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Mobile Telephony: Realising the Dream of Ideal Communication?

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1. Introduction

Every existing communication technology was once new and full of promise. Upon their introduction, numerous producers and consumers were euphoric about the potential for immediate application and had fantastic visions of future use. Some of them even cherished the notion that all previous media would be rendered obsolete. Wireless telegraphy was seen as "the means to instantaneous free communication" (Flichy, 1995: 109); telephony seemed to promise banishment of distance, isolation and prejudice (Briggs, 1977: 45); radio would pave the way for contact with the dead (Sconce, 2000: 59-61) and television would transform its viewers into eyewitnesses of everything that went on in the world (Elsner et al., 1994: 110).

Most of these expectations never really came to fruition, almost every medium has developed in a different way from what was foreseen, and no medium so far has completely replaced all other media. Nevertheless, the process of praise for unprecedented opportunities remains conspicuous throughout media history. Today, this phase of media hype can unmistakably be recognised in the way we think and talk about mobile telephony, one of the most recent and widely used communication media we have come to know.

This observation of ever-repeating appraisal gives rise to the assumption that there is a prevalent idea of which role communication media should ideally play in our lives, an idea that not only influences the design process, development and actual social use of communication technology, but is also reshaped and reinforced by these steps. As John Durham Peters notes in *Speaking into the Air*: "Communication is a registry of modern longings. The term evokes a utopia where nothing is misunderstood, hearts are open and expression is uninhibited. ... Each medium ... was an attempt to cover a human lack, to fill the gap between ourselves and the gods" (Peters, 1999: 2, 219). It seems that, each time that mankind realises that no medium has yet fulfilled the utopian idea of ideal communication, it is urged to improve the technology it has used up to that point. Thus, media evolution can be viewed as the continuing search for an ideal medium, which in the end has to comply with all the demands that the idea of ideal communication imposes on its characteristics.

This provocative viewpoint needs two annotations. First, the concept of "ideal" is of course problematic, in the sense that its interpretation is an exceedingly personal matter. Throughout this chapter, "ideal communication" will be referred to, in line with Peters (1999) and Katz & Aakhus (2002), as perpetual contact, the fulfilment of "sharing one's mind with another"; in other words, as ubiquitous and pure communication without misunderstanding. Second, dystopian visions are as much part and parcel of the reception of media as utopian ones. To say that we expect nothing but

good from new media technology would be very naive, considering everyone can think of examples in which technology was the cause of chaos, disaster or havoc. However, this chapter will focus mainly on the positive expectations that continue to exist, *in spite of* the fact that they are always rebutted by actual media experience.

Suggesting that all media so far have been intermediate versions of one final and ideal medium could imply there is a grand direction that media technology heads towards, independent of social, cultural, political, economic or other factors that exert influence on the actual process of technology design, development and use. Because such a straightforward approach would deny the unpredictable and erratic ways in which media evolve, Section 2 tries to establish a more elaborate model of the relation between technology and society. In Section 3 the extent to which "old" communication media (the telegraph, telephone, radio and television) have realised properties of the concept of ideal communication is discussed. This in turn serves as a background to Section 4 to determine how mobile telephony relates to media evolution, and if it really is the best addition to our media spectrum yet. This chapter concludes in Section 5 with the notion that all media have evolved and found their place in society in different and unpredictable ways, but did so with the same drive of trying to realise ideal, angelic communication.

2. Technology and Society

In his study of how telephony became integrated into the lives of Americans in the first decades of the twentieth century, Claude Fischer (1992) argues that there are three possible theoretical models to describe the relation between technology and society. First he discusses the method of *impact analysis*, which can best be understood as a "billiard ball model". Here, technology enters society from the outside, has a certain impact on certain elements in that society, which in turn have an effect on other elements, and so forth until the force of the initial impact has ebbed. Fischer dismisses this model for being too deterministic, and for not taking into account specific culturally determined uses of new technology. The "softer" version of this model, the so-called *imprint-impact* model, tries to overcome this criticism by explaining the impact as a process in which "[the] essence of technology transfers itself to its users" — the sudden ring of a telephone for instance, would cause feelings of fear and anxiety in its users. Still, Fischer finds this model too deterministic, and argues that proof for the existence of such a transfer of "essence" is, at the very least, speculative (Fischer, 1992: 8-11).

