

John Logie Baird's last projects

Douglas Brown and Malcolm Baird*

Baird Television Ltd (BTL) was a large company in the 1930s, owned by the Gaumont British Picture Company and employing several hundred people. After its defeat in 1937 by Marconi-EMI, in the competition for the BBC television camera, BTL continued as a leading manufacturer of quality television receivers. Figure 1 is taken from the 1938/39 Baird Television Receivers brochure.



Figure 1

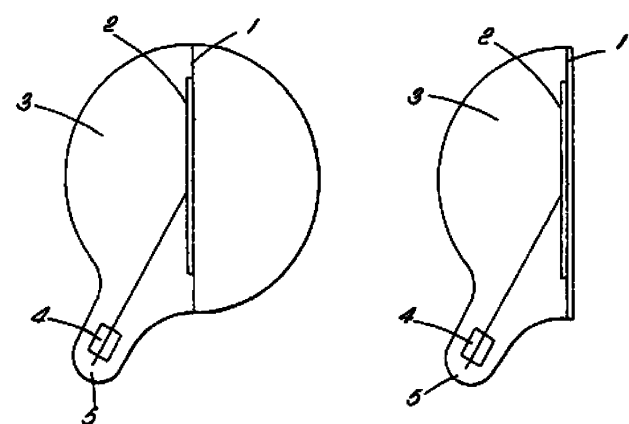


Figure 2

With the outbreak of war and the cessation of television broadcasting, the market for receivers disappeared and BTL went into liquidation. Parts of it transferred to Cinema Television Ltd (Cintel), later to be absorbed by the Rank Organization. Now privately owned and still proud of their roots in Baird, Cintel technology is used worldwide in the making of the major blockbuster films, television dramas, episodics, music videos and adverts seen in today's media.

Between 1933 and 1939, John Logie Baird (JLB) held the nominal position of Managing Director of BTL and by 1939 had accumulated savings of £15,000, a very substantial sum for those days. During the reorganisation JLB drifted apart from the company he created. Undeterred by the change in circumstances in 1939, he decided to continue research at his own personal expense, on colour and stereoscopic television. He moved his family to the safety of Cornwall while he continued to work at his private laboratory next to his house at 3 Crescent Wood Road in Sydenham.

JLB's research was highly successful in the technical sense, and he looked forward to the resumption of television after the end of the war. Early in 1944 he had started talking to financiers about setting up a new company. One of his backers was the film and theatre star Jack Buchanan, whom JLB had known since their school days in Scotland. The new company was called John Logie Baird Limited and its initial focus was to be the manufacture of receivers for the domestic market and for export. The company set up its offices in the west end of London at 4 Upper Grosvenor Street. Some space was available there for receiver development, while JLB's laboratory at Sydenham was still in use, although the adjoining house was unfit for habitation due to air raid damage. Early in 1945 JLB and the family moved to a rented house at Bexhill on Sea, just across the road from the railway station.

The war years took their toll on JLB. He suffered a minor heart attack in 1941 but continued with a heavy workload. By 1945 his old friends remarked that he seemed frail and older than his years. He spent January 1946 in London, suffering from worsening bouts of flu, meeting with fellow directors (J. Donaldson-Hudson, Jack

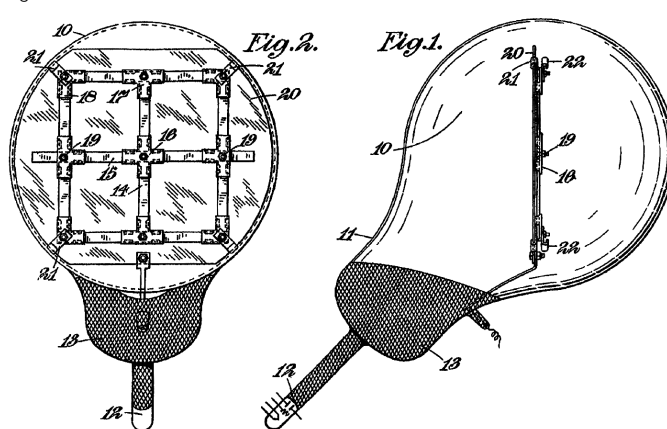


Figure 3

Buchanan, Norman Letts and Kew Edwin Shelley, K.C.) and planning the development of what was for those days an exceptionally large receiver, with a 28-inch screen.

