



## **Digital Social Media is Nothing New**

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## **Abstract**

With the contemporary explosion in popularity of web 2.0, Twitter, Skype, Facebook and other social media providing a great number of people with the ability to instantaneously communicate around the globe it is interesting to note that digital electronic social media is a Victorian invention. In a public demonstration, Marconi famously introduced wireless technology to the citizens of London in 1896. From the very earliest days of “electric” media, amateur radio experimenters were engaged in communities of social interaction, and they relied entirely on digital communication – Morse code is classified under “digital modes” by regulators such as the Australian Communications and Media Authority because of its on-off encoding of the carrier wave. There is much to compare between contemporary social media and amateur radio. After all, the internet shares technological developments with amateur radio, such as “packet radio” – the process of breaking up digital information into pieces, and transmitting then reassembling them at the receiving end. This paper uses a variety of sources to compare the practices of amateur radio with contemporary social media, and investigates the popularity of amateur radio in a world where almost anyone can now easily join the global community through modern social media.

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With the contemporary explosion in popularity of web 2.0, Twitter, Skype, Facebook and other social media providing a great number of people with the ability to instantaneously communicate around the globe it is interesting to note that digital, electronic social media is a Victorian invention. In many discussions on “social media”, which is often conflated with “new media”, radio is often overlooked, even in historical accounts where it is seminal to the development of technologies that are today commonplace. In developing this paper a longitudinal survey of a variety of amateur radio-related publications including periodicals, books, websites and regulations was undertaken. Regular listening to amateur radio broadcasts was informative and participant observation research included on-air participation and attendance at events.

This paper was in part sparked by a comment by one of my students who made the claim that: “We are the technological generation!” Thinking upon this draws one to consider that every generation is at the cutting edge of their technology. It is no more sensible to say that the current generation is the technological generation than it is to make that comment about, say, the generation of the 1950s, with the developments of technology post World War II including domestic labour saving devices and the futuristic imaginings of the space race, culminating in the remarkable achievements of the first artificial satellite in 1957 or the moon landing in 1969. Or of earlier cultures that developed tools which gave them an advantage over others. What of the people of the Victorian period who experienced the rapid industrialisation of factories and mechanisation and the introduction of the railroad, which resulted in changes to timekeeping practices and vastly increased information transmission? The astounding increase in scientific knowledge in the Victorian period also included

experiments in electro-magnetism and in fields such as accurately measuring the speed of light (Jensen 2013).

So while we consider the digital age to be upon us, with our personal micro-computers and smart ‘phones capable of keeping us in communication 24 hours a day, it is usually forgotten that the birth of the “electronic age” as McLuhan (1974) coined it, was in the 19<sup>th</sup> century. Standage (2007) argues that the internet as a communication “superhighway” precedes the electronic age, and that optical telegraphy utilising semaphores and codes is a comparable technology. In discussing our contemporary understanding of digital social media however, radio proves to be a clear model of what we now call “new media” and yet it is a late Victorian invention which was electronic, digital and social.

In the standard media studies narrative we dichotomise the old mass media with “new media”. Old media, such as mass broadcast radio and television, was systematised, uniform and controlled. Production was subaltern to economic concerns, political economy drove hegemonic ideology throughout mass media and the one-way model reflected what David Gauntlett (2011:12) called a “sit back and be told” culture. Figure 1.1 represents mass media as centralised broadcast stations (though they could also be publishers of print materials) and the audience as passive receptors of content.

