but if precision is important, always build a string that limits the V on each R to about 200. Metal films are not subject to this problem.

Flybacks: These tend to form leakage paths internally (under the coating). They'll ohm out good, but will load down the horiz. output when running, and eventually burn up. Someone (Sencore?) made a flyback analyzer at one time that tested them with voltage and load applied. This instrument worked pretty well for catching the weird ones.

While an original may be impossible to find, I wouldn't give up hope before looking. Many of the tubes coming on the market now are from TV shops closing down. They're throwing boxes of other stuff into dumpsters, that is just too difficult to find buyers for. Check an *old* TV shop and you just might find what you're looking for.

Flyback transformers: I'm not sure it'd be that difficult to retrofit a different flyback into the set. This is basically a semi-resonant switching power supply. You may need to vary the cap values in the circuit to get the new one on resonance. And you may have some issues with width and linearity to solve. But just about any flyback made for a similar sweep tube should be adaptable.

Rebuilding these: The vast majority of old flybacks, and new ones too for that matter, are wound on 'U' cores. These are two U halves, that generally come apart easily. If glued, a heat gun will generally loosen them. BE CAREFUL! Ferrite cores are incredibly fragile. A little too much force will crack 'em.

The crazy idea is to rewind the sucker. Yes, a lot of turns of very fine wire. But if you have a lathe, with a known RPM, it might not be too bad. Just a thought. Hey, the whole job is a labour of love, right? What's one more painful three week piece to the project?

Capacitors: Note that some caps in the Horiz/HV circuit carry considerable ripple current. *Not* all film caps are rated for such service. This caused enough fires that more recent sets have warning stickers all over the set and manual marking certain parts as 'exact replacement only'.

Be sure when you replace these parts that you use film caps rated specifically for heavy duty pulse service. WIMA makes several excellent lines for this application.

Hidden Fuses: Many American sets have wire-lead fuses buried on/under the chassis somewhere for the horiz. B+ etc.. Very first thing to do is check the H circuit for B+, and go from there.

I hope this helps a little. It's been 25 years since I've worked on a tube TV so I don't remember it all. Good luck and be careful!

Richard Hager

Q & A

Q: Every so often, a small square that is slightly brighter than the rest of the screen, appears in the bottom left hand corner on Central South (on the Oxford transmitter). It can stay there for days/weeks. Once you notice it, it always catches you eye. I've never seen it on Meridian, or on Central here in Coventry, but back home, it can be quite annoying. Does anyone know what it is. I'd love to find out its purpose in life. [Dave Smith]

A: This turned up on Meridian about three or four years ago. I phoned them, and the conversation went something like this...

Me: "Tve been watching your programmes from the X transmitter on channel Y and I've noticed this thing in the bottom left corner"

Medidian: "Oh?"

Me: "Tve measured it and it is Y lines by X microseconds. What's it there for?"

Meridian: "It's there for market research"

Me: "Well, I can save you the trouble. I'm your market and I don't like it."

Meridian: "Oh."

It disappeared soon afterwards. I think the reason for it is so that they can determine, in fringe areas, which ITV region people are actually watching, presumably by knocking on the door and having a quick look at the screen. [Robert Billing]

It appears on the Ridge Hill transmitter too.

This was used some years back on the Hannington transmitter as a quick way of finding out whether someone was watching Hannington (there are some pretty large overlaps with the neighbouring service areas of Crystal Palace and Oxford transmitters.) If I remember correctly, this was for one of two reasons:

(1) Hannington has a weird channel arrangement and the introduction of Channel 4 meant that some people who had group B aerials got lousy results on Ch4, for which wideband was required – identifying the Hannington service would be a case of saying "Is there a small square in the bottom left of your screen."

(2) Southern, or TVS or whoever it was back then was bothered by the fact that a lot of viewers in their northern bit preferred to watch London ITV programmes or Central although technically the area fell within the South region (and the Thames Valley is a rather attractive bit of advertising country – all those stockbrokers). I think they carried out a telephone survey asking people "Are you watching ITV... oh good, is there a small square in the corner of the picture?" – they were then able to gauge the size of the problem.

Central South was a not-universally welcomed introduction in its area. It covers an odd transmission area that extends from the fringes of the Black Country across to the Welsh Borders and then around in a curve through Gloucestershire and bits of Worcestershire to the Thames Valley. People in Worcestershire would prefer the Birmingham programmes rather than something produced in Abingdon; most of Gloucestershire would prefer HTV from Bristol and quite a lot of people in the Thames Valley would prefer London. There's also oddities where relays are fed from a different main station as in Malvern where I live – the relays are driven by Sutton Coldfield but the nearest main tx is Ridge Hill. Which firm put your aerial up determines your choice of regional programming.

I would guess that Central South are trying to find out who, if anyone, is watching them. [Phil]

Q: Does anyone know when/if the BBC test card is still transmitted?

A: Usually about half an hour before programmes start, around 5.30am on BBC1. This changes to Ceefax on view 15 minutes before programme start. Very occasionally it is transmitted all night, as happened during the recent cold weather. Or available 24 hours a day at my Test Card Gallery on the Internet.
[Darren Meldrum (meldrum@dial.pipex.com)

And Finally...

a chuckle or two

SWAP YOUR DISH

Should you happen to live in Kuwait and have had enough of boring satellite TV, you can now swap your satellite dish for other electrical appliances. Same applies to those old video tapes you never watch anyway, and even to audio cassettes. All these things are blasphemous, says an Islamist group in Kuwait, offering prizes to those who hand over their tapes and destroy their satellite equipment. According to a local newspaper, the group has so far managed to destroyed three satellite receivers, 300 video tapes and 1,000 audio cassettes.

❖ This, of course, is the New World Order the U.S. proclaimed when they launched 'Operation Desert Storm'.

GULLIBLE GERMANS

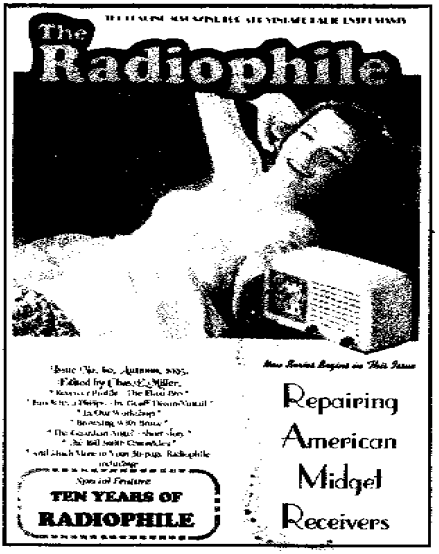
Germans do not know how to handle the media. They actually do believe these information sources, as a recent survey conducted by the French institute Sofres in several European countries shows.

