I
THE INTERNATIONAL DEVELOPMENT OF TELEVISION

‘Go down to reception and get rid of a lunatic who’s down there. He says he’s got a machine for seeing by wireless!’

- A Daily News editor on John Logie Baird, 1925\(^1\)

\(^1\) Quoted in P. Joyce, *Suid-Afrika in die 20ste Eeu. Een Honderd Jaar in Oënskou*, p.68.
1. Introduction

Television was one of the most important and powerful media of the twentieth century. It has the ability to speak to ordinary people right in their living rooms, and one message can reach millions of viewers simultaneously. The medium developed over many decades, starting with the desire to transmit pictures and sound over long distances. From the early experiments with electricity and instant communication devices to colour broadcasts, television grasped the imagination of audiences all over the world. Yet South Africa’s government refused to introduce the medium until the mid-1970s, when more than half of the world’s countries had already launched their own services.

As with many new developments, television was not without its initial problems. Technology, quality, affordability and control were only some of the issues that had to be resolved. What were these issues, how were they addressed, and what was the state of television by the time it was introduced in South Africa?

2. The invention of television

The credit for television’s invention cannot be given to one person, nor can it be linked to one particular event. Instead, it came about after centuries of experiments with ways to communicate further, faster and more effectively.

Attempts to communicate over distances can be traced as far back as our ancestors’ use of smoke signals. But it was really the discovery of electric currents and electromagnetism that opened the door for electric, instant and mass communication that culminated in television in the early twentieth century.2

The era of instant communication was set in motion when Samuel Morse developed his telegraph machine in 1843. Now, messages could travel through electric currents at nearly the speed of light. Unlike Morse, however, other inventors weren’t happy to transmit just the dots and dashes of Morse code. They developed devices that could

send symbols to look the same at the receiving end as it did at the sender’s point – in other words, what we today call facsimile. Then, Alexander Graham Bell found a way to transmit the sound of a voice over an electric wire.\(^3\)

After Bell’s contribution, the next step towards developing television was to send not only the still images of facsimile machines, or the sound of a voice – but indeed to transmit moving (or motion) pictures with sound. In the last quarter of the nineteenth century, plans to build such machines were plentiful, and their names varied as much as the methods that they employed: there were Thomas Edison’s *telephonoscope* (1878), Paul Nipkow’s *Elektrisches Teleskop* (1884), as well as the *hear-seeing, audiovision, telephot, distant electric vision, phototelegraphy, farscope* and *telectroscope*. The one thing that most of these names had in common, was the idea that they enabled one to see and hear further than ever before (*tele* means ‘far’). It was only in 1900, at the International Electricity Congress in Paris, that the term *television* was coined. It was the title of Constantin Perskyi’s paper, and in time the term would replace all others.\(^4\)

In 1909, three television systems were built and operated. One of these, by Georges Rignoux and A. Fournier, transformed light into electricity and sent it to a receiver through a wire. With Rignoux and Fournier’s device, it was also possible to synchronise the transmitter and receiver – a hereto seemingly impossible task. This was the basic technology that would later be used in television. As such, Rignoux and Fournier’s machine is considered to be the first ‘real’ television system ever built and operated.\(^5\)

Advancements continued until the First World War broke out in 1914, when interest in the new medium waned. But the war brought great developments in wire and radio communication, which gave television development a new boost. Soon, the pre-war curiosity in television resumed. In eleven different countries, a number of inventors made it their life’s work to design practical television systems – most notably John

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\(^5\) A. Abramson, *The Invention of Television*, in A. Smith (ed.), *Television*, p.17.
Logie Baird in Britain, Édouard Belin in France, Kenjiro Takayanagi in Japan, and Charles Francis Jenkins, Vladimir Zworykin and Philo T. Farnsworth in the United States of America.\(^6\)

Many of these people, like Baird, were independent inventors. However valuable their contributions to television’s development were, it became somewhat obscured by the involvement – and big budgets – of large companies. During the 1920s, major communications companies like the Marconi Wireless Telegraph Company in England, Electric and Musical Ltd (EMI), also from England, and the Radio Corporation of America (RCA) began to show significant interest in television. These companies invested millions of dollars in television research and became embroiled in the race to develop the first and best television system for mass broadcasting.\(^7\)