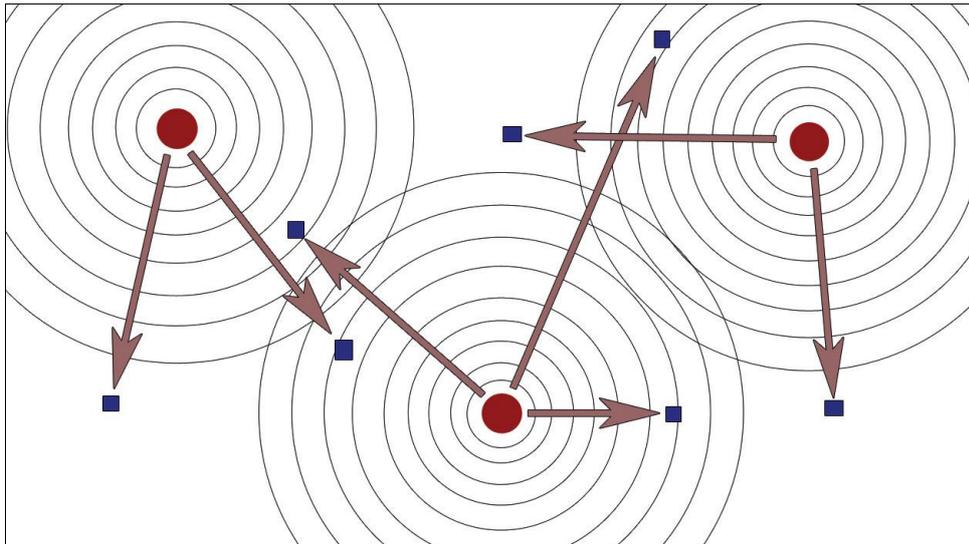


Figure 1.1 The Mass Media Model

In contrast, “new media” is “social media” which allows the user opportunity to participate in the production of content and to share it with others. If you can’t produce content it is commonplace to take it from elsewhere. New media is framed as decentralised, plural and participatory (Gauntlett, 2011). Figure 1.2 shows the social media model as one of decentralised sharing among users. Social media is democratised through allowing people who are not usually professional media producers to create user-generated content. This has been discussed as the rise of the produser (producer – user) (Bruns, 2008).

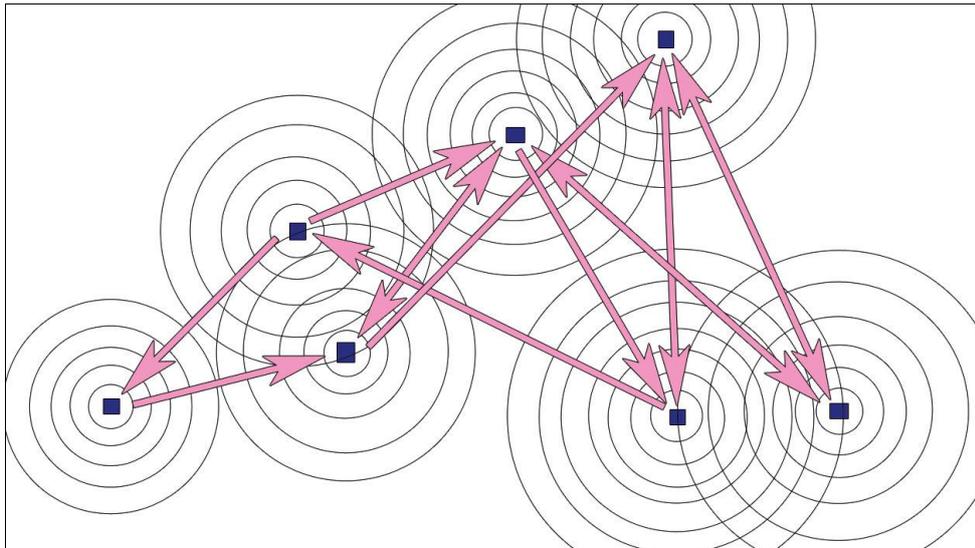


Figure 1.2 The Social Media Model

This transition from mass media to a new media which is a social media is the experience of most media consumers. While that makes this narrative a useful one for media studies, it overlooks the important point that the model presented as social media is not new. Indeed this model existed before mass electronic media and grew into both mass broadcast media and what we now call social media. The model is clearly exemplified in what is now called amateur radio, which has its beginnings in the late 1800s and was also commonly known as experimental radio in the early 20th century (Shawsmith, 1987).

Much of the critical theorising of mass culture has roots in the Frankfurt School. Adorno and Horkheimer saw the rise of mass-broadcast radio as the enemy of free social interaction and localised cultural production through a process of homogenisation and control.

“The step from telephone to radio has clearly distinguished the roles. The former liberally permitted the participant to play the role of subject. The latter democratically makes everyone equally into listeners, in order to expose them in authoritarian fashion to the same programs put out by different stations. No mechanism of reply has been developed, and private transmissions are condemned to

unfreedom. They confine themselves to the apocryphal sphere of ‘amateurs’, who, in any case, are organised from above. Any trace of spontaneity in the audience of the official radio is steered and absorbed into a selection of specialisations by talent-spotters, performance competitions, and sponsored events of every kind”. (Adorno and Horkheimer, 2002:95-6)

Even here, we can see the early acknowledgment that amateur radio operators employ the technology in a markedly different manner to mass broadcast stations. The amateurs mentioned here are presented as both “apocryphal” and “organised from above”. These comments can be understood in the context. “Apocryphal” because amateur radio is liminal to the broader public and is not popularist media, and “organised from above” because by the time of Adorno and Horkheimer’s writing amateur radio operators were regulated by governments and restricted to certain parts of the radio spectrum.