If the figures are true, Germans believe almost everything, be it on TV, radio or in the papers. 80 per cent of Germans believe what radio news tell them, 74 per cent trust in TV, 70 per cent think that press reports are generally true. Media consumers in other countries seem to differentiate. In Britain, the respective figures are quite different: 85 per cent for TV, 79 per cent for radio (we have the BBC, you know,) but just 48 per cent for newspapers (well, we have Rupert Murdoch's papers, you know.) In France, consumers are even more sceptical: 59 per cent for radio, 49 per cent for TV, 47 per cent for papers. Spaniards and Italians were also questioned; they perform somewhere in-between.

Courtesy Satellite and Media News. (c) Copyright 1997 by Sat-ND, http://www.sat-net.com/pck/

Introducing

The Radiophile



Every issue since 1991 has featured an evocative full-colour front cover. These are now becoming collectors' items in their own right

The Vintage Radio Magazine for the Practical Enthusiast With its unique mixture of authoratative, informative and entertaining technical articles and its many other exclusive features, The Radiophile is the natural choice of magazine for those enthusiasts who wish to do more than simply admire sets on shelves

Radiophile Specialities:

* A Vast Library of Technical Information for receivers going back to 1933
* Regular and Special Vintage Radio Shows and Auctions
* Technical Enquiry Service
* Special Teaching Workshops.

SUBSCRIBE NOW - no formalities, no fuss. Simply send a cheque for £18 (UK) or £24 (overseas) made out to The Radiophile and you will receive the next six issues entirely post free.

Write to

Admin Office, The Radiophile, Larkhill, Newport Road, Woodseaves, Stafford, ST20 0NP.

We regret that we cannot accept credit cards or non-Sterling payments

THE TEST CARD CIRCLE

This society was founded in 1989 with less than twenty members. Since then it has grown in membership to almost one hundred, and has certainly grown in stature. The various broadcasting authorities acknowledge the wealth of information and expertise possessed by the membership, and regularly refer inquiries direct to the society.

All aspects of television trade test transmissions are included within the interests of The Circle: Test Cards and patterns, accompanying music, slides and still pictures, Service Information bulletins, Trade Test Colour Films, and, of course, the dear old BBC Demonstration Film.

A quarterly 48-page magazine is issued which contains lively and interesting articles on all of these topics. Each Spring, a convention is held in the little market town of Leominster, where members can meet for a delightful weekend of wonderful music and pictures, good companionship, and pure nostalgia. It is also a great deal of fun.

Previous guests have included Steve Ostler, John Ross-Barnard and David Allan. John and David were the two men responsible for compiling all of the BBC trade tests tapes used between 1959 and 1977, and we were delighted when they accepted Honorary Life Membership of The Circle two years ago. We were also highly honoured when Roger Roger, the French musician and composer, whose music has been used during BBC trade tests since the mid fifties, agreed to become Patron of The Test Card Circle in 1992.

If you are interested in this fascinating subject, write to the Secretary, Doug Bond, 98 Great North Road, Gosforth, Newcastle upon Tyne, NE3 5JP, and if you send a 12.5′ x 9′ self addressed envelope with a 49 pence stamp, Doug will be pleased to send you a sample copy of the Circle's magazine.

ASK YOURSELF THREE QUESTIONS

...

1. Bored with the same old dreary, overpriced merchandise at collectors' fairs and antique marts?

2. Do you collect any of these?

Stamps and Postal History
Picture Postcards
Cigarette and Phone Cards
Cameras and Photography items
Coins and Banknotes
Military, Naval and Aviation items
Pop, Stage and Screen memorabilia
Autographs
Things to do with Sport and Transport
Old Toys
Ephemera, Documents and Prints
Books
The weirdest kind of Collector's Items

3. Would you like to be offered a selection regularly, often at less than dealers' prices?

Yes? Then it's time you got in on the secret and discovered DALKEITH AUCTIONS, an established company in Bournemouth who hold auctions of all these items every month and issue detailed 56-page catalogues in advance. Can't get down to Bournemouth? No problem! Just fill in the bid form and send an open cheque or give us your credit card number. You set an upper limit for your bid and we don't abuse your trust (proprietor is a 405 Aliver!). The system does work! Contact us too if you wish to sell items to a broad range of interested and motivated people.

Enquiries to Philip Howard on 01202-292905. The catalogue of the next auction costs £2 (annual subscription by post £22) but you can phone or write for your first copy FREE.

DALKEITH AUCTIONS, DALKEITH HALL, 81 OLD CHRISTCHURCH ROAD, BOURNEMOUTH, BH1 1YL

ANTIQUE RADIO
MAGAZINE

BIMESTRALE DI RADIO D' EPOCA E DINTORNI

Antique Radio Magazine is a bi-monthly magazine dedicated to the vintage radios and surroundings, published by Mose' Edizioni.

The magazine, lavishly and beautifully printed in art book style, is now entering into the 3rd year of life and despite it is mainly addressed to specialised people, it is gaining more and more success world-wide. Articles go from the beginnings of telecommunications until the radio as element of history of customs and culture.

Our aim is to make the wide public aware of this fascinating world which has now become of great interest.

An important landmark was our recent publication of the important book named **"Epopea della radio, storia di un uomo".**

We also offer a comprehensive selection of radio books from other European publishers, many of which are hard to find elsewhere. Please ask for our latest **Ex Libris** catalogue.

I look forward to serving you.

Yours Truly

Mose' Battocchio, Editor

For more information or orders please write or telephone Mose' Edizioni, Via Bosco 4, 31010 Maser (TV) Italy - Tel. 00 39 423-950385; Fax 00 39 423-529049; e-mail: *mose@tv.shineline.it*

The Dinosaur Labs present...

The LI'L DINO Band I Modulator

You can buy one now! Due to popular demand (at least three or four people have asked), we have designed a modulator worthy of the Dinosaur name. You might expect this product to have one or two performance enhancing niceties not found on other similar designs and if so, you will not be disappointed. All this comes on a PCB 120mm x 80mm. The power requirements are modest, namely 12 volts at 50mA. The price for the completed board and leads is £80. Customers who have bought a standards converter from us may deduct £5. The modulator is designed to be a stand-alone unit but we can build it into new standards converters (details on request)

NB. Sorry we can't fit a modulator inside our original converters (the connectors are in the wrong places). We can however modify them to power an external modulator.

Please include postage & packing; £3-00 for modulators. Alternatively we can deliver to most vintage wireless swap meets, or the Vintage Wireless Museum (by prior arrangement) free of charge. Ask about our Test Card C generator too.

STANDARDS CONVERTER NEWS
The provisional cost for a kit is £275 and the completed version will be £370 (or £445 with modulator). Place your order now!

WARNING: Owning a Dinosaur product can seriously extend your choice of vintage viewing. And note... we are, like you, enthusiasts. We are not a business. Please confirm price and availability before ordering.

Phone: Dave Grant 01689-857086 or Mike Izycky 01778-344506.
4 Kemble Drive, Bromley, Kent. BR2 8PZ.

