



RTT TECHNOLOGY TOPIC February 2014

100 Years of Radio

Our November 2008 technology topic, '75 Years in Telecoms- the Politicisation of Radio', took us back to 1933 and discussed the role of radio and broadcasting in the run up to the Second World War, the war that was never meant to happen.

http://www.rttonline.com/tt/TT2008_011.pdf

The December topic, One Hundred Years in Telecoms, the Militarisation of Radio, took us back to 1908, the year in which Austria annexed Bosnia and Herzegovina and oil was discovered in South Persia but also the year in which valve technology ushered in a new era of smallness and power efficiency.

http://www.rttonline.com/tt/TT2008_012.pdf

This month we revisit the history of radio technology over 100 years from the outbreak of the First World War to today's use of technology in the political and military domain, reflect on the regulatory implications of the technology changes that have taken place and speculate on the political role of radio 100 years from now.

The topic will be discussed and analysed in more depth and detail at the first Cambridge Wireless Heritage Special Interest Group meeting on Thursday February 6th.

<http://www.cambridgewireless.co.uk/sigs/heritage/>

The sinking of the Titanic in April 1912 highlighted the critical lifesaving role that radio could play in maritime communications. By the outbreak of war in 1914 there was an understanding that radio could be used in naval, land and air warfare both for communications, for detecting enemy activity and signalling from ships in distress.

The Marconi archives in the Bodleian library in Oxford tell the story of radio in the First World War with examples of the radio equipment used to track the position of zeppelins, troop and ship and submarine movements including airborne detection and communication systems and the role of radio in the Battle of Jutland in 1916 and the Somme in 1917.

<http://www.mhs.ox.ac.uk/marconi/exhibition/worldwarone.htm>

The First World War was to be the war to end all future wars. The causes of the Second World War are still a much discussed topic but radio technology is at least partially to blame. The general historical consensus is that the Treaty of Versailles intended as the mechanism for guaranteeing future peace and stability unwittingly created the conditions which allowed Hitler to come to power in Germany with a power base consolidated by the Nuremberg rallies magnified by radio broadcasting and the power and resonance of the Neumann microphone.

Whether Hitler purposefully orchestrated the outbreak of war or whether it happened by accident remains open to interpretation. When Hitler invaded Austria in 1938, 70% of the tanks broke down between the border and Vienna and Hitler had been advised that it would take at least another five years for the German army and navy to be adequately prepared for a European war. He seemed surprised that the allies chose to go to war after the invasion of Poland, the first time his bluff had been called for the best part of ten years.

There is a school of thought that Britain won the war due to a more effective use of radio technology including radar and radio interception (see March 2008 technology topic 'Radio and Radar' http://www.rttonline.com/tt/TT2008_003.pdf) but this is only partially true. The war was won ultimately due to Hitler's daft decision to declare war on America and Russia, proving the

dictum that victory goes to the side that makes the fewest mistakes.

Churchill was also far from immune from making bad decisions particularly as his daily intake of whisky, champagne and brandy began to take its toll. Churchill's best asset was his voice, carefully honed and alcoholically lubricated before each radio broadcast. 70% of the country listened when the Prime Minister spoke but the positive impact on the US audience and overseas English speaking communities was equally important.

The post war surprise that should not have been a surprise was the emergence of Russia as a dominantly assertive global power. Admittedly post 1917 Russia had virtually disappeared from international politics but between 1929 and 1939 the Russian economy had grown at an unprecedented rate to place Russia as second only to the USA in terms of economic strength.

Covert radios had been widely used in the Second World War including sets parachuted in for use by the French resistance. In the post war cold war period transmitters and receivers were buried across Europe to pre equip resistance groups should the Soviets overrun Europe and new generations of spy transceivers were developed using miniaturised valves in parallel with high speed Morse code HF transceivers.

On October 4th, 1957, Russia launched Sputnik 1, the world's first artificial satellite, beginning the space race which would peak 12 years later with the American moon landing.

