What is a Cellphone? A Tetradic Odyssey: A Study in Media Ecology

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Abstract

This study asks the question, “What is a cellphone?” Marshall McLuhan et al. jointly devised the tetrad as a method for revealing the hidden characteristics of any human medium or artefact. This study views a cellphone through the tetrad’s distinctive four-dimensional non-dialectical approach. In the process, many intriguing, surprising and even contradictory aspects come to light.

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Contents

List of Illustrations

Introduction

This study asks the question, "What is a cellphone?" The principal focus of this question will be on human relationships and identity.

"Identity" means in this case personhood, selfhood or individuality. It recognizes different facets of what neuroscientist Susan Greenfield calls "being someone."[1] These facets of identity include self-awareness, the physical body, the intellect and personality. For the purposes of this study, intellect and personality together encompass thoughts, feelings, attitudes, beliefs and behaviour. Identity also recognizes that the self or individual is shaped by and dependent on other people both individually and collectively. We are largely social beings. Yet there is also a genetic basis for identity, a flexible "hard nugget of self," as Camille Paglia puts it.[2] Identity is a broad and often hotly debated term. It is complex, but this is unsurprising because people are complex. Throughout this multidisciplinary study, different facets of identity and relationships will be discussed in relation to the cellphone.

Media ecology is the study of media as environments and how these environments influence how we think and act. Neil Postman, formerly of the Department of Communication, Arts and Sciences at New York University, offered a more expanded definition:

> Media ecology looks into the matter of how media of communication affect human perception, understanding, feeling, and value; and how our interaction with media facilitates or impedes our chances of survival.[3]

Anthropologist Edmund Carpenter expressed it even more directly:

> Media are really environments, with all the effects geographers and biologists associate with environments. We live inside our media. We are their content.[4]

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[1] Susan Greenfield, *ID: The Quest for Meaning in the 21st Century* (London: Hodder & Stoughton, 2008), 115-134.
[2] Camille Paglia, *Sex, Art and American Culture: Essays* (London: Penguin Books, 1992), 103. Camille Paglia is former professor of humanities at the University of Arts in Philadelphia.
[3] Neil Postman, "What is Media Ecology?" *Media Ecology Association.*
[4] Edmund Carpenter, *Oh, What a Blow That Phantom Gave Me!* (New York: Bantam Books, 1974. First published 1973 by Holt, Rinehart and Winston), 64.

Wireless communication has spread more rapidly than any other communication technology in history, and of all its forms the cellphone has been the "most pervasive."[5] The cellphone presents a rich and obvious opportunity for study, not only because of its ubiquity in everyday life but because it has significantly altered our media environment.[6]

Throughout this study, "cellphone" will be the primary moniker and, unless otherwise stated, it will refer to phones operating by the cellular system (as opposed to cordless phones for example).[7] Furthermore, this study will include the new generation cellphones or "smartphones"; in other words, it will acknowledge that a modern cellphone is more than just a communicator.[8] Invariably then, this study will discuss media that converge in the cellphone and thus add to the essence of the device.

Obviously as soon as one uses the word "cellphone" it is clear that one assumes knowing at least to some extent what it is. Nevertheless, some words are ontologically more challenging than others, and not merely in a material sense (what it is made of and how it is constructed). Avoiding perhaps more difficult words such as "soul" or "God," the point may be illustrated with an ostensibly simple word, "cup."[9] A cup is a type of vessel or container, with or without a handle. It may be formed from a variety of different substances. It can carry many solids or liquids, both edible or not. It imitates our cupped hands but seals the leaks, so it becomes easier for us to drink water or some other liquid. We can now carry drinkable and non-drinkable liquids over long distances. From our distant past, it meant we did not necessarily need to move the whole tribe to water; a few people could do it while the remaining tribe waited in safety. This increased the survival chances of the tribe because they

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[5] Manuel Castells et al., *Mobile Communication and Society: A Global Perspective* (Cambridge, Mass: MIT Press, 2007), 7.

[6] See Appendix A: "A Brief History of the Cellphone."

[7] Linguist David Crystal distinguishes between the British usage of "mobile phone" and the American usage of "cellphone"; [David Crystal, *txting: the gr8 db8* (Oxford: Oxford University Press, 2008), 5]. It is quite common to hear both terms used in New Zealand.

[8] There is no standard industry definition of "smartphone," but it is described by technology journalist Liane Cassavoy as "a device that lets you make telephone calls, but also adds in features that you might find on a personal digital assistant or a computer – such as the ability to send and receive e-mail and edit Office documents, for example" [Liane Cassavoy, "What Makes a Smartphone Smart?" *About.com Guide*].

[9] Martin Heidegger examines the ontology of a jug in his essay "The Thing" [Martin Heidegger, "The Thing," in *Poetry, Language, Thought*, trans. Albert Hofstadter (New York: Harper and Row, 1971). 165-182)].

did not all have to be exposed to danger to obtain water, unlike a herd of buffalo that must move to water *en masse*; water cannot go to the herd. In addition, a cup, in a range of sizes, can be used for carrying and storing food and other items. In this way it is multifunctional in scope.

This is just one example of how an apparently simple technology can radically change the lives of individuals. If something as "simple" as a cup can achieve this, one wonders how radically lives might be changed by a cellphone which, compared to a cup, is quite sophisticated. One may argue that a cup's impact may actually be greater because it exerts radical change at the most basic survival level: water is surely more essential than a cellphone.[10] Yet the cellphone can aid in the construction and coordination of the enormous infrastructure of water supply for towns, cities and countries, because people can act quickly and in unison. In asking the question, "What is a cellphone?" one is posing a potentially very complicated question, one that seeks meaning and significance as much as a definition.

