

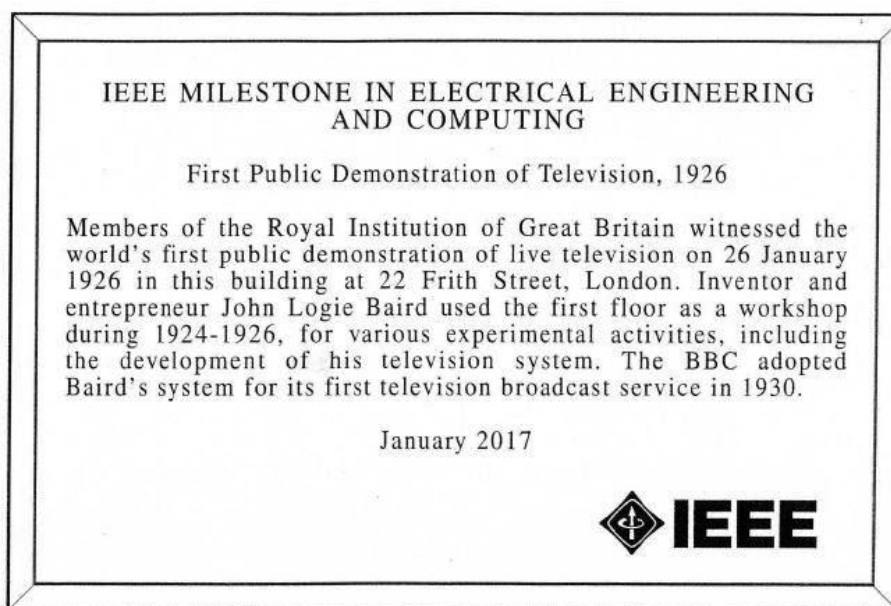
## THE EVOLUTION OF TELEVISION FROM BAIRD TO THE DIGITAL AGE

***Friday 27<sup>th</sup> January 2017***

at the  
**Royal Institution of Great Britain**

**21 Albemarle Street,  
London W1S 4BS**

Preceded by the unveiling of an IEEE History Plaque on the afternoon of Thursday 26<sup>th</sup> January 2017 at 22 Frith Street, Soho, London, W1D 4RF



# Provisional Programme

## Morning

**1030: Registration and refreshments**  
(delegates to take their seats in the main lecture theatre by 1100)

**1100: Welcome remarks to delegates from ‘master of ceremonies’**  
Quick introduction to members of the ‘platform party’

**1110: IEEE President Karen Bartleson speaks briefly**

**1120: IEEE Broadcast Technology President Bill Hayes speaks briefly**

**1125: A few relevant words from other main members of the ‘platform’ party.**

### **1130: Logie Baird’s Achievements in Television, Donald F McLean**

John Logie Baird is seen by the British public as having achieved more in establishing British television than any other individual. In the course of just a few years, from 1926 to 1932, his achievements in ‘first’ demonstrations of television’s possibilities and his own experimental television service confirmed him in the public’s view as the pre-eminent pioneer of television in the UK, making him a legend in his own lifetime. His enthusiastic support for and demonstration of television’s promise accelerated the introduction of television in the UK, yet he would play no part in his company’s competition with Marconi-EMI for the BBC Television Service of 1936.

Sidelined as the primary decision-maker after a takeover of his company by directors of Gaumont-British, from 1933 his primary focus shifted to television projection systems for cinemas. Then, during the war, he showed yet again what an individual with vision could achieve when he developed and demonstrated closed-circuit 600-line colour television, funded out of his own savings. He died in 1946 at the age of 58 still determined to gain a foothold in the industry his earlier work had encouraged.

This talk will take a critical view of the achievements of John Logie Baird, explaining how a poor inventor could achieve such an amazing string of firsts, ahead of any established corporation, commencing with the world’s first demonstration of what he called ‘true’ television in January 1926. The talk will also seek to answer why some considered him at the time to be a charlatan whilst others believed him a genius, all of which polarised professional opinion in the decades since.

### **1210: John Logie Baird, the person, Iain Logie Baird (grandson of John Logie Baird)**

My grandfather has become an iconic figure in the history of television, a technology and medium which has, of course, had immeasurable effects on everyone’s lives. But how did this unlikely character, the son of a Scottish Presbyterian minister, end up being the first person in the world to actually get television to work?

This talk will summarise John Logie Baird’s childhood growing up in Helensburgh, evidencing a powerful fascination with *science fact* accompanied by a strong influence of the *science fiction* of H.G. Wells, moving on to discuss his university training in engineering and life as a student in Glasgow, and his brief ‘conventional’ working life as a young electrical engineer at the Clyde Valley Power Company. How did his chronic ill health affect his decisions? Who were the significant people and relationships in his life?