He returned to Bexhill and then on 2 February, he sustained a stroke. This confined him to bed. Despite electricity shortages, his room was kept warm and somehow a supply of fresh fruit (mainly grapes) was found. The year 1946 was not a happy one for the Baird family and none of them had much recollection of JLB's technical work in the last few years of his life.

Despite ailing health JLB's large receiver project was meticulously covered by British Patents:

GB562433 Applied 23 July 1943 accepted 30 June 1944 (figure 2)

Abstract:

"This invention relates to television and has for its object to provide improved apparatus for producing pictures which will permit of an unobstructed view from both sides thus enabling a larger number of people to see them."

GB579482 Applied 28 April 1944 accepted 6 Aug 1946 (figure 3)

Abstract:

"If it is desired to provide a large screen, say for example, of the order of two feet square or more, the flattened end of the tube must be made very thick to avoid breakage under atmospheric pressure when the tube is exhausted, and since the image is viewed through glass, distortion of the image results. For still larger sizes it becomes quite impracticable to provide a flat glass surface which will withstand the atmospheric pressure."

If a spherical bulb is used in the cathode ray tube, and the screen is formed by coating part of the spherical surface, distortion of the image again results. The object of this invention is to provide a construction whereby a large screen

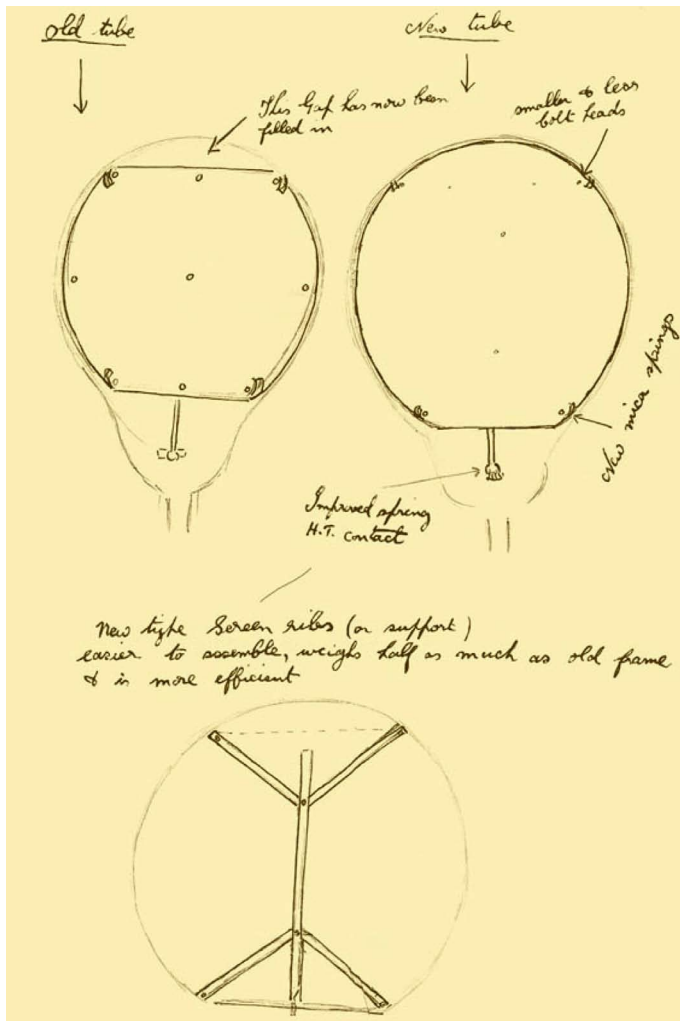


Figure 4
of the type above described can be satisfactorily made."