In responding to the thesis question, this study will adopt a methodological approach known as the tetrad, which was pioneered by Marshall and Eric McLuhan, and Barrington Nevitt. The tetrad is a constructive method for examining media, with the aim of discovering "What is there?" or, in the words of the McLuhans, is "a means of focusing awareness of hidden or unobserved qualities in our culture and technology."[11] The tetrad poses four questions of any technology:

- What does it enhance or intensify?
- What does it render obsolete or displace?
- What does it retrieve that was previously obsolesced?
- What does it produce or become [or reverse into] when pressed to an extreme?[12]

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[10] This point about the assumed greater impact of apparently sophisticated technologies has been made by Edward Tenner, senior research associate at the Smithsonian Institute in Washington D.C. According to the economist Edwin Mansfield, improved thread and stain removers increased America's productivity more than personal computers [Edward Tenner, Preface to *Our Own Devices: How Technology Remakes Humanity* (New York: Vintage Books, 2003), ix].

[11] Marshall and Eric McLuhan, *Laws of Media: The New Science* (Toronto: University of Toronto Press, 1988), 128.

[12] Ibid., 7.

In order to seek feedback to supplement the tetrad questions, a small number of informal "man in the street" interviews and correspondences were carried out with people (all known to the author) from a range of ages. The feedback does not pretend to be "scientific proof." Some of the more interesting responses are included here. (Each of the respondents is identified as "respondent" alongside his or her first name and age.)

Communication and media studies professor Paul Levinson sees the tetrad as an "open-ended and multi-dimensional" way to "gauge the health, status, heartbeat, [and] prognosis of our media."[13] Consistent with the aim of media ecology, the tetrad is a method for keeping the environment, or "ground," in the forefront when analysing a medium or "figure" (though it may be useful in the study of any human artefact).[14] In his book *Digital McLuhan: A Guide to the Information Millennium*, Levinson concurrently critiques and applies the tetrad to a number of media including the television, radio, telephone, computer and Internet.

Expressions such as "global village" and "the medium is the message" are firmly ensconced in popular consciousness; however, with the arrival and expansion over the last twenty years of "new media,"[15] such as the Internet and cellphone, the theories and visions of Marshall McLuhan have assumed greater currency within scholarly circles. McLuhan achieved immense fame in the 1960s, followed by a period of a decade or more in the academic

[13] Paul Levinson, *Digital McLuhan: A Guide to the Information Millennium* (London: Routledge, 1999), 17.
[14] Marshall and Eric McLuhan, *Laws of Media*, 5.
[15] The term "new media" is a very broad term, but it usually refers to digital rather than analogue media and it is normally characterized by the properties of interactivity, non-linearity (or non-sequentiality), immaterialty (or virtuality), hypertextual (or multiple-pathway) networks, convergence and decentralisation (or dispersal) [Michael O'Shaughnessy and Jane Stadler, *Media and Society*. 4th ed. (Melbourne: Oxford University Press, 2008), 111-118].
Also, media theorist Martin Lister has provided a useful and cautious clarification of the term "new media":

> "… 'new media' gains currency as a term because of its useful inclusiveness. It avoids, at the expense of its generality and its ideological overtones, the reductions of some of its alternatives. It avoids the emphasis on purely technical and formal definition, as in 'digital' or 'electronic' media; the stress on a single, ill-defined and contentious quality as in 'interactive' media, or the limitation to one set of machines and practices as in 'computer-mediated communication' (CMC). So, while a person using 'new media' may have one kind of thing in mind (the Internet), others may mean something else (digital TV, new ways of imaging the body, a virtual environment or a game). All use the same term to refer to a range of phenomena. In doing so they each claim the status of 'medium' for the thing they have in mind and they all borrow the glamorous connotations of 'newness'. It is a term with broad cultural resonance rather than a narrow technicist or specialist application" [Martin Lister et al., *New Media: A Critical Introduction*. 2nd ed. (London: Routledge, 2009), 11-12].

"wilderness." His resurgence can be partly attributed to researchers such as Poster, Baudrillard, Virilio, De Kerckhove, and Kroker who have had a keen interest in new media.[16] At its launch in 1993, *Wired*, the so-called "bible" of new media, appointed Marshall McLuhan as its patron saint. A flurry of republications of McLuhan's books, as well as a raft of studies by scholars revisiting his work, continued through the rest of the 90s and beyond.[17] Whether his views invite admiration or scorn, they always fascinate, and McLuhan's enduring relevance within the discipline of media studies cannot easily be ignored.

This study does not pretend to be exhaustive or definitive; obviously it is not possible to cover all aspects of human relationships and identity in depth. There are no foregone conclusions and the research question has been formulated partly as a spur to deeper thinking about the myriad ways the cellphone is restructuring human relationships and our conception of our humanity. In so doing, it is hoped that some important social, psychological and philosophical dimensions of the cellphone may come to light that will in turn promote robust discussion and research in the future.

Obsolescing Place

Where did place go? Has the cellphone rendered it obsolete?

The cellphone enables people to conduct their affairs – not just communication – without needing to depend as much on a place or location. To an extent, the cellphone relegates location to the role of a bit player. The cellphone also takes our attention away from where we are: it distracts us from our place. (Some of the social and psychological aspects of the latter point are examined later.)

So what is place? Yi-Fu Tuan, one of the founders of human geography, compares space and place:

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[16] Ibid., 78.
[17] Paul Levinson, *Digital McLuhan*, 34.

> "Space" and "place" are familiar words denoting common experiences. We live in space. There is no space for another building on the lot. The Great Plains look spacious. Place is security, space is freedom: we are attached to the one and long for the other.[18]

In this definition, Tuan describes space as a quality or dimension of place, and he provides contrasting instances where space can be either restrictive or expansive according to human experience.