The second model is that of *symptomatic approaches*, which sees technology not as a force that enters society from the outside, but rather as an expression of processes (understood as the Hegelian notion of *Geist*) within that society. Again, according to Fischer, this approach should be dismissed because it is very difficult to determine exactly what these underlying processes consist of, and one might be wrongly persuaded to extrapolate a "grand direction" from what could merely be short term technological expressions. Ironically, Fischer illustrates this latter problem by referring to the video game and computer industry, for which a bright future was predicted in the mid-1980s, though, at the time Fischer wrote his book, this was never realised (ibid.: 12-16).

The third model he describes is *social constructivism*, which sees the ultimate application of certain technologies within society as the result of conflicts and negotiations between those parties that have an interest in the development of those technologies. Fischer argues that using this social

constructivism model, one is best equipped to take into account the various ways in which users of technology have actually incorporated it into their lives. This method would also recognise how political, social, cultural and economic factors play a role in establishing the environment in which those conflicts and negotiations take place (ibid.: 16).

Interestingly, applying this third model can, just as with the second model, lead to unfolding underlying processes within society that influence the development of technology. In his essay "New Technologies and Domestic Consumption", Eric Hirsch (1998) uses a social constructivist method to conclude that during the past 200 years, the relation between socio-cultural innovations (such as the advent of the nuclear family) on the one hand, and technological innovations (such as radio or television) on the other, has strengthened (Hirsch, 1998: 159). Technological development would therefore primarily exist to maintain that relation, keeping consumers and producers of technology mutually dependant on each other and legitimising each another's existence.

Peters is clear in his philosophical judgement of the role media technology has in our social lives. He names distance and death as the two largest obstacles in our eternal quest for love, thereby constantly raising desire, and argues that we have always tried to find ways of overcoming those obstacles: "Eros seeks to span the miles, reach into the grave, and bridge all the chasms. It is the principle that seeks to transcend the limitations of our normal modes of contact with each other in word and in the flesh. New media, by smashing old barriers to intercourse, often enlarge Eros's empire and distort its traditional shape, and hence they are often understood as sexy or perverse or both" (Peters, 1999: 137). Drawing on Augustine's theories of the sign, Peters describes the ultimate goal of this human longing as the ability to communicate like angels, and states that these angels "haunt modern media, with their common ability to spirit voice, image, and word across vast distances without death or decay" (ibid.: 75).

Peters's observation, combined with Hirsch's use of the social constructivist method, gives rise to the idea that Fischer's symptomatic approaches model does not have to be entirely dismissed for being too problematic. Fischer's unfortunate example of the danger of extrapolating a grand direction even supports this idea. It is plausible to combine both social constructivism and symptomatic approaches, to come to a *critical symptomatic* theory of technology and society. Such a theory would take into account the social, cultural, political and economic factors that determine the actual individual use of technology on the one hand, but on the other hand also recognise the processes that have always been present during technological development, as a steady undercurrent, a media Geist influencing the way we think about, use, develop and approach communication technology.

As an example of how such a combined theory should work on both levels of understanding media evolution, let us look at Marshall McLuhan's prophecy of the global village. According to McLuhan (1964), media are to be considered extensions of the human body, enabling users to, for instance, hear or see farther, or to bridge distances faster than before. Often though, human fascination for progress and improvement turns out to be strong enough to let us forget about the negative consequences of these extensions. One of these negative consequences, McLuhan argued, was the diminished importance of oral culture, which was brought about by the invention of writing and the Gutenberg press, and which had steered humankind away from its authentic "tribal" self. Luckily for humankind, according to McLuhan, the return of this tribal culture would be established by yet another extension, namely electronic media. This technology would eliminate distance and time,

and create a global village in which all inhabitants would have the opportunity to contact one another.

Looking at today's pervasion of our global society by electronic media, one might be inclined to say that McLuhan was right, and that media evolution indeed has a tendency to keep humans close to their tribal self (Levinson, 1997). However, this would oversimplify the situation, and not take into account the way people actually use electronic media, or even whether they have access at all. As Castells wrote after extensively studying the network society, "While the media have become indeed globally interconnected, and programs and messages circulate in the global network, **we are not living in a global village, but in customized cottages globally produced and locally distributed**" (Castells, 1997: 341, bold in original).

The world is undeniably more interconnected than it was 200 years ago, but not everyone is connected in the same way, or their connection for the same purposes. The critical symptomatic theory mentioned above recognises both the underlying force that keeps the balance of extensions of our sense organs intact, as well as the notion that actual media use is subject to the individual's social, cultural, political and economic environment.

To determine whether the idea of ideal communication, understood as the desire to eliminate distance (and therefore time) and remove all obstacles on our way to reaching Eros, can be considered as the vital media Geist that has influenced the way communication technology has evolved so far, it is necessary to look for signs in our media history that suggest the existence of a prevailing human desire to improve "imperfect" media. The process of taking "old" media and turning them into something "new" is dealt with in the next section.