SPECIAL AUCTION SALES OF RADIO EQUIPMENT, ETC.

Over the last few weeks The Radiophile has been instructed by several different vendors to sell by auction their collections of radio receivers and allied equipment. These will be very important sales of extremely valuable items from the earliest days of broadcasting onwards, and no serious collectors or dealers should miss them on any account. It has not yet been possible to catalogue all the lots in the first sale but it will include a large number of domestic receivers from just before the war until the mid 1950s, approximately 3,000 various valves, a quantity of reel-to-reel tape recorders, an Eddystone communications receiver, test equipment, components, etc., etc., all to be sold without reserve. This first sale will take place at our Sambook Village Hall site on 18th. May, 1997. Catalogues will be prepared shortly; please send £2 (coin or stamps) to reserve your copy (if you wish to be put on our mailing list for future sales please complete the form below).

Further details of all sales will be given via the magazines in due course, the aim being to hold three or more this Spring and Summer. We would like to mention here that one of the vendors with whom negotiations are presently taken place was referred to us by a firm of auctioneers in the West Country, a plain indication that The Radiophile is becoming ever more widely accepted as the best medium through which to sell vintage radio equipment. If you require information you have only to ask.

AUCTION SALE CATALOGUE MAILING LIST

I enclose £2 (coin or stamps) for the catalogue of the next Radiophile special auction* and wish to be placed on the priority mailing lists for news and catalogues of future sales. This will enable me to receive catalogues as soon as they are published, for which I shall pay later by post or at the relevant sale.

Signed.....

Name.....

Address.....

.....

.....

.....

Post Code.....

Telephone No.....

Fax No.....

Fax numbers are particularly useful in the case of last-minute changes, etc. If you have no machine of your own you may know someone who will be prepared to take messages for you)

i.e., not those at Shifnal Expositions

If you do not wish to mutilate your magazine, please feel free either to photo-copy this form or to use plain paper.

Treasures in Transition

This is the area for buying and selling all kinds of things to do with television, new or old. Want to join in? Then send us your advertisement: there is no charge, although if space is short we may have to 'prune' out the least relevant adverts or hold them over until next time. Advertisements are normally inserted for two issues: please indicate if you wish your ad. to run longer. There's no extra charge but we try to avoid repeating 'stale' material.

WHAT'S IN AND WHAT'S OUT

These advertisements are primarily for private sales but traders are also welcome. The Business Advertisements (Disclosure) Order of 1977 requires people who are commercial dealers to make this fact clear in their advertisements. The letter (T) at the end of an advertisement indicates that the advertisement is trade' and (NS) that the advertisement has been placed by a non-subscriber. Any job advertisements are bound by the Sex Discrimination Act, 1975 and the Age Discrimination Act, 1997..

Test card music and old TV programmes are is subject to the same rules of copyright as other recorded works and it is unlawful to sell amateur or professional recordings of same. Swapping same for no gain is probably not illegal but *405 Alive* does not want to test the law on this subject so we will only accept advertisements from people who will indemnify us in this respect.

PLUGS NEEDED

If you are selling any electrical appliance after 1st February 1995 without a plug on it, you are breaking the law. The Department of Trade and Industry has announced that domestic electrical appliances manufactured in or imported to the UK must be fitted with a correctly fused 13-amp plug.

IMPORTANT DISCLAIMERS

1. Whilst care is taken to establish the *bona fides* of advertisers, readers are strongly recommended to take their own precaution before parting with money in response to an advertisement. We do not accept any responsibility for dealings resulting from these advertisements, which are published in good faith. That said, we will endeavour to deal sympathetically and effectively with any difficulties but at our discretion. Fortunately we have had no problems yet. In related collecting fields, replicas and reproductions can be difficult to identify, so beware of any items 'of doubtful origin' and assure yourself of the authenticity of anything you propose buying. And try to have fun: after all, it's only a hobby!

2. Much of the equipment offered for sale or exchange does not conform to present-day safety and electric standards. Some items may even be lethal in the hands of the inexperienced. This magazine takes no responsibility for these aspects and asks readers to take their own precautions.

STANDARDS CONVERTERS. Building your own is **not** a realistic proposition unless you already have advanced design and construction facilities. It's not a task for

amateurs, not even for gifted ones. Many of the parts needed are available only from professional sources and not in one-off quantities, whilst some previous designs for converters can no longer be copied because the custom chips are no longer made. We recommend the Dinosaur Designs/David Grant product, which was reviewed in issue 19. Pineapple Video have ceased production of their converter. Note also David Looser's advertisement in this section for a conversion service.

MODULATORS. Two designs for modulators have been published in *Television* magazine but we don't recommend either today. One uses hard-to-find components, whilst the other one is good but requires you to make your own printed circuit board and wind your own coils very accurately. The good news is that you can buy an excellent ready-built modulators from Dinosaur Designs (see ad in this section).

COMPONENTS. Here is a brief list of suppliers; you can have a much extended two-page list by asking for FAQ SHEET 3 and sending one first-class stamp and a SAE to the editorial address. Most valves and other components are not hard to find: we can mention **Billington Export** (01403-784961, £50 minimum order), **Colomor Ltd** (0181-743 0899), **Kenzen** (0121-446 4346), **Wilson Valves** (01484-654650, 420774), **Sound Systems of Suffolk** (01473-721493) and **PM Components** (01474-560521). A good non-commercial supplier of hard-to-find types is Phil Taylor, 3 Silver Lane, Billingshurst, Sussex, RH14 0RP. For hard-to-find transistors we have heard of – but phone numbers may have changed – **AQL Technology** (01252-341711), **The Semiconductor Archives** (0181-691 7908), **Vectis Components Ltd.** (01705-669885) and **Universal Semiconductor Devices Ltd.** (01494- 791289). NB: Several of these firms have minimum order levels of between £10 and £20. For American books on old radio and TV, also all manner of spares, try **Antique Radio Supply**, (phone 00 1-602-820 5411 , fax 00 1-602 820 4643). Their mail order service is first-class and they have a beautiful free colour catalogue (or is it color catalog?). Would you like to recommend other firms? If you think a firm gives good service please tell us all!

SERVICE DATA. The following firms are noted, and don't forget the annual volumes 'TV & Radio Servicing' at the public library.

Mr Bentley, 27 DeVere Gardens, Ilford, Essex, IG1 3EB (0181-554 6631). Thousands of technical manuals and service sheets.

Alton Bowman, 4172 East Avenue, Canadaigua, NY 14424-9564, USA. Schematics for all USA radio, TV, organ, etc. equipment 1920-1970.

Mauritron Technical Services, 47a High Street, Chinnor, Oxon., OX9 4DJ (01844-351694, fax 01844-352554). Photocopies of old service sheets, other technical data.