Tuan describes places as "centers of felt value where biological needs, such as those for food, water, rest, and procreation are satisfied."[19] This definition applies to human and nonhuman animals. But Tuan draws our attention to the numerous human values of place which transcend basic bodily needs. Hence, by quoting the words of physicist Neils Bohr to fellow physicist Werner Heisenberg, Tuan identifies the importance of the less tangible, but no less real, "aura" of a physical location:

> Isn't it strange how this castle changes as soon as one imagines that Hamlet lived here? Suddenly the walls and the ramparts speak quite a different language. The courtyard becomes an entire world, a dark corner reminds us of the darkness in the human soul, we hear Hamlet's "To be or not to be." Yet all we really know about Hamlet is that his name appears in a thirteenth-century chronicle. No one can prove that he really lived, let alone that he lived here. But everyone knows the questions Shakespeare had him ask, the human depth he was made to reveal, and so he, too, had to be found a place on earth, here in Kronberg. And once we know that, Kronberg becomes quite a different castle for us.[20]

The power of a place or its "aura" is why so many people visit the Colosseum in Rome, the Tower of London or the Parthenon in Athens. Kenneth Frampton envisions how in architecture the principle of respect for place can be integrated into the construction of buildings whose designs cooperate with topography and pay homage to cultural history.[21]

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[18] Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (London: Edward Arnold, 1977), 3.
[19] Ibid., 4.
[20] Quoted in ibid.
[21] Kenneth Frampton, "Towards a Critical Regionalism: Six Points for an Architecture of Resistance," in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (New York: The New Press, 2002), 28-29.

Gerard Goggin from the Department of Media and Communications at the University of Sydney argues that the cellphone can retrieve location through the use of GPS devices, applications such as Google Earth software, and enhanced directory services such as Google Local which can provide directions to the nearest motel, restaurant or public toilet from a cellphone, no matter where the user is. The advantages are enormous for someone in unfamiliar territory. So it seems that, far from being a displacer, the cellphone can firmly ground people through the use of these and other "locative media."[22] In addition, mobile tracking offers a means of locating the cellphone by analysing data from cellphone towers. Global cellphone tracking of anyone with a cellphone will soon be possible.[23]

The illicit use of such technologies can, of course, reverse into surveillance. From the University of Toronto, one of the pioneers of wearable technologies, Steve Mann, reminds us of the risks:

> We have all around us invasive technology like cell phones, which give us a certain freedom but they also take away a certain freedom. I have heard people liken cell phones to handcuffs. And then all these invasive technologies – "smart" floors, "smart" light switches, "smart" elevators, "smart" toilets, "smart" rooms – all this technology encroaching upon us. Cameras and microphones [are] everywhere watching us, allegedly to make the world a better place, but in actual fact to make the world a better place for the architects of this surveillance superhighway. That seems to be a fundamental point that nobody else has clued into.[24]

A fuller exposition of the very important subject of surveillance is beyond the scope of this study. Suffice to say that as we enthusiastically embrace the cellphone we need to remain aware that our digital footprints leave deeper impressions than we may realize. They are visible to public and private interests with the wherewithal to seek them out. If we want to defend our freedom to remain lost, shedding the cellphone may be the only solution to this problem.

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[22] Gerard Goggin, *Cellphone Culture: Mobile Technology in Everyday Life* (Oxon: Routledge, 2006), 195-198.
[23] James E. Katz, "Mainstreamed Mobiles in Daily Life: Perspectives and Prospects," in *Handbook of Mobile Communication Studies*, ed. James E. Katz (Cambridge, Massachusetts: The MIT Press, 2008), 437-438.
[24] Gregory Benford and Elizabeth Malartre, *Beyond Human: Living with Robots and Cyborgs* (New York: Tom Doherty Associates, 2007), 206.

Technically innovative and brilliant as many locative media are, it is important not to confuse location with place, which is a great deal more than a geographical position or coordinate, a spot on a map. For many, a place is a solemn and sacred thing whether it is a country, a region, a town, or a dwelling.[25] A place is not so much a landscape "out there," but a personal "inscape" experienced internally.[26] Each carries with it certain connotations; each evokes memories of events: communal, filial, familial and individual. It is in a place that our collective and individual identities are created and nurtured. A place need not be famous to project an aura. It may be a place where a couple seals their engagement or sees their child take its first steps. Or it may be a quiet coastal or riparian retreat that has served as a source of emotional replenishment. A house is not just a building on a piece of land; it is a wellspring of memories good and bad, frivolous and profound; it is a place where we can, at best, be entirely our real selves. For better or for worse it is our home, our *turangawaewae*, the place on which we stand, and to a very significant extent makes us who we are.

Sociologist Leopoldina Fortunati explains that "the individual's current ambiguous dimension of presence/absence in space means the restructuring also of the sense of belonging to places, which is a main pivot of the sense of belonging."[27] Journalism professor Michael Bugeja frames the issue in terms of being grounded:

> The blurring of identity occurs when technology places an individual in two or more places at once. That defies time and physical law. When identity and time are blurred, so is our sense of place … our habitats must be primarily *actual* for the self to be *actualized* or whole psychologically. When that happens, we are *grounded*. That's an

[25] Terms such as "solemn" and "sacred" may seem nebulous, imprecise or even uncomfortable to some readers. Such language is indeed value-laden. But isn't all language? The most strident materialist, for example, imbues language with as many values as the most ardent metaphysician. In relation to inter-cultural interaction, Professor James Neuliep, a media studies and communications researcher, explains that "messages are guided by and reflect their fundamental value orientations" [James W. Neuliep, *Intercultural Communication: A Contextual Approach,* 3rd ed. (Thousand Oaks, California: Sage Publications, 2006), 64].

[26] David Macauley, *Elemental Philosophy: Earth, Air, Fire and Water as Environmental Ideas* (New York: State University of New York Press, 2010), 196.

[27] Leopoldina Fortunati, "The Mobile Phone: Towards New Categories and Social Relations," in *Information, Communication, and Society* 5, no.4 (2002): 519.

> interesting word. It suggests that people who know *where* they are also know *who* they are.[28]

Pre-European Māori vested the land with great spiritual power. This stands out in their proverbs: "Te toto o te tangata, he kai: te oranga o te tangata, he whenua" (Food supplies the blood of human beings: their welfare depends on the land).[29] "Welfare" means the physical and spiritual wellbeing of the person. The ancestors, whose *mana* (prestige) suffuses the land, are the origin of this bodily and spiritual wealth. Is place important, therefore, simply because of its association with people? For Māori the value of the land *superseded* its association with people because of its longevity:

> "'Toitu he kainga, whatu ngarongaro he tangata' (The land still remains when the people have disappeared). Similarly, we hear: 'He kura kāinga e hokia; he kura tangata e kore e hokia' (The treasure of land will persist; human possessions will not)."[30]

As cellphones have quantitatively surpassed landlines (see Figure 1), place has come to seem less relevant as we go about our daily lives. When we make a call it is more common to bypass place for the person. We do not need to associate a person with a physical place – a house, an office – in order to initiate communication; we source the person directly and place becomes almost a secondary, theoretical consideration. To "place a call" comes across as faintly anachronistic today.