Just recently, Malcolm was going through old papers and found a hand-written letter to JLB which has helped to fill in the gaps. The letter, dated April 8 1946, is from his glassblower Arthur Johnson. We have transcribed it in full with minor corrections to spelling and syntax and added a few comments as footnotes.

With his letter, Johnson enclosed a sketch (Figure 4) of the large cathode ray tube on which he was working.

63 Southwood Drive,
Tolworth,
Surrey

8/4/46

Dear Mr. Baird,

Glad to hear that you are getting better, you must have been a lot worse than we thought.

I am of the opinion that your absence has been felt by all of us, and I gather more especially by the directors, who seem to be at sixes and sevens over most things, but as you left a fairly clear cut programme there's nothing for you to worry over.

30" Tube

I have another one on the jump, which should be off this week - and it should be an improvement on the last, altogether there are four alterations and improvements (see sketch).

I have had a little trouble with the bulbs, one let me down during working and I found that five of them were not properly annealed. I explained the position to Jobling (Pyrex) they referred me to Hewittic [1] for re-annealing them. I wrote back to them pointing out we were not disposed to ask any more favours of Hewittic, and as we expected these bulbs to be sufficiently annealed to

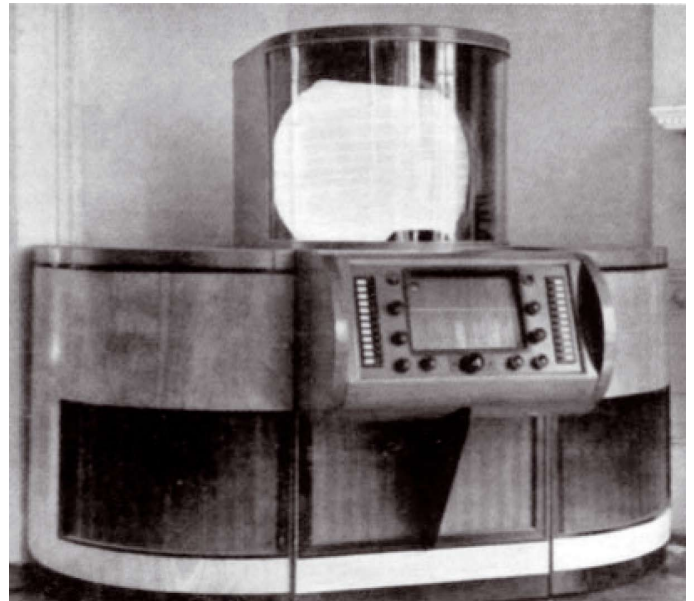


Figure 5

enable us to work on them, would they appeal to Hewittic on our behalf? This they have done and I have heard back from Mr. Haney of Hewittic, that they [will] do the job for us, so that's cleared. I have handled all matters relating to my department myself as we cannot afford to risk upsetting either of these firms.

11" double-viewing tube [2]

This tube I have shelved in lieu of another 11" projection tube and this is under way as an (improved spare) and will be finished before the Mark II power unit is ready.

The Met Vic oil Diff pump is now good enough for assembly and incorporating to Mark III projection unit if required.

I have received the fluorescent powder [3] from Germany and will ascertain as to further supplies. As there is only a small quantity, I am not disposed to use it till I get some light test apparatus and standards to work from. I am handling this myself and am getting a unit made up.

I think this is all for now, hoping you'll be back soon also that the rest of the family are O.K. I expect Mrs. Baird could use a six months holiday (with full pay).

Yours sincerely, A.H. Johnson

We have inserted some annotations in Johnson's letter. These refer to further explanations, which we give below.