3. The first regular television services

a. The United Kingdom

In the UK, the race was most heated between two rival companies, Baird Television Ltd and EMI. Baird Television had been delivering an experimental television service for the British Broadcasting Corporation (BBC) in London since 1929. It involved a low-definition system, with 30 lines at 12.5 frames per second.\(^8\) In 1933, EMI suggested to the General Post Office (who was responsible for the licensing and regulation of transmitters) that their company start their own, high-definition, television service. This infuriated Baird Television, who demanded that the General Post Office should have a formal contest to determine which company should run the television service. To settle the issue, the General Post Office appointed a committee, led by Lord Seldon. The Seldon Committee was asked to investigate the possibility of replacing the current low-definition service with that of a higher definition.\(^9\)


\(^7\) A. Abramson, The Invention of Television, in A. Smith (ed.), *Television*, pp.17-29.

\(^8\) This refers to the speed at which television signals are transmitted and received. For a definition of lines and frame frequency, refer to ‘Definition of concepts’, p.20.

In 1935, the Seldon Committee made its recommendations. A high-definition service should indeed be started in London, and both companies would get the opportunity to broadcast, on alternate weeks for a trial period of six months. The premises would be built and operated by the BBC.\(^10\)

On 2 November the world’s first official, regularly scheduled, high-definition television service – namely BBC Television – opened in London (see Figure 1). It immediately became clear that the Marconi-EMI\(^11\) system was superior to Baird’s: whereas the Baird company had adhered to the government’s minimum requirement of 240 lines per picture, Marconi-EMI’s transmitted at 405 lines per picture. After only three of the six trial months, the Marconi-EMI system was chosen above that of the Baird company.\(^12\)

![Figure 1: The BBC television service opening ceremony, 2 November 1936, transmitted over the Marconi-EMI system. Source: http://www.transdiffusion.org/emc/baird/opening_day.php](http://www.transdiffusion.org/emc/baird/opening_day.php)


\(^{11}\) In 1934, the Marconi Wireless Telegraph Company and EMI Ltd merged to form Marconi-EMI Ltd. A. Abramson, The Invention of Television, in A. Smith (ed.), Television, p.28.

At first, the London service was troubled by the fact that television sets were very expensive. At between £35 and £100, few families could afford this new luxury and by 1937, only three thousand sets had been sold. But for those who could afford it, the London television service provided a wide range of entertainment. For two hours a day, audiences could marvel at game shows, music, light comedies and dramas by authors such as Shakespeare and George Bernard Shaw. ‘Outside broadcasts’ brought sport matches, exhibitions and important events into the living room. The first such outside broadcast was the coronation procession of George VI in May 1937, watched by ten- to fifty thousand television viewers. The next year, another event created an even bigger stir: on 30 September 1938, on his arrival from Munich, British Prime Minister Neville Chamberlain delivered his historic ‘Peace in our time’ speech. It was broadcast live, and became the first live television broadcast of a major news event.\(^{13}\)

Despite the high price, more and more Londoners became intrigued by the new medium. By 1939, they were buying five hundred sets a week. At the end of August 1939, an estimated twenty thousand sets were in use.\(^{14}\)

However, television’s rise was soon dealt a major blow. On 1 September 1939, Germany invaded Poland. War was now imminent and the television service was shut down without public notice. One reason was to save resources for the pending war. Another was to prevent the BBC transmitter from becoming a landmark for enemy bombers.\(^{15}\) Television historian Russ J. Graham explains: ‘We were expecting death to rain from the skies, and Ally Pally\(^ {16}\) would have been the target for it. It was the strongest and clearest signal in Europe.’\(^ {17}\)

Although the shutdown was unannounced, it was not unexpected. When the television service was launched, the threat of Nazi Germany was already foreseen, and plans to close the service in case of war were made long before September 1939. And even

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\(^{14}\) A. Abramson, The Invention of Television, in A. Smith (ed.), *Television*, p.30.