3. Media Evolution

As we have seen, the desire to eliminate distance and time can be said to exert great influence on the development of communication media. For, if it really does play a major role, the search for ideal communication would dictate that each new medium must bring us closer to utopia. The process of media evolution does seem to follow a regular pattern, as each new medium boasts to be superior to all previous media (Bolter and Grusin, 1999: 14-15). Radio was telephony without wires; television was radio with pictures. Taking the characteristics of old media and adding to or improving on them is called *remediation*. According to Bolter and Grusin, the existence of remediation can be ascribed to the desire for *transparent immediacy*, a longing for experiencing the mediated world without being conscious of the involvement of a medium. Just as in Peters's angelic communication, we strive for transparent immediacy in order to forget that we have a body, and that we must use technology to transcend distance and time.

Paradoxically, the transparent immediacy component of remediation is always accompanied by one of *hypermediacy*: Every time a new medium distances itself from other media by promising a more immediate experience, "the promise of reform inevitably leads us to become aware of the new medium as a medium" (ibid.: 19). In other words, transparent immediacy is never fully realised, and it never will be. Again, we see that the tragic desire to improve media is prompted by recognising that earlier attempts to fulfill the ultimate goal have failed so far: "The mistake is to think that communications will solve the problems of communication, that better wiring will eliminate the

ghosts" (Peters, 1999: 9). This self-consuming snake is visible throughout media history. The next subsections take a look at how the telegraph, telephone, radio and television have each promised to take us closer to ideal communication.

3.1 The Telegraph

The telegraph was the first medium that freed communication over distance from physical transport of information. Before the end of the eighteenth century, people needed pigeons, boats or other messengers; with the advent of the telegraph the message lost its physical carrier. In the first half of the nineteenth century, Morse's electrical telegraph speeded up this process: "The telegraph ... fits precisely into the lineage of Augustine, the angels, and Mesmer: communication without embodiment, contact achieved by the sharing of spiritual (electrical) fluids" (Peters, 1999: 139). To many, this separation led to the belief that "electricity [could] mingle souls", and that the telegraph provided an earthly form of the way angels communicated (ibid.: 94). Despite inevitable startup difficulties, the distances that could be bridged looked set to be endless — possibly not even bound to the physical world. It is not surprising that, immediately after the introduction of the telegraph, rumours began to circulate that one could "telegraphically" contact the dead. This Spiritual Movement, which had its high point in the 1870s, took the bodiless form of telegraphic communication as a conceptual model for "a land without material substance, an always unseen origin point of transmission for disembodied souls in an electromagnetic utopia" (Sconce, 2000: 57).

The telegraph was also the first medium that defined and established the basic characteristics of a telecommunication network, in three ways. Firstly, it used a standard "language" to communicate, making transmission seamless and fast. Secondly, the network became permanently established, and could grow by adding connections. Thirdly, the network was operated and overseen by specialised technical management, benefiting maintenance (Flichy, 1995: 32). All these characteristics are still visible in today's modern communication networks.

The utopian idea of everyone being able to communicate with anyone else was not realised, though, for the network was still small and could only make limited point-to-point contacts. Moreover, direct conversation was almost impossible because of the time it took to encode, send and decipher messages. The common man could hardly come into contact with the medium, for the telegraph was mainly used by the state, big companies, businessmen or rich civilians. This was because of state monopolies, the difficulty of operating the machinery (one had to learn Morse code), the notion that such a new medium was to be used for serious business only, and cost.

3.2 The Telephone

This all changed dramatically with the introduction of the telephone. First, it took away the necessity of using an intermediary who knew Morse code. This enhanced the process of communicating via electricity to such an extent that this breakthrough was literally accessible to everyone. Once sending and receiving messages had become less troublesome and less formal, the nature of these messages also became more informal. While the leaders of the telephone industry first saw this frivolous usage as undesirable (see Fischer, 1992: 81-3), the characteristics of the telephone actually corresponded perfectly with the nineteenth century's expectation of being able to use electricity to communicate like angels, in which there was no need to differentiate between

serious and non-serious messages. After the initial expense and costs of use had dropped, the proportion of people using the telephone for social purposes rose to great heights, indicating that its initial business-like character was merely inherited from the telegraph, and was not specifically related to the medium itself.