Savoy Hill Publications, 15 Meddon Street, Bideford, Devon, EX39 2EQ (01237-424280). Large library of service data for photocopying. Fixed price means you may get a lot – or not a lot – for your money.

Technical Information Services, 76 Church Street, Larkhall, Lanarks., ML9 1HF (01698-883344/888343, fax 01698-884825), 'World's largest selection of manuals, 1930s to current date, British and foreign'.

In addition, 405 Aliver **Bernard Mothersill** has offered to photocopy (at cost) items from his own extensive collection of service sheets for 1950s and 60s TV sets.

There are dozens and dozens, mainly Alba, Ekco, Bush, Ferguson/Thorn, GEC, Murphy, Perdio, Pilot, also a few Decca, Defiant, HMV, KB, McMichael, Peto Scott, Philco, Regentone and Ultra. Write with international reply coupon plus unstamped self-addressed envelope to him at 3 Cherrywood Close, Clonsilla, Dublin 15, Eire.

HOW TO WRITE CLASSIFIED ADVERTISEMENTS THAT WORK

1. Start by mentioning the product or service you are selling or want. By doing so, you make it easier for the reader.
2. Always include the price. Research has shown that 52 per cent of people who read classified ads will not respond to ads that fail to mention a price.
3. Keep abbreviations to a minimum. Will the reader know what a NB207 is? If it's a 12-inch table model TV from 1956, say so!
4. Put yourself in the position of the reader. Is all the information included?

NOTE: Thanks to referrals and mentions in the press we are now receiving a fair proportion of advertisements of sets for sale from members of the public. We print their descriptions in good faith but their descriptions may not be as accurate or as well-informed as those made by, say, a keen and knowledgeable enthusiast.

A PLEA! When sending in your advertisement please do put a date on it. We don't normally type in your advertisement on the day received and instead all small ads go into a file ready for typing later. But what happens then if I come across three undated ads all from the same person and one of them says 'This is my new ad, please cancel previous ones'? It **does** happen, so please be kind enough to date your ad.

IS IT VALUE FOR MONEY?

It's unwise to pay too much but it's also unwise to pay too little.

When you pay too much, you lose a little money, that is all. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do.

The common law of business balance prohibits paying a little and getting a lot. It can't be done. If you deal with the lowest bidder, it's well to set aside something for the risk you run. And if you do that, you will have enough to pay for something better. [*Attributed to John Ruskin, 1819-1900.*]

STANDARDS CONVERTER: Available now, the latest version of our professionally designed unit for 405 enthusiasts. A high-quality **MODULATOR** is available now, also a **TEST CARD GENERATOR** for 405 or 625-line use. For more information send SAE and mention which products you are interested in. Dave Grant, Dinosaur Designs, 4 Kemble Drive, BROMLEY, Kent, BR2 8PZ.

STANDARDS CONVERSION SERVICE: I will convert your 625-line tapes to broadcast-standard 405 lines on my digital line-store standards converter. Free of charge to subscribers of **405 Alive**. Please send blank tape (VHS only) for output and return postage. Input tapes can be accepted on Philips 1700, EIAJ, Video2000, Beta or VHS. David Looser, Maristow, Holbrook Road, Harkstead, IPSWICH, Suffolk, IP9 1BP. Phone 01473-328649.

(Publisher's note: David's offer is a most generous one and users may care to send him a free-will donation towards his not insubstantial construction costs as well. There may be a delay in handling conversions if many people take up his offer.)

REPAIRS: vintage TVs, radios and testgear repaired and restored. Personal attention to every job and moderate prices. Estimates without obligation – deal with an enthusiast! (BVWS and BATC member) Please include SAE with all enquiries – thanks. Dave Higginson, 28 High Street, Misterton, Doncaster, Yorks., DN10 4BU. (T). Tel: 01427-890768.

REPAIRS: vintage TV and radio repair service in the South East by engineer with 23 years in the trade. Contact Camber TV & Video Centre, Lydd Road, Camber, Sussex or telephone Peter on 01797-225457. SAE with enquiries please. I also wish to buy early BBC-only TVs. (T).

SALE: Kenzen is having a sale of valves. Most TV types available at £1 each. Send wants list and SAE for a quotation. Kenzen, Unit 9, 16-20 George Street, Balsall Heath, BIRMINGHAM B12 9RG (0121-446 4346). For our latest free lists please send A4 SAE with 36p stamp. We also supply video monitors, computers, test gear, oscilloscopes, etc. at bargain prices for callers. Please telephone first if you wish to pay us a visit. (T)

FOR SALE: VHS pre-recorded video tape *60s TV Series – The Green Hornet.* £7 post-paid. Alan Keeling, 28 Walters Road, Oldbury, Warley, West Midlands, B68 0QA.

FOR SALE: Early post-war home-made set using war surplus R1355 chassis and RF Unit No. 24. Nicely made, highly collectable and yours for just a few pounds if you come and collect. Loads of genuinely old TV valves (thyratrons etc.), a 5ft stack of them in fact! John Elgar-Whinney, Lydd (Kent) 01797-320606 (NS).

FOR DISPOSAL (cheap/give away receivers): RGD 8235IT, Murphy V250C, V430, V510, Ultra 814. Must be cleared fast or will be scrapped. Graham Hankins, 11 Cottesbrooke Road, Acocks Green, Birmingham, B27 6LE. Telephone 0121-707 4337 (NS).

NEW BOOK: Historische Radios. Two volumes, hardbound, with 476 pages and over 750 pictures of German radios. Also lists of manufacturers, speakers, tubes etc. are included. A price guide (in DM) will give support to evaluate German radios. Time period of the presented radios: 1920-1970, the majority before and shortly after the World War II. Price for both books: DM 198,- plus DM 10,- postage costs. Delivery time for Germany and Europe 4-10 days, overseas 3-4 weeks.

You may have a look on our WWW-site where the books are presented and more informations are available: *http://www.rfl.de/fuesslin/*

FOR SALE: I wish to dispose of the circuit diagrams, manuals, etc. which I have collected over the years and which I am having to dispose of for space reasons. The earlier service sheets in particular have much information on post-war 405 line TV sets, etc.

1. *Electrical & Radio Trader* (ERT) magazine:
(a) Service sheets as included with the magazine, monthly until August 1954 and then weekly, un-numbered until No.1001 dated 10-Sep-55;
Monthly sheets from Oct-48 to Aug-54 (3 missing: Nov-50, Apr-51, Sep-51);
Monthly sheets Jan to Dec 52 (all 12), Jan to Dec 53 (8 of 12), Jan to Apr-54.
Service Chart Manuals (containing same monthly sheets) Volumes 8,9,10 & 11 covering Sep-52 to Aug-54).
Weekly sheets 21-Aug-54 to 10-Sep-55 (2 sets, one of which has Apr-23 issue missing).
1001 (17-Sep-55) to 1191 (13 Jun-59) – 2 missing.
1001 (17-Sep-55) to 2294 (25-Jun-81): substantially complete but various sheets missing throughout.