\(^{16}\) Alexandra Palace, the BBC’s main transmitting centre until 1956.

though the service shut down, television technology would play a role in the war. Lord Swinton, a government minister during the 1920s, later revealed that the government had given television the go-ahead to foster the development of technology that was essential not only for television, but also for radar. When the war broke out, many television engineers worked as radar operators. The transmitting tower was also used: broadcast signals were sent out to confuse enemy navigation systems.18

b. Germany

Like Britain, Germany started with test television transmissions in 1929. However, these transmissions consisted of pictures without sound. The test broadcasts resulted in the first made-for-television movie, called Morgenstund hat Gold im Mund (1930). It was only in 1934 that programmes with pictures and sound were produced, and on 22 March 1935 the first regular television service opened in Berlin. It was medium-definition, at 180 lines and 25 frames per second.19

When the test transmissions began in 1929, Germany was ruled by the democratic Weimar government. But in 1933 the National Socialist Party, or Nazis, won the election and began their rule over Germany. When the television service was introduced two years later, it was used as a propaganda tool. To ensure strict control over the medium, a number of public television rooms were made available in Berlin. These were the only places where television could be viewed, and programmes were broadcast three nights a week.20

In 1936, the Olympic Games were hosted in Berlin. The German television service broadcast live coverage of the Games in 28 television rooms and in the Olympic Village. Unfortunately, the picture quality was low and unstable, as it could not show great detail and was prone to flickering.21 (See Figure 2.)

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When the Second World War broke out in 1939, the German television service did not go off the air as it did in Britain. Instead, the service adapted to the war situation by broadcasting a series of variety shows for injured soldiers in Berlin. Programmes were also broadcast in Hamburg and in occupied Paris between 1942 and 1944. It was only after the war that the German propaganda television service was closed. From 1948, new television stations were established in the different areas of occupation, and each was based on the television systems of the occupiers’ home countries. In West Germany, the Western Allies wanted to bring an end to the abuse of television for political means. In Eastern Germany, however, television remained a propaganda instrument – this time it was wielded not by the Nazis, but by socialists.\(^22\)

**c. The United States of America**

In 1938, RCA president David Sarnoff decided to start an American television service. It was launched at the opening of the New York World’s Fair on 30 April 1939. Ten days before the opening, Sarnoff opened the RCA exhibit pavilion at the Fair with a televised speech (see Figure 3). His address, ‘The birth of an industry’, was transmitted to the RCA building eight miles away, where members of the press had gathered to watch the telecast. ‘Today we are on the eve of launching a new [Fig 2: A television camera captures the 1936 Olympic Games in Berlin, Germany. Source: http://www.tvhistory.tv/1936%20German%20Olympics%20TV%20Program.htm](http://www.tvhistory.tv/1936%20German%20Olympics%20TV%20Program.htm)

\(^{22}\) J. Bleicher, Germany, *in* H. Newcomb (ed.), *Encyclopedia of Television* 2, p.983.
industry, based on imagination, research and accomplishment,’ Sarnoff announced. He continued:

It is with a feeling of humbleness that I come to this moment of announcing the birth in this country of a new art so important in its implications that it is bound to affect all society. It is an art which shines like a torch of hope in the troubled world. It is a creative force which we must learn to utilize for the benefit of all mankind.\textsuperscript{23}

But it soon became apparent that the picture and programme quality was not as high as that of the London television service. The American public showed little interest: television sets were very expensive and only a few were sold.\textsuperscript{24}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{RCA_President_David_Sarnoff.png}
\caption{RCA President David Sarnoff.}
\textbf{Source:} \url{http://www.davidsarnoff.org/gallery-tv-bw/DS_WF_39-4.html}
\end{figure}

When BBC Television packed away their equipment at the start of the Second World War, the struggling American service carried on. In an attempt to transform the American service and to perk the public’s interest, the Federal Communications Commission (FCC) decided to launch a commercial television service. Furthermore, in July 1940, the National Television Systems Committee (NTSC) was formed with the purpose of standardising transmissions and receiver quality. The NTSC proposed

\begin{itemize}
\item[-] A. Abramson, The Invention of Television, in A. Smith (ed.), \textit{Television}, p.30.
\end{itemize}
that a definition of 525 lines per picture should become the standard for all American transmissions.\textsuperscript{25}