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[28] Michael Bugeja, *Interpersonal Divide: The Search for Community in a Technological Age* (Oxford: Oxford University Press, 2005), 98.
[29] Dorothy Urlich Cloher, "A Perspective on Early Maori Relationships with their Land," in *Land and Place, He Whenua, He Wāhi: Spiritualities from Aotearoa New Zealand*, eds., Helen Bergin and Susan Smith (Auckland: Accent Publications, 2004), 47.
[30] Ibid.

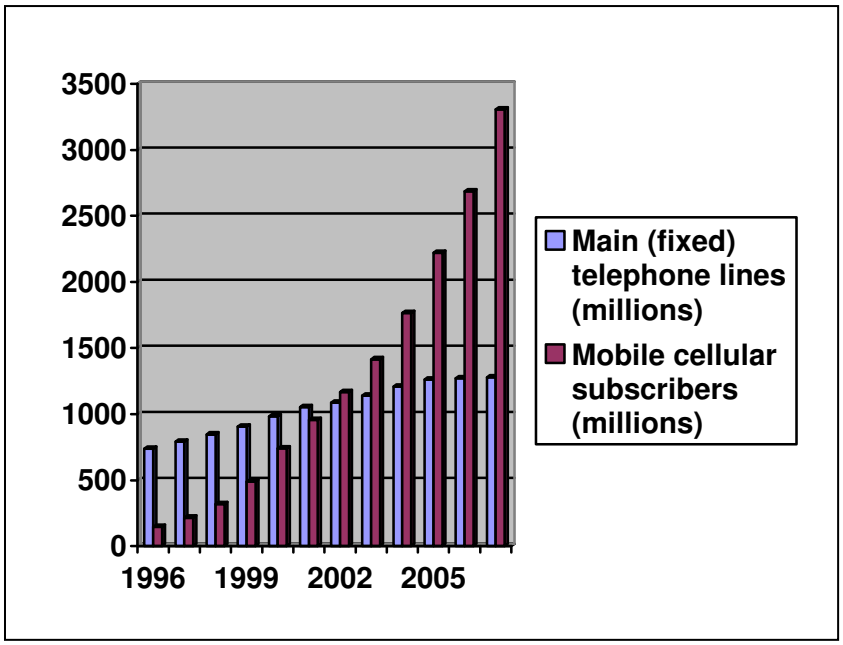

Figure 1 Global Telephone vs. Cellular Subscriptions [31]

The cellphone empowers us to perform scores of tasks away from the sources of those tasks. When we trade, for instance, we can do it without going to a marketplace: we can do it on Trade Me using the computer or cellphone. It is not necessary to meet people in places as much anymore: the cellphone provides its own interstice. Sociologist Scott Lash believes that new media allow a way of life for people that is "disembedded" or "lifted out" and indifferent to place.[32] But does it matter if people lose their focus on place?

The word "focus" is a Latin word meaning "hearth." For the Romans, the hearth was the place where the house gods (or *lares*) dwelled. In ancient Greece when a baby was carried about and placed before the hearth, the baby became fully joined to the family and household. Roman marriage was consecrated at the hearth and, in the early periods of the Empire, the dead were buried by the hearth. The family made sacrifices to the house gods before and after the meal, which they ate by the hearth. The hearth offered continuity, structure and a focal point for the house and family.[33]

The hearth is a focal thing. A central heating unit can heat the house more efficiently; it is a device that isolates and performs a function in an

[31] Source of data: ITU (International Telecommunications Union)
[32] Scott Lash, *Critique of Information* (London: SAGE Publications, 2002), 21.
[33] Albert Borgmann, "Focal Things and Practices," in *Readings in the Philosophy of Technology*, ed. David M. Kaplan (Lanham, Maryland: Rowman & Littlefield Publishers, 2004), 118.

inconspicuous or invisible way. It provides warmth, of course, but also as a thing, "is inseparable from its context, namely, its world, and from our commerce with the thing and its world, namely, engagement."[34] And as seen with the examples from antiquity (though there are also modern examples), the engagement is "manifold": physical, social, and cultural.[35]

A device relieves us of other cumbersome or tiresome means to achieving a particular end. Using the central heating example, we no longer need to chop the wood for the fire. The device, the central heating, concentrates on the end result or commodity – "what it is there for" – namely the heating. Means and ends are separated.[36] To a degree, the cellphone does the same thing: it eliminates the necessity of a fixed place to organize and run our lives. It also may diminish our consciousness of place as we go about our business.

Paul Levinson sees the cellphone and other mobile devices as having liberating power – power to free us from the confinement of place. One does not have to leave the beach to expedite one's business. Levinson draws from sociologist Jacques Ellul's vivid analogy of a fly stuck to flypaper to describe the degree of entrapment endured by the modern worker.[37] For Ellul, the contemporary work environment is too often alien, isolated and bleak:

> Man was made to do his daily work with his muscles; but see him now, like a fly on flypaper, seated for eight hours, motionless at a desk. Fifteen minutes of exercise cannot make up for eight hours of absence. The human being was made to breathe the good air of nature, but what he breathes is an obscure compound of acids and coal tars. He was created for a living environment, but he dwells in a lunar world of stone, cement, asphalt, glass, cast iron, and steel.[38]

Levinson extends Ellul's analogy to desk-bound personal computers: by restricting users to a place, the screen is the flypaper and its users are the flies. But the cellphone gets us out of the office and back to nature. As Levinson

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[34] Ibid., 116.
[35] Ibid.
[36] Ibid., 116-117.
[37] Paul Levinson, "The Little Big Blender: How the Cellphone Integrates the Digital and the Physical, Everywhere," in *The Cell Phone Reader: Essays in Social Transformation*, eds. Anandam Kavoori and Noah Arceneaux (New York: Peter Lang Publishing, 2006), 12.
[38] Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York: Vintage Books, 1964), 321.