(b) ERT Faultfinder File (i.e. half pages removed from the magazine and filed) as follows:
V Picture Faults No.1 "Test Card C" to No.40 "Low Tube Volts".
Faultfinder File No.1 to No.67
Replacements File No.1 to No.169.

(c) File of over 100 sheets of Technical Articles, etc. removed from ERT magazine.
(d) File of miscellaneous oddments.

Note: all above have been removed from the magazine, i.e. these are not complete magazines.

2. Radio and Television Servicing books (the famous series):
1965/66 and 1966/67 in good condition (2 volumes)
1965/66 and 1967/68 to 1981/82 in excellent condition (16 volumes)

3. *Television* magazine: June-73 to October-90, maybe one or two missing, otherwise complete and in very good condition

I hope that the above may be of interest to someone, perhaps even to start a small business selling photocopies to enthusiasts! I also know of the whereabouts of a 9" Bush TV circa 1954 (the famous brown bakelite model) complete with magnifying attachment. It has been lying unused in the loft of a bungalow belonging to an elderly lady who lives near Wilmslow in Cheshire.

On a different subject, one small piece of 'trivia' which may amuse some 405 Alive members: the very first advertisement on Southern Independent Television (once official broadcasting started – I seem to remember that this was late afternoon but I do not know the date) was a cartoon advertisement for Shipphams' Pastes of Chichester. This single

advert, which was quite long, took up the whole of the first commercial break. Peter Foreman (NS), 30 Grosvenor Close, Ashley Heath, RINGWOOD, Hants., BH24 2HG, Tel. 01425 477354.

FOR SALE: new old-stock electrostatic CRTs. The CV1085 is a 12-inch electrostatic CRT probably made for radar during World War Two. It has a P7 dual phosphor, the first layer being white and the second blue. A report has been received that the CV1085 is an excellent substitute for the Mazda pre-war 12H used in a Murphy television. It has the same 12-way base; the internal aquadag coating needs to be connected to the final anode supply, and some adjustment to the first and second anode supply voltage is required. Whilst moving pictures smear, due to the dual phosphor, a test card is displayed crisply in black and white, with a high level of brilliance. It is possible the CV1085 would make a substitute for the GEC CRT 4603, used in some pre-war GEC television receivers. It is possible that the CV1085 is based on the 4603 or 4602 television tubes. There is no commercial equivalent for the CV1085. For information about availability of the CV1085, contact Gerald Horrox, 65 Greenwood Road, Crowthorne, Berks., RG11 6JS. Phone/fax 01344-776542.

FOR SALE: Pye portable 14" colour TV (1979), marvellous picture, fully working apart from volume control, £20. Alan Keeling 0121-422 7387.

FOR DISPOSAL: large pile of ERT television service sheets from the 1950s and early 1960s. About 3/4" thick. Free in return for postage or collection although a modest donation will not be refused. First come, first served. John Rackham (NS), Cardiff 01222-752075.

FOR SALE: Marconiphone VC53DA television of 1950. Serial no. H14/ 9248. Excellent condition, 10" screen, console model, about 3ft tall, hoping for around £200 for this scarce set (but all offers considered). Since it is in storage, buyers will need to make an appointment to view but it delights everyone who sees it. Eve de Grywin (NS), Flat 2, 60 Westbourne Road, London, N7 8AB (0171-700 4984). Set is in Kensington, West London, close to Olympia.

FOR SALE:
BBC YEARBOOK 1951. Featuring 'The White City Site'. Somewhat frayed but mostly intact d/w. VGC £8. BBC HANDBOOK 1966. VGC £5. BBC HANDBOOK 1969. Colour creeping in! VGC £5. BBC HANDBOOK 1973. 50th Anniversary Issue. VGC £5. BBC Report and Handbook 1986. Penultimate ed. VGC £4. Sportsview GRANDSTAND 1960 annual. Lots of tv sports pictures, one signed by Billy Wright! no d/w. VGC £2. TV BOOK. Ed Judy Fireman. 'The Ultimate TV Book' includes a pictorial history of American tv. Workman Publishing. NY 1977. VGC £5. BROADCASTING AND TELEVISION SINCE 1900. Maurice Gorham 1952. Interesting accounts of early television. no d/w. VGC £5. TELEVISION CHILDREN'S BOUR. Michael Westmore. The Heirloom Library. 1957. Lots of pictures of The Appleyards, Mr Pastry, Sooty, The Bumblies, Billy Bean. VGC £5. BBCTV

CRACKERJACK ANNUAL 1969. Win a pencil. VGC £5. MICROPHONE. ex-BBC. Moving coil.STC style 4017C. Circa 1950. Big, brass and heavy. No stand. VGC £20. All items clean and intact. Postage £1.00 per book. Contact Dicky Howett 01245-441811. fax: 01245-442816

FOR SALE: Archaic telephone and radio equipment test gear. This list is only a sample of the total number of articles that I have for disposal, but will serve to give you an idea of what these things are.
1 off General Radio Signal Generator Type 605B Cambridge, Mass. USA.
1 off Marconi Signal Generator Type TF144G.
1 off 600 ohm Attenuator, Muirhead Type A303-E T in wooden case.
1 off Test Set Type D-30-A, Muirhead in wooden case. Varley-Wheatstone and Murray Bridge, Number249698.
1 off Muirhead Audio Generator 600 and 10k ohm output Balance/unbalance, Type D695A.
1 off Tektronix 'Scope Type 585.
1 off MIP Series 120. -10db to +30db Measuring Set.
1 off Bruel & Kjaer R.L.C Deviation Bridge, giving percentage difference known to unknown.
1 off Airmec Oscillator Type 858 for use with following item.
1 off Airmec Wave Analyzer Type 853.
1 off Ericsson Type 120062 Low-pass Filter Variable 600 ohm.
1 off Solartron True RMS Voltmeter -60dB to +50dB, Type VM1484.
1 off Power Unit 0-15 Volts DC variable, regulated, Atlas Corporation Type 804.
1 off Advance 50MHz Counter/Timer Type TC9BH.
We understand there is also a small PAX for sale. Prices negotiable.
Derrick Beard, 76 Rosemary Road, Kidderminster, Worcestershire, DY10 2SN. Telephone: (01562) 823348.

FOR SALE: Avo Mk 4 valve tester, perfect condition with new handbook. Leslie Hine, 01229-582557, 584458.

FOR SALE: Dual-standard Bush 19" deluxe TV in teak cabinet. 1964 model, good condition, with instructions and service manual. Non-runner according to previous owner, untested, £5. Radio sets: three post-war sets, 3-waveband, four knobs, dial, etc., none tested, probably not working, £5 each. E.S.C. Nowill, 32B Wadham Road, London, SW15 2RL (0181-874 0069).