Commercial television programming started on 1 July 1941, but the new service did not fare much better than its predecessor. Programmes were inadequate and technical problems were still rife. Although twenty-two broadcasting licences had been awarded, only seven of these licensees were actually broadcasting.\textsuperscript{26}

Five months after the start of commercial television broadcasts, Japan attacked the USA. The Pearl Harbour bombing led the Americans to enter the Second World War and, like Britain, they put their television service aside.\textsuperscript{27}

\textbf{d. Other countries}

Britain, Germany and the USA were not the only countries to introduce television before the Second World War. Japan made its first experimental television broadcast in 1939, before the Second World War forced a halt to television research.\textsuperscript{28} The USSR had similar developments: although regular television broadcasts began in 1939, they were cut short by the coming of the War.\textsuperscript{29} France also began regular broadcasts in 1939. These were conducted from the Eiffel Tower, to a few sets in Paris. During the German occupation (1942-1944), television programmes were broadcast to entertain soldiers.\textsuperscript{30}

However, it was really only after the Second World War came to an end in 1945 that television became the wide-spread and popular medium that it is today.

\begin{itemize}
\item \textsuperscript{25} A. Abramson, The Invention of Television, \textit{in} A. Smith (ed.), \textit{Television}, p.31.
\item \textsuperscript{26} A. Abramson, The Invention of Television, \textit{in} A. Smith (ed.), \textit{Television}, p.31.
\item \textsuperscript{27} A. Abramson, The Invention of Television, \textit{in} A. Smith (ed.), \textit{Television}, p.31.
\item \textsuperscript{28} J. Fox, Japan, \textit{in} H. Newcomb (ed.), \textit{Encyclopedia of Television} 2, p.1210.
\item \textsuperscript{29} J. A. Dunn, Russia, \textit{in} H. Newcomb (ed.), \textit{Encyclopedia of Television} 3, p.1983.
\end{itemize}
4. Returning to air: television after the Second World War

a. The United Kingdom

The BBC’s television service returned to air on 7 June 1946. The schedule was extended from the pre-war two hours to three hours a day. Even though the BBC at first continued with their 405-line standard, plans were already underway to raise the definition significantly. Other plans included the building of four new transmitters, so that the London service could be expanded to major population centres outside the capital.31

Yet, television did not enjoy great popularity. When the service reopened, it struggled to gain ground against radio, which the BBC’s management still saw as the superior medium. Television sets were also very expensive. When Britain experienced a fuel crisis in 1946-1947, the service was closed for a month.32

Slowly, however, the television service gained status. In 1948, after years of refusal, the BBC management finally allowed the television service to broadcast news, which was bound to be very popular. Initially, the BBC management did not want the television service to broadcast news, because ‘the slightest facial movement on the part of the newsreader would be interpreted as comment’, which would make television news ‘inappropriate’.33 But after the broadcast of Neville Chamberlain’s speech, pressure from BBC staff, as well as from the public, led to the introduction of television news.34

When the new transmitters were installed in 1952, BBC Television finally became a national service.\(^{35}\) Everything was in place for television’s ‘crowning moment’\(^{36}\), which came in 1953.

When King George VI died in February 1952, the BBC immediately started planning for the coronation of Queen Elizabeth II. Initially it was not sure whether television cameras would actually be allowed to film the ceremony, but after negotiations with both the Church and State, the BBC got permission to televise. The medium was given a further boost when the new queen gave her approval.\(^{37}\)

The coronation took place on 2 June 1953. It was a turning point for the struggling television service: on that day, nearly twenty million people watched the ceremony on television in England, and millions more watched in Canada, America, Germany and France. For the first time in the medium’s history, the number of viewers surpassed the number of radio listeners. In the same year, more television sets than radios were manufactured – another first for television. By 1954, 3.2 million British homes had television sets. The service grew enough for the BBC to expand their premises. Britain’s first commercial television service, ITV (Independent Television), opened in 1955. At last, in Britain, television had risen to the top of the mass communication media.\(^{38}\)