observes, the cellphone "not only integrates speech into the forest, the beach, the automobile, the city streets, but has begun to subsume, to blend into the mix, all the media that the Web has already brought into its precincts, and indeed many media that have flourished for decades or more before the Web." This is Levinson's idea of "cellphonic freedom" and not "turning your back on the physical world."[39]

Yet in escaping the office and retrieving the physical world, we may be simply renegotiating our existence in the world as a kind of half-existence or half-presence. The continual disconnection from where we are may in some contexts compromise our ability to draw meaning, appreciation, emotional vitality and spiritual nourishment from the place where we are; it may vitiate a fully developed consciousness of belonging to a palpable physical location with all that it represents, concretely and symbolically. While straining to hear the sounds of a distant shore we may be deaf to the waves crashing under our feet. A friend recently recounted an episode whereby a colleague of his walked through the Palmerston North Esplanade in September to witness the cherry blossoms in full bloom. Unfortunately he spent the whole time sending and receiving texts, so that the gorgeous but transient spring display of the cherry blossoms became – which was sadly regretted – a peripheral experience.

In Maryland a groom caused a furore by pulling out his cellphone and updating his Facebook page right in the middle of his wedding nuptials. He tweeted from the altar: "Standing at the altar with @TraceyPage where just a second ago, she became my wife! Gotta go, time to kiss my bride. #weddingday."[40] Though this may be at the extreme end of cellphone intrusion, and it was done as a joke, it illustrates the power of the cellphone, if left unchecked, to superimpose a space onto a deeply personal and sacred place.

It is true that television has been subject to similar criticism. It also has the power to distract, to interrupt conversation or sabotage it altogether, and to superimpose its own distinct space or spaces. The same could be said of radio, or even a good book: both can lead one to be absently present. The cellphone

[39] Paul Levinson, "The Little Big Blender," in Kavoori and Arceneaux, *The Cell Phone Reader*, 12-13.
[40] W.J. Hennigan, "Groom Updates Facebook, Twitter while at the Altar," in *The Baltimore Sun*, Dec 3, 2009.

can and does accommodate all three media and a burgeoning host of others. In fact it retrieves or, more accurately, gorges itself on other media and makes them mobile, which in turn transforms the cellphone into an increasingly aggressive intruder.

Steve Talbott, senior researcher at the Nature Institute in Ghent, New York, claims that "to be a keystroke away from everywhere amounts to being nowhere in particular."[41] He is referring to the Internet, but surely he could just as easily be talking about the cellphone, which offers mobile Internet. "Relationships that were confined to specific situations – to offices, living rooms, bedrooms – become 'unglued,'" as psychologist Kenneth Gergen has observed. "They are no longer geographically confined but can take place anywhere."[42] In a Jamaica study it was found that the cellphone could threaten the important communal adhesive of trust: some Jamaicans felt that the cellphone was a lying device because it hid the whereabouts of the caller.[43]

Samuel Butler reversed the spelling of "nowhere" to coin the title *Erehwon* for his utopian dream. The cellphone detaches us from a physical place and sends us to the new "Erehwon," where there are both utopian and dystopian possibilities.

As a utopian vision, the cellphone may be a key that unlocks a new world of freedom. Anthropologist Bahíyyih Maroon has examined the social aspects of mobile telephony in urban Morocco. There the cellphone has enabled people to circumvent traditional places for meeting and socializing, and consequently has thwarted the control of local place over the circumstances in which they socialize.[44]

The cellphone as a means to detach from a place can therefore be a very positive thing. For Moroccan women under the watchful gaze of their local

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[41] Steve Talbott, *Devices of the Soul: Battling for Our Selves in an Age of Machines* (Sebastopol, CA: O'Reilly Media, 2007), 263.
[42] Kenneth J. Gergen, *The Saturated Self: Dilemmas of Identity in Contemporary Life* (New York: Basic Books, 1991), 64.
[43] Heather A. Horst and Daniel Miller, *The Cellphone: An Anthropology of Communication* (Oxford: Berg, 2006), 98.
[44] Bahíyyih Maroon, "Mobile Sociality in Urban Morocco," in Kavoori and Arceneaux, *The Cell Phone Reader*, 198.

community, the cellphone provides a degree of autonomy by empowering them to privately organize social encounters in other areas of the city where they can remain anonymous. It means they can socialize in ways that may push the boundaries of what is consistent with the tenets of Islam. Maroon herself experienced firsthand, in the local neighbourhood cafés, the suffocating social stigma borne by women who deviated from culturally accepted mores.[45] In this example, a familiar place can be a source of claustrophobia and distress, depending on one's gender. Here, for women, the cellphone can be a valuable lifeline.

Cellphones are also a vital lifeline for people confined to place by natural disasters. In the aftermath of the February 2011 Christchurch earthquake, some people trapped in collapsed buildings were able to contact emergency services and loved ones. This dramatically illustrates the extent to which the cellphone allows the human being to transcend the imposing limitations of place. Even if it is impossible for a person to be physically freed from a place, the cellphone empowers the person to "leave" in the form of a communicative expression, perhaps a message or image. This can be of inestimable emotional value, as was seen during 9/11 when people caught in the burning World Trade Centre towers were able to get messages out to their important others.