“The amateur service is intended for hobby radio communications and technical experimentation and operates on specified frequency bands. Amateur radio operators can communicate using many transmission modes including Morse code, telephony and data.

Anyone can listen to the amateur bands using a receiver. To transmit, you need to have the appropriate operator qualifications and a licence from the Australian Communications and Media Authority (the ACMA) for your transmitter”. (ACMA, 2014a)

Once licenced an amateur operator is assigned a unique call sign which identifies them throughout the world. Anyone can obtain an amateur radio licence upon passing the necessary exams and paying any applicable fees; there are no age requirements (ACMA, 2014b).

Many are responsible for the developments that lead to wireless, or radio as it was later called. Most famous among these early experimenters was an amateur radio operator, Guglielmo Marconi, who demonstrated wireless technology to astonished audiences in Britain in 1896 (Weightman, 2003). In this early period the radio waves were generated by high frequency spark transmitters and there was no way to make the broadcast carry information other than to encode it with a binary signal by using bursts of radio frequency; either on or off. Drawing from the pre-existing technology of wired telegraphy, Morse code was employed. To this day, Morse code is often referred to as “C.W.” because it uses only a carrier wave with no modulation of the wave to produce intelligible messages. Therefore, Morse code is classified as a digital mode of transmission by regulating bodies such as the Australian Communications and Media Authority (Bertrand and Wait, 2008; Australian Government, 2014). Australian regulations are in accord with international bodies such as the American Radio Relay League (ARRL), the International Telecommunication Union (ITU) and the International Amateur Radio Union (IARU). Being a digital mode, the use of Morse code in amateur radio from 1896 legitimates the claim that this is a user-generated social medium which is electronic, digital and over 100 years old.

In the earliest days of radio the primary focus of the medium was to enhance the safety of ships at sea and it is upon this service that Marconi made his substantial fortune. Though cruise passenger ships were fitted out with radio transceivers as a safety measure, they were also extensively used for social purposes, particularly in the early years when the novelty of wireless was still fresh. For a fee, well-heeled passengers travelling abroad would be able to send messages from the ports they departed from and to those friends and family waiting at their port of arrival (Harte, 2002).

In these early days prior to regulation many amateur radio experimenters were seen as “ham-fisted” amateur operators (hams) and troublesome pranksters by interfering with the official

ship-to-shore wireless transmissions. Pranksters not only drowned out the signals from the ships but also might send fraudulent messages to officials, including phoney distress signals. With the maturing of the medium came laws and regulations and amateur radio operators forming into groups and bodies which provided a civil code of practice and some degree of self-regulation. This, along with amateur radio's successful responses in emergency situations, lead to a respected reputation as being civic minded while enhancing international and cross-cultural friendship (Lippmann, 2010).

To compare these early days of radio to now, one only need observe that we are indeed in a youthful stage of contemporary social media. One of the criticisms levelled at contemporary social media is that far from being a vehicle for intellectual and cultural growth it is used merely as a means of communicating within groups of likeminded individuals who compete with each other to share amusements usually centred on pranks, lascivious content and low culture (Bauerlein, 2009). There were also claims that social media inflamed the 2011 riots in the United Kingdom (Baker, 2011; Baker, 2012). The debates about regulating the internet surfaced again recently with Tim Berners-Lee calling for more discussion about government intervention in a speech he made 25 years after he first proposed what was to become the World Wide Web (Kiss, 2014). In Australia there have been renewed and recent concerns about government censorship of the internet (Hutchinson, 2014).

Technically, development of radio theory was a foundation for much of our contemporary electronics including mobile 'phones, microwave ovens, X-ray and magnetic resonance imaging and more broadly most electronics in our lives.

As further examples of the lineage of social media technology we can turn to developments in teletype which lead to radio teletype (RTTY) and the clear links between "packet radio" and modern computer mediated communication. Originally teletype was a mid-1800s wired

system which connected two electromechanical teletype machines. These were able to send digitally coded messages which were outputted as punched paper tape (tickertape). With the advent of wireless came the development of radio teletype, again using two machines whose output was punched tape, but using radio frequency transmissions to connect them instead of hardwiring. With the rise of microcomputers these teletype machines were replaced with personal computers which displayed the results on screen. Radio teletype is still used in amateur radio and was a clear forerunner of modern systems such as email and texting. An amateur operator can type a message on screen and send it via wireless to another. Protocols were further developed with “packet radio”, in which any digitally encoded information may be broken into pieces, sent over a medium and reassembled at the other end. These technologies were all facilitated by developments by amateur radio operators such as Paul Baran.