A second effect of the telephone was the creation of a permanent global network. The prediction, introduced by the telegraph, that electricity would enable anyone to contact anyone else, quickly became a reality for those who bought themselves a place in the continuously growing network. This augmentation of nodes did not necessarily result in the formation of new social networks, and people did not suddenly want to reach others purely *because* they were far away, but the telephone became a great tool for maintaining existent networks, even if these had expanded greatly under the influence of, for instance, urbanisation. According to Colin Cherry (1977), it is precisely this property of the telephone — to act as an information exchanging node in a network — that makes the impact on our experience of distance and time so immense: "The exchange principle led rapidly to the creation of *networks*, covering whole countries and, since World War II, interconnecting the continents. Anybody, without special training, can move about the geographic areas covered by the network and yet appear to another person on the network to be stationary" (Cherry, 1977: 114, italics in original).

The idea that the telephone improves communication, and therefore brings us closer to the utopian angelic state, vibrates through its history. The installation of a secret "Hot Line" between the White House and the Kremlin on 30 August 1963, just months after the nearly disastrous Cuba crisis was finally brought to an end, is a clear example of the expectation that quicker and more direct communication would eventually lead to less misunderstanding, and even the possibility of world peace (CNN Spotlight, 2000). Alas, as with the telegraph, this dream was soon found infeasible. The absence of visual cues meant that the risk of miscommunication was greater than with face-to-face exchanges; moreover people could only be reached if they were in the vicinity of the apparatus. On top of that, the telephone network required a lot of wires, and could only establish point-to-point contacts.

3.2 Radio

The next step of media evolution, radio, promised to help solve most of the problems of the telephone. It was the first medium to realise the idea of broadcasting, by freeing information transfer from the wire and having it widely dispersed through the use of radio waves. The properties of the radio wave — being able to reach any point unhindered, having no specific destination and potentially being picked up by anyone with a receiver — were initially seen as serious defects (Douglas, 1987). Radio came into existence at a time when the telegraph and telephone dominated the way people thought of communication media, so it seemed logical to think of radio as a means to perfect point-to-point contacts. However, as radio amateurs (and at a later stage the radio industry itself) soon discovered, these "defects" opened up a whole new form of communication. People started to broadcast music, news and plays, and found an incredible feeling of power in this act, "seeing the wireless as a utopian form of communication that would bring the nation closer together in a truly democratic fashion" (Spigel, 1992: 26). Radio programmes became less formal and tried to give their listeners a feeling of proximity to the broadcaster and to other listeners, to bridge "obvious gaps of distance, disembodiment, and dissemination" (Peters, 1999: 211). The resulting communication model was aimed at providing entertainment, information and, above all, a feeling

of "we-ness". This idea of unity was all the more present because millions of listeners lived through the same radio schedule: the broadcasting pattern brought the experience of time directly into the livingroom (Moores, 1988: 35-8).

The wonder of hearing at a distance via invisible and all-penetrating radio waves fuelled the dream of crossing immense distances, bringing angelic communication closer than ever. To many, it did not matter what they were listening to, the sheer possibility of reaching out and touching someone was enough to spend countless nights "DX-fishing", searching the radio spectrum for distant voices. The prospect of stumbling upon alien signals sparked a true Mars-mania, for "contacting Mars would be the high prior of the new radio future and the ultimate 'catch' of DX fishing" (Sconce, 2000: 102). Still heavily influenced by the Spiritualist Movement, some even went as far as believing radio could overcome separation by death. Lodge, Edison and Marconi all worked on apparatuses for contacting the dead (ibid.: 60-1). Compared to these prospects, telepathic contact seemed all the more likely to come into existence. Sir William Crookes's article "Some Possibilities of Electricity", written in 1892, assumed it possible to communicate without technology thanks to "brain waves". At a time when radio waves had just been discovered, there seemed no reason to believe Crookes's brain waves were any different from the vibrations radio made in the ether. As long as we could use "proper tuning", it was argued, ideal or telepathic communication would become a reality (Peters, 1999: 104).

But the realisation of the dream of ideal communication was not to be. The free character of radio quickly disappeared with the rise of radio networks, which, with help from state organisations such as the Federal Communications Commission in America, took control of the available radio frequencies. While radio practice geared towards entertainment and reporting on news events, looking for contact with the dead or with aliens became the domain of less seriously taken pseudo-science. Listeners slowly became aware of what it was like to be part of "an invisible scattered audience", and to know of (horrible) events far away, while being physically isolated from them (Sconce, 2000: 62). Above all, the balance of communication now seemed to lean heavily on oral and audio contact alone.