The cellphone's texting function has been of immense benefit for the hearing impaired by allowing them to more readily project themselves beyond a place circumscribed by one's visual range. For the hearing impaired, texting is "seeing telephony," and they have been using it since the 1960s.[46]

Ironically, as the cellphone obsolesces place it retrieves the relative detachment towards place of early hunter-gatherer societies that followed food instead of taming it, and picked and foraged for plants instead of growing crops in agricultural fashion. They were not tied to territory.[47] Nomadic peoples such as the Ju/'hoansi of the Kalahari are a recent reminder of how

[45] Ibid., 200-201, 197-198.
[46] Gerard Goggin, *Cellphone Culture*, 96. The cellphone has not catered for the needs of the visually impaired quite so impressively, but this may change as functions such as the screenreader become more widely available [ibid., 98-102].
[47] Joshua Meyrowitz, *No Sense of Place: The Impact of Electronic Media on Social Behaviour* (New York: Oxford University Press, 1985), 315.

early hunter-gatherer societies used to collect rather than produce food and could relocate at short notice.[48] Today many people such as business executives and salespersons adopt a semi-nomadic existence in their professional lives, which is aided and abetted by the supra-territorial capacities of the cellphone. Communications professor Joshua Meyrowitz explains how in the computer age we exist in an informational rather than physical domain but that we share the same openness and egalitarian values of our ancient hunter-gatherer forbears, as opposed to more rigid and hierarchical agricultural societies: "We bypass many previous generations' dependence on physical location as a prime determinant of access to people and information. Unlike tribes with special huts and sacred places, men's domains and women's domains, adult places and children's places, our culture is becoming essentially placeless."[49]

Meyrowitz presents a rather idealized past and present where the benefits of placelessness outweigh the drawbacks, and that a more immaterial informational "place," or cyber-space, is a worthy substitute for a bit of earth. But has this emancipation from physical place made us freer and more fulfilled? Anthropologist Edmund Carpenter documented the disruptive effects of technology on a traditional culture in Sio, Papua New Guinea. There he witnessed a profound breakdown in tribal cohesion with the arrival of modern media technologies:

> The effect was instant alienation. Their wits and sensibilities, released from tribal restraints, created a new identity: the private individual. For the first time, each man saw himself and his environment clearly and he saw them as separable.[50]

Carpenter introduced the people of Sio to cameras, tape recorders and movie projectors. As a consequence of this, members of the community at Sio detached themselves from the tribe and moved away. It was as if the glue that kept the tribe together had dissolved as a direct consequence of the realization that one's image – audio, pictorial or both – could be captured and controlled.

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[48] Emily A. Shultz and Robert H. Lavenda, *Cultural Anthropology: A Perspective on the Human Condition*, 5th ed. (Mountain View, California: Mayfield Publishing Company, 2001), 207.
[49] Ibid., 316-317.
[50] Edmund Carpenter, *Oh, What a Blow That Phantom Gave Me!* 134.

The fear among the people of Sio, and with the Biami and other tribes of Papua New Guinea, was a fear of being recognized as individuals apart from the tribe; tribal identity was more important than individual identity. The introduced media inverted this cultural paradigm by effectively isolating members of the tribe on tape and on film, and by generating an intense self-awareness. As Carpenter observed of the Sio, "In one brutal movement they had been torn out of a tribal existence and transformed into detached individuals, lonely, frustrated, no longer at home – anywhere."[51]

In his book *Suicide* (1897) Émile Durkheim targeted what he saw as the declining importance of traditional institutions ("tribes," as it were) of social stability – family, Church, occupational guilds – as one of the major reasons for suicide.[52] He believed the modern forces of individualism, secularism and rationalism had cast people adrift and disorientated in a world without values. The resultant anxiety or "anomie" led, in Durkheim's analysis, to a higher rate of suicide. Individualism wrenched people away from the security of the collective.[53]

Robert Putnam of Harvard University rearticulates the concept of the loss of community in his widely popular book *Bowling Alone* (2000), where he theorizes that the passing of the World War II generation has seen a drift away from community values as evidenced by disengagement with civic involvement in clubs and societies at the local level. He places a large part of the blame on technologies such as the computer and television, which he claims take people away from social activities.[54] The cellphone as our protean ambassador to the world, as our do-it-all device, may reinforce the perception of self-sufficiency – a lionized characteristic of Western individualism. Murray [respondent, 44] goes even further and believes the cellphone isolates the individual: "I think the cellphone has allowed us to use technology as a protective barrier in our interpersonal relationships. It has enhanced the individual in society. I'm not sure if this has improved our lives."

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[51] Ibid., 133.
[52] Kenneth Thompson, *Émile Durkheim* (Chichester, Sussex: Ellis Horwood, 1982), 115.
[53] Marvin Perry, *Western Civilization: A Brief Survey. Volume II: From the 1400s* (Boston: Houghton Mifflin, 1990), 443.
[54] Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Touchstone, 2000), 104-105, 219-246. Putnam is professor of public policy at Harvard University.

It is within this long and tumultuous debate about the forces of individualism and collectivism that sociologist Rich Ling revisits Durkheim's study of religious rituals, *The Elementary Forms of the Religious Life* (1912), and proposes that the cellphone can work *against* individualism, that it can, like religion, initiate rituals and thereby be a catalyst for social cohesion.[55] Ling discusses cohesion in small groups. It appears, however, that community is being partially redirected away from a smaller, more traditional solitary network based around a neighbourhood or village, towards a community that is more geographically diffuse.[56] Social networking sites such as Facebook, MySpace, Google Plus, Twitter and the social forums of blogsites are a way to stay in contact with those outside our regular more intimate coterie.[57] The mobile device is predicted to become the main platform for Facebook and other social networking sites in the future,[58] so in this way the cellphone can

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[55] Ling describes one of these rituals involving the use of abbreviated text language. Besides its practical use as a swifter mode of communication, the mastery of texting, both in speed and style, is also seen by many teens as a "cool" display of technological competence which separates them from adults who may find the text lingua franca somewhat bewildering. Hence, texting among teens can enhance a feeling of solidarity. More broadly, Ling explains how cellphone interaction "plays into the ritual form, and thus it actually enhances the cohesion of the group, be it a dyad, a small group of teens, a church prayer group, or attendees at an Alcoholics Anonymous meeting [Rich Ling, *New Tech, New Ties: How Mobile Communication is Reshaping Social Cohesion* (Cambridge, Mass: The MIT Press, 2008), 131-133, 155].

[56] David C. DeAndrea et al. "Dark Sides of Computer-Mediated Communication," in *The Dark Side of Close Relationships II*, eds. William R. Cupach and Brian H. Spitzberg. (New York: Routledge, 2011), 101.

[57] Rich Ling, for example, explains: "Email, social networking via Facebook, and other forms of online interaction supplement co-present and telephonic contact. In addition, they supplement our activity in voluntary organizations… In focus groups in Oslo, teens have reported that instant messaging and social networking are seen as more open. Whereas mobile communication is reserved for the close peer group, IM lists and sets of Facebook or MySpace friends are usually broader" [*New Tech, New Ties*, 184].