In his letter [1] Johnson refers to the Hewittic Company, the main supplier of large glass bulbs used in mercury arc rectifiers for the vacuum tube industry, in which Baird's majestic 28-inch television screen had been fabricated. Johnson certainly had good reason to take the company to task as badly annealed tubes may lead to leakage and a steady loss of vacuum causing a complete failure of the CRT. A stress fracture could ensue after evacuation causing an implosion (like an explosion only the forces act towards the centre of the tube), which would be potentially very hazardous in such a large bulb. The 30-inch glass tube was the centrepiece for the "Grosvenor"

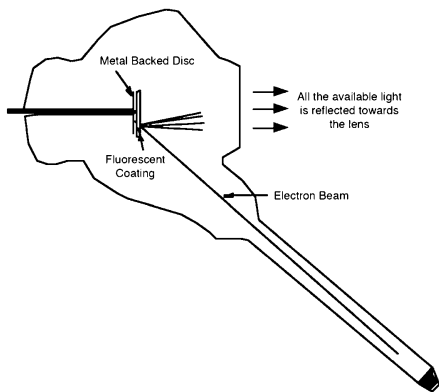


Figure 6

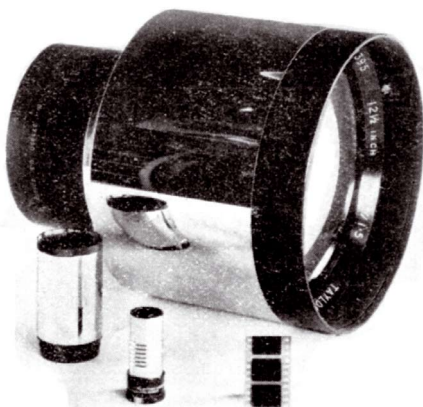


Figure 7

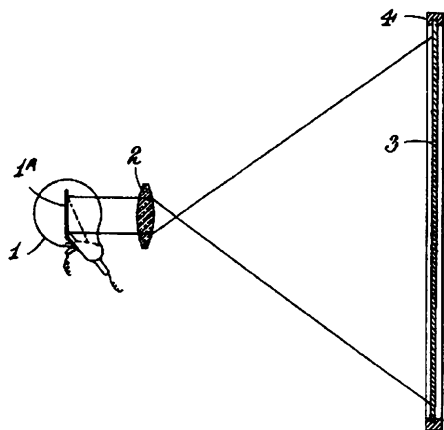


Figure 8

(Figure 5) receiver model placed in the Savoy Hotel to show the BBC's broadcast of the Victory Parade. The location was rather appropriate as the Foyer of the Savoy was mirror paneled, enabling a multiplicity of reflected images. Due to weight and cost (about £1500), only a single Grosvenor model, housing, at that time, the largest direct-view television screen in the world, manufactured by John Logie Baird Ltd. It was last seen in public at the Radiolympia show in 1947.

On the 11-inch double viewing projection tube, [2] the authors initially assumed that Johnson was referring to a copy, he was making, of the projection tube that BTL/Cinema TV had used for the Boon/Danahar boxing match in 1939. The Baird Television projection tube as detailed in Figure 6, produced an intensely bright image from a small front-surface highly reflective internal screen developed by Dr Szegho. The tiny internal 405-line image used a very expensive high magnification, colour corrected lens manufactured by Taylor, Taylor Hobson, (Figure 7) to project television images on a 3 x 3.75 metre screen. This was the tube used by the BTL/Cinema TV engineers for the Boon/Danahar boxing match in 1939.

This confusion was brought about by the knowledge that Szegho had secretly supplied JLB with a number of BTV projection tubes in 1940 for use in his stereoscopic colour television project.

Figure 9

TELEPHONE: MAYFAIR 9880x 7422
 Extn. 248
 Our Reference 21/2/2
 Your Reference



MINISTRY OF AIRCRAFT
 PRODUCTION,
 SIGESO - Room 1037
 STRATTON STREET,
 BERKELEY STREET,
 W.I.