3.2 Television

Television corrected the imbalance found in the way earlier media favoured the ears. It extended the basic property of the telegraph, telephone and radio — that of establishing audio contact between two or more physically separated points — by adding moving images. For the first time in history, it became possible to *see* what was happening *at the same time* somewhere else, fulfilling a desire for visual liveness and simultaneity that, up to the introduction of television, had mostly (but not *really*) been satisfied by early non-fiction films (Uricchio, 2000). John Logie Baird's claim in 1926 that the videophone had finally been realised, after it had been prophesied decades before, initiated a considerable step in media history. Television was simply welcomed as the most recent medium that would subjugate space, and time, to our command: "Given its ability to bring 'another world' into the home, it is not surprising that television was often figured as the ultimate expression of progress in utopian statements concerning 'man's' ability to conquer and to domesticate space" (Spigel, 1992: 102).

McLuhan's idea of a global village began to take shape: with the help of electronic media, we would be able to remove the obstacles of time and space from our quest for *presence* and contact, wherever

we might be, restoring the tribal community on a global scale. The "desire for *physical participation with spatial proximity*", which could only be fulfilled in theatres, cinemas or other public places, could now also be satisfied by television, by delivering a "*surrogate for being present*" (Elsner et al., 1994: 136, italics in original).

As with radio, a "fantasy ... of imaginary unity with 'absent' others" originated from the use of television, stemming from the idea that millions of people watched the same programme, or were aware of the same events happening in the world (Spigel, 1992: 116). The feeling of "we-ness", which had already been broadcast across countries and even continents by radio, was now visually beamed into the livingroom. According to Arnheim, this visual extension of our social network could bring about the awareness of "the place where we are located as one of many", making us "more modest, less egocentric" (Arnheim, 1957: 194). From these words a strong belief can be inferred, a belief that the introduction of electricity, the conquest of the ether and the use of the broadcasting properties of radio and television would eventually lead to a society free from prejudice, misunderstanding and all other unwanted characteristics (Spigel, 1992: 110-1). This belief corresponds with what has been described as the utopian idea of ideal communication.

But the reality of television history has proved otherwise. The television industry's decision makers were often men with a background in radio, and they were determined not to make the same mistake again — which was to underestimate and overlook the economic value to be gained with an entertainment-driven broadcasting model (Boddy, 1990: 16). The television viewer does not have complete control over what images are projected on his screen, as foreseen by Albert Robida (1883) in his imaginative *Le Vingtième Siècle*, but instead has to wade through whatever is offered. Despite the consciousness-raising characteristics he attributed to television, Arnheim himself was not overly enthusiastic about the prospect of everyone having to use a television to connect to the outside world: "The pathetic hermit, squatting in his room, hundreds of miles away from the scene that he experiences as his present life, the 'viewer' who cannot even laugh or applaud without feeling ridiculous, is the final product of a century-long development, which has led from the campfire, the market place, and the arena to the lonesome consumer of spectacles today." (Arnheim, 1957: 198). The explosion of channels has made it very unlikely that we all share the same television experience, thereby making a shared feeling of "we-ness" less likely to occur (with, maybe, the exception of single occurring or major sporting events, or breaking news). Although television might have corrected the balance of the extension of our sense-organs, it has not brought us very much closer to angelic communication.

When looking at media evolution, we clearly see the process of remediation at work. The telegraph disconnected the transfer of information from its physical carrier; the telephone added natural speech to the telegraph; radio freed the telephone of its wires; and television added images to audible communication. Each addition can be seen as trying to realise ideal communication; that is, elimination of distance and time, making it possible to contact anyone at any time, in whatever way our sense-organs would normally allow. Each attempt failed, however, not only because of imperfections in the medium itself, but also because social, cultural, political and economic factors determined otherwise. It is exactly those failures that motivate us to keep on searching. The next section looks at how the rise of mobile telephony continues this search.

4. Mobile Telephony

As discussed, it is an intrinsic human desire to bridge all chasms by realising angelic communication, making it possible to share one's thoughts or be present in each other's company at any time and any place. This is not to say that each individual harbours the wish to be always connected, but rather that everyone has, at one time or another, experienced the feeling that things could have been better with "ideal" communication. As a result, the process of remediation is continuously spawning new media with new functions, and it is in this process that we find the roots of mobile telephony. With the expansion of the fixed telephone network, it was soon discovered that not only bankers, lawyers or doctors appreciated the benefits of easily accessible communication, but also the average person. One important condition for being able to connect to one's friends and family was of course to have a telephone connection, but this was quickly met when the technology became cheap and the number of providers grew.