There is plenty of evidence for the "telecocoon" effect of the cellphone when used as a non-Internet device. For example research conducted in Japan, China, the United States and Europe indicates that SMS is used to sustain personal relationships such as friends, family, relatives and "significant others" [Manuel Castells et al., *Mobile Communication and Society*, 93]. Sociologist Hans Geser has presented evidence for the "new pervasiveness of primary social bonds," begun with the landline telephone but intensified by the cellphone [Hans Geser, "Is the Cellphone Undermining the Social Order? Understanding Mobile Technology from a Sociological Perspective," in *Thumb Culture: The Meaning of Mobile Phones for Society*, eds. Peter Glotz, Stefan Bertschi and Chris Locke (New Brunswick, USA: Transaction Publishers, 2005), 25].

[57] David C. DeAndrea et al., "Dark Sides of Computer-Mediated Communication," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 101.

Media researchers Nicola Green and Leslie Haddon have outlined a number of studies which lend credence to the idea that mobile communications are used to cultivate existing "strong ties" of friends and family, though Green and Haddon acknowledge that in particular contexts the classifications of "strong ties" and "weak ties" is unsustainable [Nicola Green and Leslie Haddon, *Mobile Communications: An Introduction to New Media* (Oxford: Berg, 2009) 92-96].

[58] David Kirkpatrick, *The Facebook Effect: The Inside Story of the Company that is Connecting the World* (New York: Simon & Schuster, 2010), 316.

retrieve communication and active participation in community beyond our "telecocoon" of friends and family.

Online communities can develop strong bonds of trust based on shared experiences and common interests. It is easy to think of online support groups, charitable clubs, genealogy societies, aircraft enthusiasts, music aficionados, and countless other Internet communities built around a passion for some object, subject or cause, let alone the recent convergence of young Middle Easterners resisting autocratic regimes (see "Enhancing Revolution"). In these kinds of virtual communities often their members have never met offline.[59] This is a new way to "shoot the breeze" – with strangers in the cyber-neighbourhood.

It is as if we are building or indeed retrieving a new kind of tribe in a new kind of place. What does this mean for us? Carpenter believed that new media technologies had pushed the community at Sio over the edge. Is today's brilliant exemplar of digital new media technologies, the cellphone, pushing us over the edge in ways we have not thought of?

As a dystopian vision, insofar as the cellphone has enabled a colonisation of place, to the same extent the sources of psychological and spiritual sustenance that place provides for our individual, social and cultural identity may also have diminished. Reminiscent of Durkheim, environmental philosopher David Macauley has also written about anomie, but as a condition of disorientation caused by alienation from place. He describes *place alienation* as "a marked loss of physical or psychological contact with a given abode, niche or location." In a wider sense of place (earth, air, fire and water), Macauley invokes Hegel's insight that "the earth is not the physical center of the world, but it is the metaphysical center."[60]

Gergen is concerned with the "growing domain of diverted or divided consciousness invited by communication technology, and most particularly

[59] David C. DeAndrea et al., "Dark Sides of Computer-Mediated Communication," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 101.
[60] David Macauley, *Elemental Philosophy*, 197, 275. Also cf. "nature-deficit disorder" n. 315 in this study.

the mobile telephone." He observes that "one is physically present but is absorbed by a technologically mediated world of elsewhere."[61] We seem to have forgotten where we are. For Aristotle, as David Macauley reminds us, "where-ness," or place, is one of the ten primary ways in which *being* is revealed in the world."[62] The disruptive impact of the cellphone on place may create symptoms of this kind of anomie within the individual and society as a whole. Many of these symptoms will become apparent throughout the course of this study.

Paradoxically when obsolescing place, the cellphone may reify the intuitively eccentric feature of quantum non-locality, a feature that furthers the paramount vision and reality of the wholeness of the universe. Like the distant yet interdependent particles that "hover in quantum limbo, in a fuzzy, amorphous, probabilistic mixture of all possibilities," the vast networks of cellphone users seem to exist in a comparable universe, where the local and non-local are linked.[63] But it is not yet known if the cellphone can promote this kind of awareness at the human level – of genuine human wholeness and connectedness. People are more than particles, and place is more than a clod of dirt.

English philosopher John Locke believed that a person who worked his clod of dirt had a right to own it. This was and still is a philosophical lynchpin justifying the private ownership of land. The land becomes a saleable commodity because the person has to some degree created it through his or her labour. What it ignores is that the land creates the person too, in ways that go far beyond material needs. It helps forge human identity. In human practice and perception the cellphone may loosen the multi-stranded symbiotic bond between person and place and seriously undermine the authenticity of both.

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[61] Kenneth J. Gergen, "The Challenge of Absent Presence," in *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*, eds., James E. Katz and Mark Aakhus (Cambridge: Cambridge University Press, 2002), 227.

[62] David Macauley, *Elemental Philosophy*, 195.

[63] Brian Greene, *The Fabric of the Cosmos: Space, Time, and the Texture of Reality* (Victoria, Australia: Penguin Books, 2004), 112, 122.
Harvard physicist Brian Greene cautions against overstatements, but he explains how vastly separated particles in space can still be dependent on one another, and that particles do not have definite locations.

Retrieving the "Colonial Spirit"

> The Cellphone:
> "It has improved our lives by making life a little easier … However, is that really improving life? Some of life's greatest gifts are received only through extremely hard work."
>
> Miles [respondent, 38]

Behind the push to extend the human reach, as exemplified by the cellphone, may lie a deep-seated urge to colonize, to conquer and tame. It is as though a place is wild and threatening unless we can simultaneously be there and be reached. William Bradford, having newly disembarked from the *Mayflower* in 1620, described the land as "a hideous and desolate wilderness."[64] Two years on, Michael Wigglesworth viewed the New World in decidedly otherworldly tones:

> A waste and howling wilderness
> Where none inhabited
> But hellish fiends and brutish men
> That devils worshipped.[65]

Almost 400 years later the words of Bradford and Wigglesworth still resonate as the cellphone stamps out the last glowing cinders of "wilderness," or, put another way, "where we are not."