FOR SALE: Pye service manuals, 21 in all, covering 47 different television models from the late 1950s. T.G. Sutcliffe, The Hermitage, The Street, Ewelme, Oxon., OX10 8HQ. (NS)

FOR SALE: Two industrial TV cameras, a Beulah D800 with three-lens turret and a Pye Super Linx, each with paperwork. They are complete, untested and cheap (£15 each, just enough to cover acquisition costs and my petrol collecting them!). Also available: solid-state cameras and other equipment recovered from the Post Office Confravision system of the 1970s.

Includes two near-broadcast quality Pye Sentinel cameras (on 625 lines, easily converted to 405 or 525), camera cables, control units, lenses, motorised lens turrets, superb motorised zoom lens for document camera, several spare camera heads, KGM Spot Marker device for indicating station ident, P.O. Distribution Amplifiers, all manuals and boxes and boxes of spares. Needs to go to good home, price highly negotiable. Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH (01604-844130).

FOR SALE: Solid-state 625-line broadcast equipment of the 1970s. Two Link PAL coders (3U high, early pattern), Marconi portable Staircase/Pulse & Bar generator, Aston sync pulse generator. Loads of cream video co-ax cable. Marconi automatic measurement equipment for pulse & bar (LED display). Very cheap to good home. John Denby, Huddersfield 01484-603898 (NS).

FOR SALE: Murphy flip-top V310 17" TV purchased in 1954, still working when 405-line transmissions ceased in 1985. Mr R.F. Brundle, Crowborough, Sussex 01892-654577 (NS).

FOR SALE: Sinclair pocket TV, Bush TV, late 1940s wooden console set (doors over screen, speaker below, beautiful condition). Bosch outside broadcast colour broadcast camera ,with lenses, VGC. Offers. Mr Hill, Leeds area, 01943-464786 (NS).

FOR SALE: Bush TV53 14" television c. 1955, VGC; Murphy V659 19" of 1961, VGC; Ferguson 3653 19" dual-standard c. 1964, VGC; Ferguson 3653 19" dual-standard c. 1969; WW2 civilian wireless receiver; Alba transistor radio model 22?, c. 1960, VGC; Marconi transistor radio T96B c. 1961, VGC; Cossor portable reel-to-reel tape recorder (transistor); loads of *Trader* magazines 1950-1955. *Wanted*: HMV 1890 17" TV; Sobell T192 17"; Sobell TPS710 17"; Ferguson 516T; KB Warwick WV20 19"; also Radio Show issues of trade magazines for 1959, 60, 62 and 64. Please telephone Des Griffey 01582-582144 (Luton, Beds.)

FOR SALE: Pye Slimline Trio, model 28 1960s valve 17" dual-standard TV with gramophone and radio (big!), carefully stored. Dennis Kirby, near Exeter 01392-460502 (NS).

FOR SALE: BRC 2000 colour TV (the pioneer!), reasonable condition, standards switch has been by-passed but can be unstrapped. Best offer in £25-£50 region. Geoff Mather 01344-775651 (NS). Set to be collected by arrangement from Reading or from Crowthorne, Berks..

FOR SALE: ITA/IBA YEAR BOOKS: 1963, 67, 68; £5 each. 1970, 72, 73, 74, 75, 76, 78, 79; £3 each. 1980, 81, 82, 83, 84, 85, 86, 87, 88; £2 each.
IBA TECHNICAL REVIEW: numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 17,21; £2 each.
BBC YEAR BOOK: 1945, 47; £5 each. ATV SHOW BOOK 1963; £5.
GIRL TELEVISION AND FILM ANNUAL: 1964, 65; £5 each.

ATV STAR BOOK 1959,62; £5 each.
BFI YEAR BOOK: 1983, 84, 85, 86, 87, 88, 89, 90,91, 92; £1 each.
Postage extra on all books; discount for quantity buyers.

PRACTICAL TELEVISION: 1952 - JULY; 1954 - JUNE; 1957-JAN> MARCH, JULY, SEPT>DEC; 1958 - JAN>AUG; 1959 - APRIL>JUNE; 1960 - JAN, FEB, JULY> DEC; 1961 - JAN>SEPT; 1962 - FEB > NOV; 1963 - MARCH, MAY, JUNE, AUG, OCT, NOV; 1964- MAY, JULY, SEPT> DEC; 1965 - JAN, FEB, MAY, JUNE>DEC; 1966 - JAN, MARCH > NOV; 1967- JAN > JULY, SEPT, OCT, DEC; 1968 - JAN> MARCH, MAY.
PRACTICAL WIRELESS: 1951 - NOV; 1953-APRIL; 1954- SEPT; 1955 - JULY, SEPT, OCT, DEC; 1956 - JAN, FEB, JULY, OCT> DEC; 1957 - JAN, FEB, APRIL, SEPT; 1958- APRIL, AUG; 1959 - SEPT, OCT; 1960 - JAN, FEB, MAY, AUG> DEC; 1961- MAY, JUNE, AUG, SEPT.
Condition of magazine varies (yellowing paper, rusty staples) so no charge if they are collected (although a modest thanks offering will not be refused!). Norman Green, 73 Waldegrave Park, Twickenham, Middx., TW1 4TJ (tel: 0181-892 8151).

HELP WANTED: Does anyone remember an audio sweep generator combined with a large-screen oscilloscope, used for balancing music lines for the BBC? This would have been used possibly in the late 1960s or early 1970s at Post Office switching centres, and enabled rapid setting up of trunk circuits for a level audio response. The equipment may have been made by Wayne-Kerr. Phil Taylor, 3 Silver Lane, Billingshurst, Sussex, RH14 9RP. Phone/fax 01403-786290.

HELP WANTED: I missed the following programmes – can anyone make copies for me (and let me know the cost)? *TV60 Auntie's All-Time Greats* (7pm, 3rd November 1996); *Tomorrow's World* (with Baird disk reconstruction); *Daytime Live from Alexandra Palace* (BBC, with shots of studios); *The Secret Life of the Telephone* (Channel Four). Peter Carlton, 44 Morwenna Park Road, Northam, Bideford, Devon, EX39 1EQ.

HELP WANTED: I missed the BBC interlude films when they were repeated on television – can anyone make copies for me, at my expense of course? John Wiggin 01902-677085 (NS).

HELP WANTED: I have had one phone call to my appeal in issue 28 for information on *Saturday Night at the Mill*, but the caller didn't give his name and I didn't think to ask at the time. I would like to get in touch again, so would he please contact me? Thanks. The programme was a live 'magazine'-type show from the BBC's Pebble Mill studios in Birmingham. This edition broadcast circa 1981 with guests Lena Zavaroni, Derek Nimmo and Bill Wyman. Dave Young, 01707-325347.

DATA WANTED: Circuit diagram for Sinclair flat-screen pocket TV type FTV1. Peter Smith, 248a Kidmore Road, Caversham, Reading, RG4 7NE (0118-947 7573).