There were disadvantages to the system, of course. One of the more obvious was that in order to use the phone, one had to be at home, or at the office; at any place where the wires of the fixed network ended in one's personal connection. There was no way of using a telephone while on the road, and no way of making the telephone system itself find out which instrument was nearest to the person to be reached (Dick, a character in Woody Allen's movie "Play it again, Sam" (1972), circumvents this problem by using every fixed phone he happens to have in his neighbourhood to let his secretary know on which numbers he can be reached). For most casual users this was not a big problem, but it did not help to fulfill the promise of communication by anyone, anywhere. Another drawback of the growing network was the increasing amount of wiring needed above and below ground. Once again, the imperfections of the medium prompted the search for better solutions.

The next subsections will describe how mobile telephony has developed, what was expected with the idea of ideal communication in mind, how current use tries to realise those expectations, and in what ways the dream has still not been fulfilled.

4.1 Development

The beginning of the twentieth century marked an age in which the telephone was hailed as the successor to the telegraph. In the same period, the first successful experiments with radio telegraphy were performed. To many scientists it was therefore a logical step to try and combine these two technologies, and realise wireless telephony. One of the first but lesser known figures involved in the earliest wireless telephony experiments was A. Frederick Collins. Claiming to be the "Inventor of the Wireless Telephone [in] 1899" (Collins, 1922), he wrote an impressive amount of technical articles on wireless telephony during the first ten years of the twentieth century, heralding the end of telegraphy and wired telephony. He never used his company's money to mass-produce wireless telephones however, and was sentenced to three years in jail after being found guilty of giving a fraudulent demonstration. The first outcome of wireless experiments that *were* successful was, as we know, radio. Although its main function eventually turned out not to be establishing point-to-point contact (with some exceptions), radio's property of transmitting voice and sound signals without the aid of wires was clearly recognised.

Navies were the first to benefit from this liberation from wires. Before the arrival of radio communication, ships had to rely on flag or light signals when navigating or exchanging information. During heavy weather or mist, this posed almost insurmountable problems (Douglas, 1987: 265-6). Not only naval officers saw radio's potential for establishing wireless point-to-point

contact, however. With the arrival of the fixed telephone network, police forces were expected to receive an increase in reports, so it became vital to reach police officers on the beat as quickly as possible. In as early as 1910 an idea was put forward to provide each policeman with his own personal telephone number, so he could be reached wherever he was (Pool et al., 1977: 138). This idea took almost ten years to come to fruition. Between 1921 and 1928, Robert L. Batts worked for the Detroit Michigan Police Department on a mobile radio installation, which could be built into a car (Waveguide, 1999; Slomnicki, 1999). The system was one-way only: policemen could be reached, but they had to get out of their car to find a telephone booth to call back.

Even with its initial drawbacks, the Detroit experiment with mobile radio communication was a great success and was followed and improved on by many other police stations. Within ten years, the one-way system had been replaced by technology that used a so-called "push-talk" principle: a button had to be kept pushed in order to talk, and released to listen. In 1969, the Improved Mobile Telephone Service (IMTS) was introduced, which eliminated push-talk and finally made real mobile telephone conversation possible. Mobile telephone systems relied on transport by a vehicle, up until the invention of the transistor, which led to the age of miniaturisation. In 1973, Martin Cooper, a scientist working at Motorola, presented the first mobile phone that could be carried by hand. Commercial mobile telephony was launched in the USA in 1983, after a new Advanced Mobile Phone Service (AMPS) standard was established. In Europe, standardisation took a little longer to develop, and it was not until the mid-1990s that the Global System for Mobile Communications was created by the Groupe Speciale Mobile (GSM). These so-called second generation (2G) phones are currently being replaced by telephones equipped with third generation (3G) technology, based on new high bandwidth mobile standards such as UMTS, GPRS and EDGE.

4.2 Expectations

Although Marconi's radio freed the telegraph from its wires, and subsequent work from such scientists as De Forest and Fessenden did the same for telephony, radios were highly immobile at first and, on top of that, quickly lost their point-to-point behaviour to make way for broadcasting. Mobile telephony by radio thus did not materialise as soon as some would have liked. It was the desire to realise the dream of ideal communication that kept the momentum alive, resulting in today's mobile society. More than any other medium, the mobile provides its user with the ability to be a sender as well as a receiver of information — something radio and television do not offer — and to form a uniquely identifiable node in a local or global communication network, independent of his or her geographical position. This potentially constitutes a strong sense of connectedness with all other nodes: "Thanks to the mobile, you and the rest of the network will be wherever I am, and vice versa."