**b. The United States of America and the problems of colour television**

During the Second World War, television technology was further developed, because it was very useful for war activities such as radar, guiding missiles and long-range reconnaissance. In America, a television tube was developed that was far more advanced than its predecessors. When interest in television broadcasts resumed after

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the war, this piece of equipment (called the ‘image orthicon’) gave RCA the upper hand in developing worldwide post-war television services.\(^{39}\)

After the war, fifteen television stations went on air in the USA. Gradually, the old equipment was replaced by the new image orthicon. Interest was now far greater than before the war, and in the 1950s television experienced a rapid growth period.\(^{40}\) Broadcasts were still in black-and-white. Soon, however, broadcasters turned their attention to colour transmissions.

On 25 June 1951, colour television was introduced by the Columbia Broadcasting System (CBS) station in New York. It was not the first time that images were transmitted in colour: John Logie Baird had demonstrated the technology as far back as 1928. In 1940, CBS publicly demonstrated colour television, but the Second World War soon interrupted research. When research resumed after the War, a number of colour television systems\(^{41}\) were developed. However, none of these systems were fully compatible with black-and-white television systems, and only those who bought new television sets were able to receive colour broadcasts. Nevertheless, the FCC decided to introduce the CBS system, since *not* doing so might curtail further technological advancements. This would mean that an inferior, non-compatible system would eventually have to be used, and monochrome television sets would later have to be modified at great cost.\(^{42}\)

But the CBS colour broadcasts were rather short-lived. Once again, transmissions were interrupted by war. The Korean War effort demanded many resources that would otherwise have gone into the production of colour television sets. By October 1951, there was only a very limited number of colour sets, and CBS halted their colour broadcasts.\(^{43}\)

In the same year, the National Television System Committee (NTSC) was revived to set the standards for colour television, just as it had for monochrome broadcasts in

\(^{39}\) A. Abramson, The Invention of Television, in A. Smith (ed.), *Television*, pp.31-32.

\(^{40}\) A. Abramson, The Invention of Television, in A. Smith (ed.), *Television*, p.32.

\(^{41}\) For a definition of ‘colour television system’, see ‘Definition of concepts’, p.20.

\(^{42}\) D. F. Donnelly, Color Television, in H. Newcomb (ed.), *Encyclopedia of Television 1*, p.554.

\(^{43}\) D. F. Donnelly, Color Television, in H. Newcomb (ed.), *Encyclopedia of Television 1*, p.554.
1940. In 1953, after two years of investigation, the second NTSC approved a colour system that was compatible with black-and-white television sets. The picture standard was the same as for monochrome sets, namely 525 lines and 60 fields per second.\textsuperscript{44}

Television stations quickly adapted to these new standards. Many upgraded their broadcasting facilities, and by 1957, 106 of the 158 major stations had adopted colour television. It would take some years before colour programmes enticed the public to buy colour television sets – in 1965, a mere 10% of the American population had such sets. But as the 1960s drew to a close, more and more people decided to upgrade to colour.\textsuperscript{45}

5. The worldwide spread of television

Soon after the war, interest in television spread quickly. By 1946, four countries already had television services, namely Britain, America, France and the USSR. During the late 1940s and 1950s, television experienced a great boom. Services were introduced in about ninety countries, including Switzerland (1949), Mexico (1950), Canada (1952), Venezuela (1952), Italy (1954), Australia (1956), Iran (1958) and China (1958).\textsuperscript{46}

In 1970, on the eve of South Africa’s decision to introduce television, 118 countries worldwide had television.\textsuperscript{47}

6. Television in Africa

When television spread throughout the world, many African countries adopted the medium. During the 1950s and 1960s, television services were introduced by colonial powers in, among others, Morocco (1954), Algeria (1956), Nigeria (1956), Angola

\textsuperscript{44} D. F. Donnelly, Color Television, in H. Newcomb (ed.), \textit{Encyclopedia of Television 1}, pp.554-555.