It will briefly illustrate the origins of John Logie Baird the man; and some of his success and failures with his earlier inventions and businesses, including artificial diamonds, the Baird Undersock, a jam-making business in Trinidad, a soap business in London, and inflatable insoles for shoes. I will then look at his time in Hastings and the ‘eureka’ moment - when he first envisaged a method for ‘seeing by wireless’. I will list some of his earliest experiments there and the collaborations with others; most notably cinema owner Wilfred Day who stepped in as financier. My grandfather’s tenancy at 8 Queens Arcade ended in the short-circuit and explosion that almost killed him.

It was the course of events in Hastings which led up to my grandfather’s move back up to London in early 1925, and the new laboratory in the attic rooms of 22 Frith Street. The talk will conclude with a comment on the significance of the demonstration in 26th January 1926.

**1240: Description of the unveiling ceremony in Frith Street the previous day (26<sup>th</sup> January 2017), and showing of an edited video recording of the event.**

**1300: Closing remarks for the morning session, and start of lunch break, poster and exhibit viewing and socialising.**

**Afternoon**  
**Chair: TPD**

**1430: The UK route to Liquid Crystal TV, Cyril Hilsum** (CBE, FRS, FREng, corporate research advisor, formerly at RSRE Malvern and SERL )

The Cathode Ray Tube had originally been immensely successful for television, but by the 1960s its incompatibility with the rapidly developing silicon chips was becoming apparent. There was also a demand for larger screens, and the large tubes were too heavy for consumer use. As a result, there were a number of attempts to find flat-panel alternatives, particularly in the USA, but all proved futile. The solution, Liquid Crystal TV, came in the 1970s, with first an invention in Switzerland, and then a series of inventions in the UK. This presentation will give the history, illustrating what has been accomplished, and is a tribute to some remarkable science and engineering.

(sequence of last three talks may be altered)

**1500: The revolution in TV broadcasting – from analogue to digital, Nick Wells** (BBC R&D Department, retired, IEEE Consumer Electronics Society Award for Engineering Excellence)

*This synopsis is provisional and depends on material being covered by other speakers*

How the evolution of TV standards has been dominated (and limited) by what it has been possible to broadcast. Starting from black and white interlace signals, a brief description will be given of how colour was added in a compatible way in the NTSC and PAL standards. The evolution of the MAC analogue signal will be mentioned leading on to the early HD-MAC (and MUSE) analogue systems for broadcasting HD.

In the late 1980's, the MPEG committee developed a compression standard for digital television and audio signals that enabled the digital revolution in TV broadcasting. The basis of the compression techniques used will be covered briefly. To accompany this development, the DVB project developed a family of standards for carrying the digital signal on a radio-frequency carrier for satellite, terrestrial and cable systems. These standards have been used widely in multiple countries across the globe and a brief description of the techniques used will be given.

With the advent of affordable HD displays, MPEG and DVB worked on second generation standards to enable cost-effective, digital HD broadcasting. The key enabling technologies in the second generation DVB standards will be described briefly. Throughout the talk I will reflect on some of the factors which have led to similar but competing standards in different parts of the globe. Also, the reasons why some good standards (such as DVB-H and 3D) failed to achieve widespread adoption will be briefly discussed.

**1525: provisional title: A look at what TV will be in the future, Chris Johns** (Chief Engineer – Broadcast Strategy, Sky TV)

A brief overview on the exponential rate of change within the industry in the advent of digital technologies.

What is this allowing us to do and will the consumer see the benefit.

From HD to UHD, Increasing Dynamic ranges and Colour Spaces, and ever increasing resolutions and frame rates – where will we stop.

Audio – Mono, Stereo, Multi Channel and now Objects. Will we find space for all the speakers.

The reality of TV now extends to Virtual Reality and an Augmented Reality world. Tapes are now files that live in a virtual world of clouds.

Will Linear TV exist in a virtual world of IP and OTT? Should we be hesitant or ready to adopt this new way of consuming our entertainment?

**1540: The impact and future of modern TV related digital developments, Bill Hayes**  
(President, IEEE Broadcast Technology Society, Director of Engineering and Technology, Iowa Public Television)

Synopsis awaited

**1600:** Final summing up and end of formal proceedings.

**1600-1630:** Refreshments and socialising period.

Tony Davies, 30<sup>th</sup> December 2016

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## List of Delegates

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To continue as needed