This vision of the mobile telephone is in line with what was attempted with previous media, namely to be "present" at places where one was not, to contact others when looking for help or a conversation, to extend the opportunity of experiencing Heidegger's notion of *In-der-Welt-Sein* (being-in-the-world) to the highest possible degree. Again, the underlying ideology is that with new media we will be able to reach and understand each other quicker and better than before, making the world a better place. This is clearly visible in advertisement campaigns for mobile telephony. Business meetings can be arranged or rearranged in an instant, people whose car has broken down can contact a car repair service and still make it to their destination, and when away you can always stay in touch with your loved ones. Almost without exception these advertisements stress the idea

that, with your mobile, all problems can be solved and relationships will blossom as never before. In a more recent example, the Ericsson commercial "Into the Mobile Future" shows us, in succession, how people bridge space and time when they play chess, call emergency services, plan romantic dates, buy houses or snowmobiles, and look up travel and tourist information; all by use of the mobile, and with a smile on their faces. Showing a happy user is of course one of the oldest tricks in the advertisement book, but by stressing that the mobile can solve *any* problem it becomes the Holy Grail of communication. It is what the industry recognises as a weak spot in our desire, and they play the game well. What the telegraph, telephone, radio and television could not completely realise will now be possible using the newest super medium.

4.3 Current Use

When looking at the development and use of previous media, we can distinguish two important changes in the 1920s concerning communication media paradigms. First, the specific broadcasting properties of radio, and later of television, meant that media were no longer considered as necessarily having to facilitate point-to-point contact. As a result, profit-driven broadcast entertainment became a major player in deciding the future of telecommunication (Flichy, 1995: 108-11). Second, while the telegraph and telephone were built and initially marketed by inventor-entrepreneurs working alone or with just a few assistants, this changed with the advent of big companies that could afford immense laboratories and large-scale promotional campaigns. Corporations such as RCA, General Electric and Westinghouse fought for and won control over the airwaves and gained patents for the essential technology, prohibiting the average radio or television user from becoming a sender or broadcaster as well.

Both these paradigm shifts were followed by yet another change in the way media technology was perceived. The dawn of the electronic age with the invention of the transistor in 1947 would prove to have an enormous impact on the size, price and number of media devices. On top of that, the growth of computing electronics made digitisation of information possible, transforming every information-processing entity into a potential node of an all-encompassing network. These three new paradigms — emphasis on the informational and entertainment value of communication technology; powerful companies largely in control of development and marketing of new media; and the desire to compress and integrate media into the global information network — can be said to exert great influence on media evolution today.

The mobile phone we now know, therefore, is presented as a lot more than a tool for calling someone or for being called. By integrating a variety of functions in a single handset, the mobile telephone has become a multimedia information processor, seemingly fitted with an array of conveniences: "The mobile phone is becoming a personal trusted device, a life management tool for business, work and leisure. It will take on many roles: an anchor point, a digital navigator and a lifestyle accessory that will help individuals control and enrich their lives" (Nokia, 2002).

The word "phone" is increasingly replaced by "device", a personal digital assistant. In the mobile world, having control over your life means being able to cope with all possible flows of information, from node to node, network to network. "Communication" is replaced by "information management", be it for business, personal or entertainment purposes. In the mobile, we see the process of remediation in its most tight-knit form: sending and receiving text (remediation of the letter or fax), playing music (remediation of the radio or record/CD player), making small payments

(remediation of money or credit cards), playing games (remediation of the game console), taking pictures (remediation of the camera) or accessing the internet (remediation of the modem).

To communicate like angels means the ability to access the information network at any time, at any place. Today, this network extends widely over the Earth, although it does not yet cover it completely. Access via the use of mobile phones has become easier, though. To give some examples: in 2002, Japan had 55 million mobile phone users (out of a population of 127 million), China over 200 million (out of 1.3 billion), and the Netherlands about 12 million (out of 16 million). In Finland almost 90% of the population has a mobile, compared to 62% in the USA. In almost all of these cases, the number of mobile phones exceeds the number of fixed telephone connections, something that has also already happened in large parts of the African continent (BBC, 2001). On a global scale, mobiles are increasingly becoming a standard tool for communication (Greenspan, 2002).

Leaving all remediated extras aside, the mobile phone is of course still predominantly used for eliminating space and time in our search for presence and togetherness. The stories resulting from this use are often spectacular, such as those of people that were saved from death, but they can also be tragic, as we have seen with the September 11th terrorist attacks on the World Trade Center buildings in New York, during which people in the hijacked planes used their mobile phones to say goodbye to their loved ones, or tried to alert the authorities. Such stories show how the mobile is used to throw lifelines into the pond of networked contact. With the promise of 3G phones, capable of being "always-on" and of processing much more data, it looks like the dream of angelic communication is closer than ever before.

