

# The evolution of tv assignment



The Evolution of Television Introduction Television is one of the most valuable contributions of the scientists in the last century. The world's first real television picture was produced by a Scottish inventor called John Logie Baird in 1925. It was nearly a hundred years to the first television appears, television has evolved a lot in appearances and functions. Darwin's theory suggests that the variation among living organisms and the evolution of a species is caused by the theory of natural selection.

As a non-living organism, the development of television is similar to the evolution of living species which obeying the Darwin's theory of Evolution. This theory suggests that there are five characteristics in every biological life including reproductive potential, constancy of numbers, struggle for existence, individual difference and inheritance of traits. This essay is going to discuss the development of television in the past one hundred years and how it demonstrates the evolution theory of Darwin.

The Evolution process of Television A historian Arnold Abramson said that " No one person invented television; most of the inventors were ahead of their time and technology; some were idle dreamers, others were practical men who could turn their ideas into machinery. " Many scientists and engineers contributed to the evolution of television theoretically or practically. The process will present in timeline below. Pre 1900—In 1884, Paul Nipkow invented a rotating- disc technology using in the transmission of images over wires<sup>2</sup>.

Before 1900, the focus of television development is mainly on the theory; most of them cannot turn into machine due to the restriction of technology.

1900— The term “ television” invented by Constantin Perskyi and the first “ television” showed at 1900 Paris Exhibition<sup>2</sup>. 1906— The first working mechanical television system is invented by Boris Rosing by combining the Paul Nipkow’s rotating disks and the cathode ray tube invented by Lee de Forest<sup>4</sup>. 1907— Campbell Swinton and Boris Rosing develop electronic scanning method simultaneously in the same year on their own. This method can transmit and reproduce images y cathode ray tube. 1925— John Logie Baird used a mechanical system based on Paul Nipkow’s rotating disks to transmit moving silhouette images <sup>4</sup> called “ Stooky Bill” <sup>5</sup> (image on the right). 1926— John Logie Baird applied patent for his “ Phonovision” which is using the phonograph disc to record and reproduce the TV images on 78rpm. In the same year, he demonstrated his “ Noctovision” which is using infrared rays and UV rays in light place to see the images in the dark<sup>2</sup>. 1926— Kenjiro Takayanagi successfully reproduced and displayed the image send from distance place wirelessly<sup>2</sup>. 1927— John Logie Baird applied patent for his new system of recording television signal by using magnetic disc<sup>2</sup>. And Philo Farnsworth applied for a patent on his electronic television system called the Image Dissector which can transmit electronic moving picture<sup>4</sup>. 1927— In this year, there were many trials on long distance transmission on wireless or cable method by different scientists like Baird, AT&T’s Bell Labs etc<sup>2</sup>. 1928— The first TV station is set up in New York called Station W2XBS to broadcast mechanical television.

And Vladimir Zworykin received the patent for his all- electronic color television<sup>2</sup>. 1932— A 120-line electronic TV system was demonstrated by RCA<sup>2</sup>. 1935— An England company EMI successfully developed a full set

electronic TV system with resolution of 405-line and 25 frames per second<sup>2</sup>. 1936— The first public high- definition service with 405 lines started in London provided by BBC<sup>2</sup>. 1939— TV was displayed at the New York World's Fair and San Francisco Golden Gate International Exposition<sup>4</sup>. 1940— Peter Goldmark announced the invention of color TV system with resolution of 343-lines<sup>4</sup>.

Between the Second World War— Only limited broadcasting continued in a few cities and for a few hours a week. And all commercial TV products were banned throughout the war years<sup>3</sup>. 1946— Bardeen, Brattain and Shockley successfully invented the transistor at Bell Labs<sup>2</sup>. 1946— The first TV broadcasting using coaxial cable is transmitted from New York to Washington D. C. 1948— Television was brought into rural areas in Pennsylvania by introducing the cable TV<sup>4</sup>. 1951— The FCC approved the CBS's color transmission system as the US color television standard. , 4 1952— The cable television system began in US<sup>2</sup>. 1953— The color television system approved in 1951 was reversed by FCC and approved the RCA/NTSC color system to replace<sup>2</sup>. 1954— The first national color broadcast was launched in US<sup>2</sup>. 1955— Eugene Polley invented the first remote control to control the television with light<sup>2</sup>. 1956—The world's first all-color television station is established in Chicago called WNBQ <sup>2</sup>. 1960— Broadcast of the first split screen in the Nixon-Kennedy debates<sup>4</sup>. 1961— The first telecommunications satellite was launched by NASA to transmit the radio signals<sup>2</sup>. 1968— US space capsule Apollo 7 sent the first live network transmission of television images. 1972— The first transmission of space television signal is received by the color TV<sup>2</sup> 1973— There is regular television broadcasting service in

96 countries<sup>2</sup>. Phylogeny of television Although television is a non-living organism, its evolution process can be also represented as a phylogeny. Variations among television The variations of different parts of television also obey the Darwin's theorem of survival of the fittest. The appearance, resolutions, display methods and broadcasting ways has evolved a lot in the last century.