<http://www.sciencemuseum.org.uk/images/i051/10319126.aspx>

The other post war surprise that should not have been a surprise was the industrial resurgence of Japan. It is easy to forget that China and Japan were at war in 1937 and that Japan quickly established control of much of the coast of China, a precursor to ensuring that the Second World War was truly global in scale. Even fifty years later Japan and China can be uneasy geographic neighbours - living memories of past conflicts can be remarkably resilient.

This brings us to the role of radio today.

In our earlier topic (75 years in Telecoms- the politicisation of radio) we talked about the potentially awkward position of the cellular radio industry as a mechanism for surveillance and control and the related regulatory challenges, in some ways not dissimilar from the need to distance broadcasting from political influence.

The temptation of course is to say that the internet and the World Wide Web have changed everything but this is over simplistic. On balance it is probably good that we have such a wide range of ways of receiving and exchanging information and opinion on the basis that it makes it harder (though not impossibly hard) to replicate the level of influence and control that Hitler and Mussolini and Stalin were able to impose on their national media and entertainment industries eighty years ago.

On the other hand having a wider range of **international** information sources does not make it intrinsically easier to sift truth from fiction or to detect political or corporate bias or control. Paradoxically the best way for the cellular radio industry to maintain political and corporate neutrality might be for the industry to become a more integral part of the democratic political process.

The raw mechanics of voting in a western democracy are in many ways peculiarly old fashioned, arcane and expensive. The cost and logistical complexity of ensuring votes are cast and counted in an orderly fashion is one reason why fair and free elections, elections that are free from intimidation, are hard to organise in developing countries.

Given that biometric identification will be commonplace in next generation user devices it seems reasonable that we should be able to vote by mobile phone. Mobile phones have already proved effective enablers of low cost micro transactions and financial

transfer in low GDP economies. Mobile phones are beginning to be effective as enablers of education including literacy and numeracy and health and social and political awareness.

Voting by phone is an extension of these developing capabilities. The question is would this reduce the number of wars being fought and would it change how wars are fought (and won). The democratic process on its own does not prevent war. Britain considers itself to be a democratic nation but that didn't stop us invading the Falklands and helping to invade Iraq and Afghanistan.

It does however provide a closer coupling between political decision making and informed public opinion which includes opinion influenced by graphic footage of civilian casualties of military conflict photographed on mobile phones.

Mobile phones are unlikely to eradicate international conflict but it is worth considering how the dynamics of conflict could potentially change over time.

Most of the wars in Europe over the past 500 years have been caused by a dominant power asserting influence over alliances of weaker powers. In the 16th century Spain was the dominant power, Bourbon France in the 17th century, Napoleon in the 19th Century.

Protective alliances are often fragile and flawed. The inability of Britain to agree with France on how to respond to 'the German problem' was a key reason why Europe stumbled into a world war that nobody wanted, including Adolph Hitler.

Over the next hundred years the dominant economic powers could include China, India, Indonesia, Brazil, Nigeria, Turkey and South Africa – none of these can be regarded as European except possibly Turkey.

These culturally diverse nations are not democracies with the exception of India (an inefficient ineffective democracy) but all of them have relatively high mobile phone penetration. Let us hope that 100 years from now mobile phones will be providing an effective mechanism for mediating and managing the global political process – that would be real progress.

Ends

A note about the Cambridge Wireless Heritage SIG

The Cambridge Wireless Heritage Special Interest Group has been set up to provide a forum in which past experience can be used to validate and qualify present technology, engineering and market decisions and provide an empirical objective basis for future forecasting.

Read more about the SIG here

<http://www.cambridgewireless.co.uk/sigs/heritage/>

Additional heritage related resources can be found at

<http://www.rttonline.com/wirelessheritage.html>

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http://www.rttonline.com/tt/TT1998_008.pdf

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[RTT](#), the [Jane Zweig Group](#) and [The Mobile World](#) are presently working on a number of research and forecasting projects in the mobile broadband, two way radio, satellite and broadcasting industry.

If you would like more information on this work then please contact geoff@rttonline.com **00 44 208 744 3163**