“Paul Baran, W3KAS, died from complications of lung cancer, according to the *ARRL Letter*. Baran was one of the fathers of the internet and of packet radio. He came up with the idea of packet switching, in which data to be transmitted is broken up into small packages, sent over sometimes varying routes and reassembled at its destination”. (*CQ*, June 2011:2)

Amateur radio (colloquially called “ham radio”) is not simply voice or Morse code but can include digital content, still images, video (amateur television), satellite systems, terrestrial repeaters and hybrid systems employing the internet (WIA, 2014a).

In the period prior to the popular rise of the internet and web 2.0, amateur radio operators had already developed a world wide web of social media. Amateur radio as a social media operates in many ways; the social aspects extend to the formation of local, national and international clubs and societies. Indeed Australia has the oldest amateur radio society in the

world in the Wireless Institute of Australia, which was founded in 1910 to represent the interests of amateur wireless experimenters at national and international levels of government (WIA, 2014b), while the American Radio Relay League celebrates 100 years in 2014 (WIA, 2014c). On air, amateur radio operators participate in convened meetings which are called “nets”. These are regular timeslots where amateur operators meet on agreed frequencies. For example the Australia, New Zealand and Africa (ANZA) net is held daily around 14.18 MHz from 0515 universal time (ANZA, 2014). Many operators from the northern hemisphere use this net to make contacts in the Southern Pacific.

International contacts are a goal of most amateur operators and known frequencies and times assist in making these. Morse code even assisted in breaking down language barriers in the early days and in some instances today. There is much to compare between contemporary social media such as web 2.0 and amateur radio. In the same way that teenagers using mobile phones to text message or tweet, use codes and acronyms such as “BRB” or “LOL” for efficiency, Morse code also includes several sub-codes, an example being “Q Codes”. It was to save the telegraphist from keying commonly used words and phrases that early radio telegraphy codes developed (Weightman, 2003; Harte, 2002).

Some examples of common Q Codes: QRP means transmitting on low power; QTH is location transmitted from; QRX means “I will be back” (Bertrand and Wait 2008:90; ACMA, 2014c; DeMaw, 1971:594). The 1971 ARRL Radio Amateur’s Handbook advises against overuse of these abbreviations when using the spoken word.

“In telegraphy words must be spelled out letter by letter. It is therefore but natural that abbreviations and shortcuts have come into use. In voice work, however, abbreviations are not necessary, and have less importance in our operating procedure.

The letter ‘K’ is used in telegraphic practice so that the operator will not have to pound out the separate letters ‘go ahead’. The voice operator will say ‘go ahead’ or ‘over’, or ‘come in please’.

One laughs on C.W. by sending HI. On phone, laugh when one is called for.”  
(DeMaw, 1971:596)

Despite this one can still hear some amateurs speaking the words “Hi Hi” as an ironic acknowledgment of a humorous remark, in much the same way that one might hear someone saying “lol” to indicate wry acceptance of humour. Interestingly, in both realms the codes have found their way back into other more usual communication such as spoken or written words. For example, amateur radio magazines are peppered with codes, and amateurs will speak the codes both on air and in face-to-face communication. Amateurs will write “73” (a kind regard that concludes a conversation) at the end of an article or letter just as readily as they say it on air at the end of a conversation. An outsider to amateur radio may expect that when amateurs are using radio-telephony (spoken word) communication, one could simply say “best wishes”, but it is more common to hear amateurs speak the code “seventy-three”. While this may aid communication with those amateurs whose English is not strong it is used more as a form of phatic communication, as a marker of belonging to the group. (Interestingly “73” forms a palindrome in Morse code as it is rendered as `__ ... __`). It is so widely used as an end to a conversation that it became adopted as the coded tone number to tell the computer to switch off an IRLP link (linking radio repeaters through the internet) after the communication is completed (IRLP, 2014).

The use of these codes reinforces group identity as the codes mean very little to anyone outside the international community of amateurs. In comparison, a demonstration of the relative popularity of texting and tweeting in the general society is that the codes used have made their way into the mainstream, with “OMG”, “LOL” “WTF?” and “ROFL” being seen on T-shirts, businesses and in television programs and commercials.