4.4 Critical Analysis

While slick advertising campaigns and provocative press releases may predict a glorious future within our reach, they cannot hide the numerous disadvantages and problems that arise with each new medium. Sooner or later, the desire for ideal communication meets the limitations of the medium, and it is the resulting realisation that our hopes have not quite been met that sets forth a new search. Most things promised never materialise. Instead of a realistic prediction of the future we are shown an "exercise in science fiction", as David Rodowick (1998) argues, which has to convince us that "capitalism, for centuries the source of so many of the world's social problems and inequities, can still be the solution, if we only let it again transform itself historically by unleashing the productive capacity of digital communications technologies" (Rodowick, 1998: 2). Technological progress, according to Rodowick, is meant to maintain the status quo of the balance between producer and consumer, not to realise Utopia. For in Utopia, there would be no need to buy new things.

One of the biggest problems lies in the rapid integration of mobile technology into our lives. Most of us are not adequately prepared for a society in which the sentence "We'll call" has replaced regular scheduling. These "approximeetings" form an increasing source of annoyance, especially when they end up in endlessly re-arranged or even cancelled appointments (Plant, 2001). Social patterns have also been disrupted. Is it polite to answer the mobile phone in public? When should it be left off? Do we want to be part of half conversations that do not concern us? This "m-etiquette" has not yet found its final form, and even when it has it is likely to differ between social groups.

Instead of inheriting a better understanding of each other, we are faced with an even bigger chance of miscommunication and misunderstanding.

The desire for omnipresence of the mobile phone poses two major problems. One is that we are expected to have a mobile phone in the first place. Not only does this impose huge social pressure on the "mobileless" to act and get with it, it also makes us think everyone ought to be reachable all the time. The danger of being confronted with work while on vacation is yet another stress-inducing factor, in an age where the term "information overload" is not uncommon and the boundary between the private and public domains is quickly dissolving (see Kopomaa (2000) for an account of the way mobile phones privatise the public sphere). The second problem with omnipresence and the desire to contact anyone at anytime is that a Big Brother scenario is becoming more plausible day by day. Being able, like an angel, to know exactly what the other person means or thinks is the bright side of the story, but ethical and moral problems with that tricky concept called privacy lie on the other side.

Finally, one can even doubt whether mobile telephony is really suited for communication, in the original sense of the word (from the Latin *communicare*, to share). Establishing a "postmodern encounter" in his *Heidegger, Habermas and the Mobile Phone*, George Myerson (2001) juxtaposes the two German philosophers' ideas on communication with those he finds in the mobile discourse. Heidegger sees communication as a process of finding one's place among others, by determining what makes us different from each other. Habermas argued that communication supposes an interaction between two or more persons, in which ideas, thoughts and wishes are made known, and to which others can react. According to Myerson, this is not at all what the mobile telephone is used for. People in the mobile age communicate "to satisfy ... wants. The mobile is the key to satisfying your wants generally" (Meyerson, 2001: 25). The medium has transformed into a device, a personal communication centre aimed at exercising control over what we want. It is not the desire to know one another, but the desire *per se* that the mobile fulfills (ibid.: 20-1, 26).

5. Conclusion

Looking back at media history, we see that media have evolved by coincidence, hard work, ingenuity, luck, persistence and vision, as well as by political decisions, economic measures, wars and social changes. These winding roads show how unpredictable media evolution can be. For example, it was once predicted that television would establish visual point-to-point contact, but now it mainly delivers passive entertainment.

Nevertheless, all media we have seen so far have one thing in common: they were initially perceived as trying to bridge space and time to such an extent that people would be able to communicate without obstacles and without misunderstanding. Fear of miscommunication and restoration of the natural balance of our extended sense-organs is what drives us to improve existing media. Mobile telephony can be seen as the most recent attempt to reach the utopian ideal, which superficially seems closer than ever before. With mobile communication, it is possible to reach any other node in the information network, independent of one's geographical position. However, as Peters argues, the dream will never be fulfilled. It is exactly the awareness of these failures that keeps us trying again and again.

Taking this idealistic idea of angelic communication as the basic premise for the way media have developed, one could deduce that the specific succession of different media consists of necessary steps. Caution is advised here, for such a teleological vision would typify earlier forms of communication media as primitive, when compared to media that are chronologically as well as normatively closer to the ideal. However, as we have seen, this does not mean we can predict the future of media. We may be told that one day 'we will...', but history has so far proven otherwise.

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