(1962), and Kenya (1962). Media scholar Dietrich Berwanger draws a clear link between these new television services and the period of African decolonisation: ‘it was the time when most of the colonies in Africa were becoming independent, and quite often a television station found its way into the colonial powers’ farewell gifts’\(^{48}\). Media scholar Charles Okigbo is not too convinced that these stations were intended as benevolent ‘gifts’. He argues that Berwanger’s point is only relevant to some African countries. In many others, television was meant as a political tool for mass mobilisation. Unlike the printed media, television could reach educated as well as illiterate audiences. However, despite the fact that television could be transmitted to rural and urban homes, the price of television sets and lack of electricity in many homes meant that only a handful of Africans could enjoy the new medium.\(^{49}\)

When countries with television services became independent, the medium was often used to entrench the new African governments. Between 1960 and the 1980s, African television stations were mainly government-controlled, with very little input from the private sector.\(^{50}\)

By 1969, more than twenty African states had television. This means that more than half of the continent’s countries were still without it. Indeed, some countries had to wait until well after independence and only received television in the 1980s, even the 1990s. Niger introduced the medium in 1980, a few years before Lesotho (1985), Cameroon (1985) and Chad (1987). Tanzania’s first television service, a private station, was launched in 1994. However, its first state controlled television station went on air in 2001.\(^{51}\)

7. The question of control

One issue that stalled the growth of television in many countries was that of control. At first, many assumed that television should be under strict government control. But by 1956, only a few of the ninety countries that had television had non-commercial,

\(^{48}\) D. Berwanger, quoted in C. Okigbo, Africa, in A. Smith (ed.), *Television*, p.359


\(^{50}\) N. K. Karithi, Africa, Sub-Saharan, in H. Newcomb (ed.), *Encyclopedia of Television 4*, pp.45-47.

government-controlled systems. Examples of such countries were the USSR and the Eastern Bloc states. In these countries, television served as an important state information – and propaganda – tool.\(^{52}\)

By 1970, four systems of control could be discerned, including the total government control described above. A second system was where public utility corporations broadcasted under government licence or charter, but otherwise had autonomy. Examples were Britain’s BBC, the New Zealand Broadcasting Corporation (NZBC) and the Canadian Broadcasting Corporation (CBC). This system was also followed by the SABC with regards to radio broadcasting.\(^{53}\)

A third system was where private corporations’ shares were held solely or partially by the government, for example Italy’s RAI (Radio Audizioni Italiane).\(^{54}\)

In the fourth system, private companies ran commercial television services and the government had little or no control over broadcasting. The United States is an example. Here, government influence was limited to the Federal Communications Commission (FCC), which licensed television stations and laid down certain procedures and technical standards for broadcasting.\(^{55}\)

These systems determined how television services were financed.\(^{56}\) Government-controlled services usually operated on government subsidies: no licence fees were charged and no advertisements were broadcast. Where corporations held government charters (like the BBC), the services were funded by television licences and no advertisements were allowed. In systems where government held corporation shares, the television service was financed partially by advertising. The rest of the funding came from licensing. In the fourth system, namely private, commercial services,


\(^{56}\) South Africa was to adopt a combination of these systems of control and financing. See Chapter VI, p.153.
funding came from advertising and sponsorships alone. No license fees were charged.  

8. Conclusion

When South Africa introduced television in 1976, the medium was already more than sixty years old. By this time, inventors, broadcasters and governments had grappled with and resolved the initial problems of television. Firstly, there was the technical problem of transforming television from theories and dreams to a practical means of transmitting pictures and sounds. Then, broadcasting companies competed in the race to bring the first regular, high quality programmes to the public. But their efforts in promoting television as a popular medium were impeded by the high prices of television sets. When black-and-white television had become affordable and attractive, colour television entered the scene, bringing a new set of issues regarding picture quality, affordability and compatibility with existing monochrome sets.

Another important issue was the question of control. Of one thing governments and broadcasters were certain: television is an extremely powerful medium that can reach millions of homes and speak directly to adults, children, the educated and the illiterate. It can be used to educate, inform and entertain. For some governments, having strict state control was imperative. Others were content with entrusting it to private commercial enterprises.

By the time South Africa introduced television, technology had become more advanced, television sets were affordable, colour television had become a practical and adequately regulated system, and several systems of financing and control had developed. This gave South Africa the opportunity to do in-depth research on the medium, and to choose the best and most suitable aspects for the South African television service.