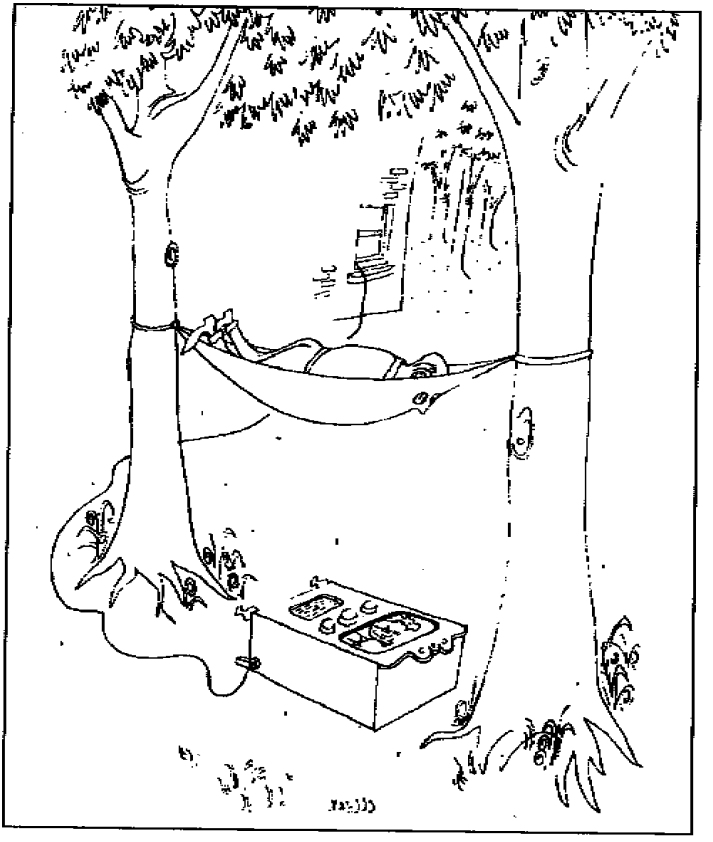
WANTED: 405-line TV, must be table model, up to 17" screen size, working or near-working condition. Bush, Murphy, or Philips preferred but anything reasonable considered. Contact Alan Moore on 0181-648 6657.

WANTED: Scan coils for a KB 14-inch television model JF40, or scan coils from any KB set with a C14BM CRT. Will consider complete set. Charlie Bird, 01757-702153.

WANTED: COMPREHENSIVE COLOUR TV MANUAL covering the ITT CVC5 chassis. I have one of these with a horrible IF fault! Brian Renforth, 174 Helmsley Road, Sandyford, Newcastle, NE2 1RD.

WANTED: Service manual for Dynatron TV19 chassis, circa 1947. Leslie Hine, 01229-582557, 584458.

CAN YOU HELP? Do you remember UNO stencils, used for technical drawing and the like? I used to have some catalogues showing all the range of UNO stencils, pens and so on but I must have binned them years ago. I'm now looking to replace them and will be happy to talk to anyone who would part with one or can lend me one for copying. Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH (01604-844130).



HOW TO CONTACT 405 ALIVE

The chief glory of every people arises from its authors.

WE WANT TO HEAR FROM YOU!

Letters are always welcome and nearly all of them (unless marked *Not For Publication*) get published. Lengthy screeds may be edited for clarity. Electronic mail is also welcome. Address this to *midshires@cix.compulink.co.uk*

Advertising rates. Classified: free. Display ads, using your artwork: £5 per half page, £10 full page. Charges must be pre-paid.

Notes & Queries (for publication in the magazine). Keep them coming... and your answers to them.

Enquiries requiring an individual reply. These are answered when time permits. You **must** include a stamped addressed envelope **and** preferably also your telephone number (in case it is quicker to telephone a reply). Please be patient - thanks.

Articles are also most welcome. We get so many good ones that publication can take sometimes up to a year or so, but don't let that deter you. They can sometimes be held back when we group two or three together when they support a common 'theme'.

Payment. We're a not-for-profit magazine so sadly we cannot pay for material. On the other hand, full-length feature articles do earn the author a place in immortality so that's an incentive. You retain copyright of your article so you are free to offer it – probably in a revised version – to other, mainstream periodicals to earn some money. At least one of our contributors does this very successfully.

But I can't write like the big names do! Don't worry. We can sort out your grammer and speling. It's the facts and your ideas that count.

How to submit material. If at all possible, please TYPE your contributions using a dark, black ribbon. This enables them to be read straight into the word-processor by a document scanner. Magic! Contributions on computer disk are also welcome and your disk will be returned. We can handle most variations of PC disks in 3.5" size but please process your words in some popular word-processing format, ideally as an ASCII. Through the good offices of *Radio Bygones*, we can handle Amstrad PCW and Macintosh disks, but not BBC format. If in doubt please ring first on **01604-844130**. Thanks. You can also fax your letters, ads and articles on **01604-821647**.

BACK NUMBERS.

Copies of all the magazines from issue 29 onwards are available from The Radiophile at the address given on page 95. The cost is £4 per issue, including postage. For older issues, in a few cases Andy Emmerson may be able to loan originals for photo-copying.

FAQ FILES

FAQs are frequently asked questions, so we are keeping two files of FAQs and their answers ready for printing out on request for readers. These files will be updated as new information comes in. These two files are already

quite lengthy and contain material already published, so it would not be fair on established subscribers to reprint them in the magazine. FAQ file 1 runs to 24 pages and covers general points about old TV and how to get old television sets working again. FAQ file 2 is a reprint on all the articles on test card music and ITV station ident themes; it covers 11 pages. FAQ file 1 costs £3.00 and file 2 costs £2.00 (both post paid). These prices cover just the cost of copying and postage plus the horrendous cost of banking your cheque (68 pence!). FAQfile 3 covers suppliers of hard-to-find components and service data; for this one send one first class stamp and a SAE. (Available from 71 Falcutt Way, Northampton, NN2 8PH; cheques payable to Andrew Emmerson.)

WOULD YOU LIKE YOUR OWN COPY OF *405 ALIVE*?

Perhaps you are reading a friend's copy – now you can't wait to receive your own copy four times a year. Send a cheque for £16 (inland and BFPO) or a Eurocheque or sterling banker's draft for £20 (all other territories) **made out to *The Radiophile***, which will pay for a year's subscription (four issues). We regret credit card transactions can no longer be handled. Send money to 'Larkhill', Newport Road, Woodseaves, Stafford, ST20 0NP, not to Northampton.

ENQUIRIES REGARDING SUBSCRIPTIONS.

These must be made by post to: Admin. Office, The Radiophile, "Larkhill", Newport Road, Woodseaves, Stafford, ST20 0NO.
We regret that we can no longer handle these enquiries on the telephone - see page 95.

EXCHANGE PUBLICATIONS

You may wish to contact the following allied interest groups and publications (please send SAE with all enquiries).