Throughout the past 100 years amateur radio has maintained a code of conduct that includes etiquette in dealing with people from all races and cultural belief systems (DeMaw, 1971). Just as the early internet was non-commercial and a shared space, amateur radio has remained non-commercial and amateurs freely share ideas and assistance both on air and through a variety of print, and now online, media.

Prior to mass broadcast media amateurs transmitted on a wider range of frequencies and were listened to by the general public. Their broadcasts could have included a range of entertainment including music and poetry. Some even became celebrities (Shawsmith, 1987). In this way, these early amateur experimental licence holders were the bloggers of their day.



Figure 1.3 Some early amateur experimental licence holders prior to commercial radio (Shawsmith, 1987:64)

With the rise of commercial interests amateur band-plans were drawn up, limiting amateurs to set frequencies on the spectrum and restricting amateur radio to a strictly non-commercial nature. These restrictions remain current today and the broadcasting of any entertainment programs which might compete with commercial radio licence holders is prohibited under

amateur licencing (Australian Government, 2014; Bertrand and Wait, 2008). In this way the commercial radio licence interests are protected and the value of those licences maintained.

As mass-broadcast radio evolved the government introduced these B Class licences, which were issued to stations that would raise revenue through advertising. Many of these early commercial stations were built by amateur radio operators who were attracted to the commercial opportunities afforded by this exciting new medium. An example is Queensland's oldest commercial radio licence, 4GR, a hits-and-memories style station broadcasting from Toowoomba on 864 KHz on the medium frequency band. 4GR was initially set up by a local amateur operator, Ted Gold, and his brother. The surname gave the station its name "Gold Radio" and hence the call sign 4GR (Shawsmith, 1987). Many scholars, such as Griffen-Foley (2009), have written extensively about commercial radio and on the social aspects of popular broadcast radio. It could be argued that the comfort, companionship and public sphere spaces provided by mass-market radio forms something that could be called social media, but that is beyond the scope of this paper.

In the past amateur radio operators had a privileged insight into esoteric worlds by being able to communicate with astronauts on space stations, or scientists located in remote areas such as the Antarctic. Many of these images and insights are now available to a great number of people through the internet, which has democratised technology to the greater population. The major differences between amateur radio and contemporary social media is that an amateur radio operator legally has to be licenced and is responsible for maintaining their own infrastructure, whereas the web 2.0 user purchases a product or uses software that is fixed – and so much of the regulation takes place within the structure of the technology. This independence is part of the do-it-yourself, maker culture of amateur radio and is an attraction to many.

“Ham is a boon for safety as well as a fun pastime: When normal communications methods fail and cellphone towers are jammed, ham radios will still work and can help out in disaster situations, because they don’t require towers to relay the signal.”

(Macaluso, 2011)

Where the amateur radio operator may maintain a broadcast station capable of communicating around the world, the contemporary social media user has the infrastructure provided by a network of cellular mobile phone towers spread across the country and linked through international phone systems. Yet the internet has not killed amateur radio, as shown by the record increase in licence numbers in the US, where amateur radio is “booming” and the number of licences is at an “all-time high” with “more than 700,000 radio amateurs in the US”. These figures show dramatic growth with numbers up from 285,000 in 1971 (ARRL, 2011). The American Radio Relay League’s Maria Somma said they administer approximately 150 licence exam sessions each week, which is three times the number from the mid-1980s. “Somma said these high numbers mean that hams are upgrading and renewing in larger numbers and staying interested in the hobby” (ARRL, 2011).

“The newest trend in American communication isn't another smartphone from Apple or Google but one of the elder statesmen of communication: Ham radio licenses are at an all-time high, with over 700,000 licenses in the United States, according to the Federal Communications Commission.

Ham radio first took the nation by storm nearly a hundred years ago. Last month the FCC logged 700,314 licenses, with nearly 40,000 new ones in the last five years. Compare that with 2005 when only 662,600 people hammed it up and you'll see why the American Radio Relay League – the authority on all things ham – is calling it a ‘golden age’.”(Macaluso, 2011)

Rather than replacing amateur radio, the internet may actually be facilitating interest in amateur radio, and new methods such as Internet Radio Linking Projects (IRLP) provide further ways for amateurs to make friends around the globe. Amateur radio thus continues to provide a wide range of social and interactive experiences and this medium's significance as a social media platform is noteworthy in historical and contemporary studies of social media; after all, it has existed for over 100 years.

### **Biography**

Andrew Mason teaches Communication and Media Studies and Public Relations at the University of Southern Queensland. He has industry experience in media, public relations and marketing. His research interests revolve around the use of media in societal meaning-making practices.

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