11th January, 1946

John L. Baird, Esq.,
 Television Engineers,
 3, Crescent Wood Road,
 Sydenham, S.E.26.

Dear Sir,

We are in receipt of your letter dated 23rd November, 1945 in which a request is made for a sample of "yellow-white fluorescent powder", for cathode ray screens, information on the FERNSEH Co. of Berlin, and the present address of Drs. Goerz and Moller of that Company.

A search for a sample of the powder has been requested, and when this becomes available you will be informed.

The present address of Drs Goerz and Moller has been given as a Robert Bosch factory at Heidenheim, Controlled by:-

Lt. Col. French,
 W.T.S.F.F. 20,
 H.Q., B.A.O.R.

We hold the following documents which may be of interest to you in connection with the Fernseh Co., Berlin, and which may be perused at this Office at your convenience. We are unfortunately unable to release documents on loan or to make copies.

CAFT Assessment Report G 17A, B.C.
 Eval. Report 208, 302.
 WTSFF Report G 17 B

It has been suggested that you may perhaps wish to interrogate a Prof. Heimann in connection with German television. We are informed that he will be brought to this country towards the end of January. If you are interested, it is suggested that you contact our Mr. H.L.M. Blanchette for further information, (SIGESO., Industrial Liaison, Mayfair 7422 Extn 9).

John B. Score

J. B. SCORE

for Co-ordinating Officer
 SIGESO.

However, the authors can now reveal that JLB designed and patented a simpler method of theatre projection that greatly reduced the cost, enabling an inexpensive lens to be utilised.

GB602341 Applied 10 April 1945 accepted 25 May 1948

Abstract:

"My invention consists in using an uncorrected lens in conjunction with a cathode-ray screen of large area (for example of about 2 feet square), and restricting the amount of magnification of the image so that the imperfections produced in the resulting picture due to the nature of the lens are not of sufficient magnitude to make the picture unacceptable. For example, a 2 feet by 2 feet image may be enlarged (i.e., have each linear dimension increased) from five to ten times. By this device an inexpensive lens without colour correction can be used, without undue loss of definition."

GB602341 was JLB's last issued patent. Figure 8 indicates that the screen is set within the centre of a spherical glass tube and is therefore inadvertently 'double-viewing', based on the 28-inch design only smaller. By using an 11-inch tube (Figure

8) JLB could project a large television image of the Victory Parade on a five-foot screen with a simple lens, by simply restricting the magnification to just over five times. Further evidence is supplied in 'John Logie Baird: A Life', Page 363:

"At the Savoy Hotel the programme would be seen on a 5-foot projection screen."

The fluorescent powder [3] is the "yellow-white fluorescent powder" from Fernseh that JLB had requested as referred to in J B Score's letter (Figure 9) dated 11th January, 1946 from SIGESO, (Ministry of Civil Aviation, Operations and Technical Radio Committee (Watson-Watt Committee): Sub-committee for Investigation of German Electronics and Signals Organisation 1945-1946.)

During Douglas Brown's interview with Szegho in 1990 it was pointed out that the best fluorescent material

for withstanding the high beam velocity was 'biscuit' coloured, giving the images an almost sepia tint.

By early June, it looked as if JLB was making a partial recovery and his diary contains notes on large-screen television at the Savoy Hotel and in cinemas in central London. Sadly, he died in his sleep on June 14, just a few days after the BBC had resumed its television broadcasts and had televised the Victory Parade.

*About the authors:

Douglas Brown is Director of the Science and Technology Forum at the University of Strathclyde. He is the author of a forthcoming television history book, "Images through Space" which will be reviewed here in the near future. Malcolm Baird lives in Canada and is a retired professor of chemical engineering. In 2002 he co-wrote (with Antony Kamm) a biography of his father entitled "John Logie Baird: a life". This book is the basis of a feature film project currently at the development stage.