Size and resolution As the electronic components become smaller and smaller, the thickness of television becomes thinner. The thickness of latest model of LCD TV is already developed to less than 10 mm which has a large difference to the large "black box" in the past. And the size of screen also changes from 2"x3" screen in 1927<sup>3</sup> to 47-inch LCD display nowadays. For resolution, the picture quality improved from using 50-line pictures and transmitted at 18 frames per second<sup>3</sup> to 1080p or 1080i display which means there are 1080 lines will be scanned progressively or interlaced in an image. Display methods

At the early stage of the television development, cathode ray tube is used to display images. Cathode ray tube creates images by collide an electron beam onto a fluorescent screen in a vacuum tube to emit light. As the audiences seek for the clearer and better quality of images, the cathode ray tube display in television is gradually substituted by plasma display or LCD. Nowadays, plasma display and LCD are widely used in the world. Plasma display make use of millions of tiny "bulbs" or "cells" holding some noble gases and minuscule amount of mercury with phosphor painted on the inner wall of the cell between two panels of glass.

By applying voltage across the cell, different colors of visible light can be observed due to the type of phosphors used. And liquid crystal display (LCD) is an optical device similar to cathode ray tube which made up of pixels filled with liquid crystals (LCs) and arrayed in front of light source or reflector to produced color images. Cathode ray tube Liquid Crystal Display(LCD) Plasma display ?? 2000 How Stuff Works ?? 2009 How Stuff Works ?? 2007 Jari Laamanen Broadcasting methods Analogue broadcasting is used in the past few decades, snowing and ghosting sometimes appear.

Nowadays, digital broadcasting is used in many countries which use digital data to transmit television signal instead of continuous waveform used in analogue broadcasting. So the fidelity of signal transmitted or received will be greatly increased. Reproductive potential After the invention of television, it brings a great influence in the lifestyle of the people. Nowadays, television becomes one of the essential electric equipments in a house. As the technology changes with each passing day, better image quality, larger screen and thinner television will be developed in the future.

For those who have passion for new technology products, they will change their television time by time. Also, the LCD and plasma televisions are gradually replaced the cathode ray tube televisions in the future. According to an American research company, the number of television sets produced in the world in 2010 predicts to be over two thousands millions<sup>7</sup>. So this reflects that there is a constant demand of new and better quality of television sets and hence the productive potential of television is high. Constancy of Numbers Nowadays, television becomes one of the major entertainments in our life.

Take US as an example, over 99% of family has at least one television set in their home<sup>8</sup>. The number of television set is fluctuating in small extend throughout this decade as television become a common and important entertainment of the people. And the life-span of television of a television can be as long as 10years so that the change rate of television will not as frequent as other electric equipment like lamp, cooker etc. Thus, the rate of elimination and rate of production is quite near to each other and keep a constant number of televisions. Struggle for existence

Every living organism struggles or existence with other species or even within their species obeying Darwin's theory of survival of the fittest. Although television is a non-living organism, it also has the same character with the biological species which is struggling for existence. In an affluent world nowadays, there are many different types of entertainments like computer, video games etc. Television needs to improve continuously in their appearances, function and the quality of TV programs in order to compete with all these entertainments so that it will not weed out by others.

Television is not only struggling for existence with other entertainments, there is also competition within the species; people are always perusing better quality of images, larger screen and thinner television. So, according to the theory of neutral selection, those televisions with poorer function or lower quality in images such as cathode ray tube television are slowly eliminated. This fact is reflected by the descending trend in number of CRT television produced in this decade. This process is similar to the character of living organism that they are struggling for existence. Individual Differences

There is variation within a species. Individuals are not exactly the same with each other, they will have some traits which can help them to have better chance to survive or reproduce offspring. Television also shows this point. In term of appearance, function and resolution, there are slightly difference among televisions. For example, some televisions can receive digital signal while some are receiving analogue signal to produce images. And the resolution of image also varies from television to television, some of them using 1080i or 1080p to scan the images; however some of them are still using 720p as the scanning method.

There are still many different parts between televisions which have mentions in the former part of " variations among television". Inheritance of Traits Although there are some individual differences among televisions, the aim of television is still the same??? to produce image on to the TV screen so that the underlying principle of television is still the same. And this character is also as same as those living organism which have inheritable traits. Those traits which favor their chance of survive will preserve to their offspring.

For television, no matter how the difference in their appearance, the underlying principle to produce image is still inheritable in TV. In CRT television, plasma television and LCD television, phosphor is used to coat the surface of screen or cells. Then when it is collided by electron beam or voltage is applied across the phosphor, it will produce the three primary colors which are red, green and blue. This principle of produce light to form images is the same in different types of television which is the inheritable trait of TV. Conclusion



Darwin's theory of evolution can apply on any living organisms. However, television also shows the five characters suggested in Darwin's theory of evolution and it has a similar evolution process as a biological species. As all living species, television is still undergoing the evolution process and it will become closer to perfect as the evolution continues.

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