BRITISH VINTAGE WIRELESS SOCIETY: Gerald Wells, Vintage Wireless Museum, 23 Rosendale Road, London, SE21 8DS.

BRITISH AMATEUR TELEVISION CLUB: Dave Lawton G0ANO, Grenehurst, Pinewood Road, High Wycombe, Bucks., HP12 4DD.
NARROW BANDWIDTH TV ASSOCIATION: Doug Pitt, 1 Burnwood Drive, Wollaton, Nottingham, NG8 2DJ.
TEST CARD CIRCLE (TV trade test transmissions and test card music): Stuart Montgomery, 2 Henderson Row, Edinburgh, EH3 5DS.
BBC TEST CARD CLUB, Keith Hamer, 7 Epping Close, Derby, DE3 4HR.
SAVERS OF TELEVISION AND RADIO SHOWS (S.T.A.R.S.), 96 Meadvale Road, Ealing, London, W5 1NR.

ANTIQUE RADIO, Mose' Edizioni, Via Bosco 4, 31010 Maser (TV) Italy - Tel. 00 39 423-950385; Fax 00 39 423-529049; e-mail: *mose@tv.shineline.it*

ANTIQUE RADIO CLASSIFIED, P.O. Box 802-A12, Carlise, MA 01741, USA.
IRISH VINTAGE RADIO & SOUND SOCIETY: Henry Moore, 9 Auburn Close, Killiney, Co. Dublin.
RADIO BYGONES (vintage radio technology): Geoff Arnold, 9 Wetherby Close, Broadstone, Dorset, BH18 8JB.
THE RADIOPHILE (vintage radio): Chas. E. Miller, 'Larkhill', Newport Road, Woodseaves, Stafford, ST20 0NP.
TELERADIO NEWS (current radio and TV transmitter news, long-distance reception): Keith Hamer, 7 Epping Close, Derby, DE3 4HR.
TUNE INTO YESTERDAY (Old-Time Radio Show Collectors Association): Membership secretary: John Wolstenholme, 56 Melbourne Avenue, Dronfield Woodhouse, Sheffield, S18 5YW.

VINTAGE LIGHT MUSIC SOCIETY: Stuart Upton, 4 Harvest Bank Road, West Wickham, Kent, BR4 9DJ.
ROBERT FARNON SOCIETY (light music by all composers): David Ades, Stone Gables, Upton Lane, Seavington St. Michael, Ilminster, Somerset, TA19 0PZ.
MEMORY LANE (78rpm-era popular music): Ray Pallett, P.O. Box 1939, Leigh- on-Sea, Essex, SS9 3UH.
IN TUNE INTERNATIONAL (music of the years 1935-1960): Colin Morgan, 12 Caer Gofaint, Groes, Denbigh, Clwyd, LL15 5YT.

GROUP 9.5 (for the 9.5mm cine enthusiast), Ron Price, 4 Higher Mead, Lychpit, Basingstoke, Hants., RG24 8YL.
PROJECTED PICTURE TRUST (cinema history): Harold Brown, 2 Eleanor Gardens, Aylesbury, Bucks., HP21 7LT.
VINTAGE FILM CIRCLE (for collectors and all lovers of old fims): Alex Woolliams, 11 Norton Road, Knowle, Bristol, BS4 2EZ.

GETTING IN TOUCH WITH THE PUBLISHERS - IMPORTANT NEW CHANGES.

Cut out or Copy This Page for Reference.

Following the separation of the Editorial and Administration offices at The Radiophile

Please send all

* Subscriptions for The Radiophile or 405 Alive
* Bookings for visitor tickets or stalls at our various Expositions
* Queries regarding subscription matters
* Requests for service data, etc.
* Auction entries and enquiries
* General letters re. the magazines

To:

Admin Office,
The Radiophile,
"Larkhill",
Newport Road,
Woodseaves,
Stafford, ST20 0NP.

We aim to answer most letters within four working days.

Please note that with the reorganisation all records are now kept in a separate building and that it is no longer possible for enquiries re. subscriptions to be handled over the telephone - please send them by post. These changes have been introduced to enable the editorial office to function more efficiently, and thus expedite the production of the magazines.

Please send *only* the following to The Radiophile Editor at the address given above:

* Contributions and Letters for publication in The Radiophile.

Articles are welcome in typescript and/or on computer disks (most PC word processing systems accepted). Please use double spacing and ensure that printer ribbons are in good condition and give a good even black impression. This will enable us to read the documents on our OCR system for direct processing on the computer. If you wish to send illustrations, please make sure that photographs are clear and of good contrast - for detailed advice please see The Radiophile issue for Summer, 1996 (No. 63). Most line drawings will reproduce well. Photo-copies of circuits, pictures, etc., should be made with the contrast control on the copier set to give a good clean background. We can also accept most computer images (.PCX, .BMP, .IMG, .TIF etc.) and digital camera images (.CAM). Readers' letters may be sent in hand-written form as well as in typescript or on computer disk. They may also be sent by fax to 01785 284696 (at any time of the day).

Please continue to send items mentioned above that are intended for inclusion in 405 Alive to Andy Emmerson (see page 92, this issue).

THE BACK PAGE

405 Alive (ISSN 0969-8884) is an independent, not-for-profit magazine devoted to the study and preservation of old television technology and programming. It has no connection with, and is not subsidised by, any other organisation. Publication is four times a 12-month subscription period but not at set times.

Editorial policy. This magazine acts not only as a forum for research, the republication of archive material and as a monitor of current developments but also as a means for all interested in this field to keep in touch. Readers are encouraged to submit articles, photographs, notes and letters.

We print readers' addresses only in small advertisements or when otherwise asked to. We are always happy to forward letters to contributors if postage is sent. All work in connection with *405 Alive* is carried out on a voluntary unpaid basis – sorry, it's only a hobby! – but writers retain copyright and are encouraged to republish their articles in commercial publications.

Legal niceties. E&OE. Whilst every care is taken in the production of this newsletter, the editor accepts no legal responsibility for the advice, data and opinions expressed. *405 Alive* neither endorses nor is it responsible for the content of advertisements or the activities of those advertisers. No guarantee of accuracy is implied or given for the material herein. Authors are alone responsible for the content of their articles, including factual and legal accuracy. From time to time uncredited illustrations appear in this publication; every effort is made to avoid infringing copyright and the editor trusts that any unintended breach will be notified to him so that due acknowledgement can be made. The contents of the newsletter are covered by copyright and must not be reproduced without permission, although an exception is made for other not-for-profit publications (only) wishing to reprint short extracts or single articles and then only if acknowledgement is given to *405 Alive*.

Produced in
MIDDLE ENGLAND

IMPORTANT POSTAL INFORMATION

If undelivered please return to *The Radiophile*, Larkhill,
Newport Road, Woodseaves, STAFFORD, ST20 0NP, England.