The word "wilderness" itself may, on earth at least, become obsolete; perhaps it already is. Our wilderness areas are all mapped and surveyed, categorized by every government's conservation department, fenced off, and designated as parks. They are marketed for tourists of every ilk, from the hardy and adventurous to the safe and leisurely. The surviving wilderness areas are mostly devitalized reminders of the expansive wilderness earth of the past.

While it may, with some justification, be regarded as futile and overly romantic to dwell on a past which is coloured in nostalgic hues, the human dissociation from the sense of, and respect for, the wild, has conceivably left a

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[64] Quoted in Joseph R. Des Jardins, *Environmental Ethics: An Introduction to Environmental Philosophy*. 4th ed. (Belmont, CA: Thomson Wadsworth, 2006) 153.
[65] Quoted in ibid.

kind of gap or void in the human heart. This may manifest itself as a feeling of hunger for a reconnection with an existence outside highly technological urban spaces, or a feeling of awe as articulated by James O'Donnell:

> To me, tigers represent the best of the animal kingdom: extraordinary beauty in fluid motion that masks a power that would gladly snap my neck in an instant, utterly disdainful of the dominion humankind has seized over other species and of the threat of extinction itself. I am shaken and thrilled when I see the tigers, and go away reassured by the beauty and the danger of the world we live in.[66]

The key word is "reassured." It is obvious that the wilderness was, and to some extent still is, a hostile place for humans. And it seems unlikely that most people would want to return to a time when everywhere, every day was literally a matter of pure survival, any more than O'Donnell would wish to try his chances with the tigers. What humans may be missing is a sense of genuine humility. This is partly why O'Donnell is reassured not only by the beauty, but also by the danger. If the world is entirely sanitized and enfeebled then perhaps we are too. In a world bereft of challenges we become enervated both functionally and morally. Yet, oddly enough, in order to remain energized we have to stop the challenges at some point. If everything is conquered, then we are conquered. Balance is needed so we do not lose respect for our environment and ourselves.

This point is not lost on Steve Talbott who sees in Homer's *Odyssey* a poignant commentary on the human desire to overcome obstacles with *techné*, from whence we get "technology" – the Greek word for "craft, skill, cunning, art, or device."[67] The irresistibly seductive Sirens' call is a call to possess all knowledge, but the cost of such a temptation is too great for Odysseus who orders his men to bind him tightly to the ship's mast. For Talbott this is "the perfect balance between the open-hearted embrace of life with all its challenges, and artful resistance to the ambitions of hubris." Talbott sees *techné* as an essential key that unlocks and releases human self-realization, or the "birth of the individual self." [68] Environmental writer Gary Snyder

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[66] James J. O'Donnell, *Avatars of the Word: From Papyrus to Cyberspace* (Cambridge, Mass: Harvard University Press, 1998) 144.
[67] Steve Talbott, *Devices of the* Soul, 5.
[68] Ibid., 7.

expresses gratitude towards nature because it "gave us far-seeing eyes, the streams and breezes gave us versatile tongues and whorly ears. The land gave us a stride, and the lake a dive. The amazement gave us our kind of mind."[69] *Techné* allows the healthy realization of human potential, the cutting of one's teeth against the challenges of life. However, this must be tempered or balanced by the need to preserve the process of self-actualizing, and to not short-circuit and ultimately extinguish it by creating environments that are over-technological in the form of devices and gadgets. Talbott would, for example, harbour doubts about the notion of the cellphone as a "remote control for your life."[70]

A super-technological wilderness is a contradiction in terms. How can desert speak to us as desert, mountain as mountain, and ocean as ocean if we never let go of our cellphones – our digital saviours and jesters? How can we respect or understand wilderness if we feel we have it always under our cellphonic thumb? Sometimes the experience of striving against wilderness is better than comfortably "knowing" we have beaten it. The innate human capacity for, and consciousness of, *techné* must not be usurped by the products of *techné*.[71]

An Outward Bound course could be completed more easily by bringing to bear all the sophisticated machinery and gadgets we have at our disposal. But the whole point of the course is to gain confidence and self-awareness by exposure to the wilderness and the challenges it presents, not by completely shielding us from it. In the same way, traditional methods of hunting involved spears, bows and arrows and blowguns, while modern technology equips us with night vision goggles and long-range laser-sighted rifles. Yet how much would modern armaments teach the "primitive" hunter about crucial identity-forming rites of passage, values of fairness and courage, as well as respect for delicate ecosystems? This is where Talbott refers to the "qualitative" aspect of the more traditional hunt. Drawing from the actual experiences of a young Amazonian warrior, Talbott sees in his traditional hunting weapons a much richer engagement with the prey:

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[69] Gary Snyder, *Practice of the Wild* (San Francisco, CA: North Point Press, 1990), 29.
[70] This is where the "widest possible range of daily tasks will be mediated by a single device" [Adam Greenfield, *Everyware: The Dawning Age of Ubiquitous Computing* (Berkeley, CA: New Riders, 2006, 168)].
[71] Steve Talbott, *Devices of the Soul*, 13-17.

> He had to understand *what it was like* to be a certain animal. He needed to recognize the characteristic gestures of its movement – and, indeed, of all its behaviours – to know it from the inside, so to speak. The decisive detail for a particular hunt, whatever it turned out to be, was very likely available to Tomo [the hunter] without reflection or calculation, because it was implicit in the larger, expressive pattern that he grasped as a unified whole. Such "inner resonance" with one's surroundings is profound, subtle, and revelatory, a prerequisite (though not the only prerequisite) for any full understanding of the world.[72]

The discussion leads easily into the growing obsolescence – or at least the weakening of the centrality – of face-to-face communication: why should such a primal, muscular mode of communication not fall prey to other more contemporary digital modes? Face-to-face communication retains vestiges of the wilderness where "like an ancient, still mighty beast, it is endangered unless we appreciate it, and carve out a space for it."[73] But will the cellphone ultimately wipe out face-to-face communication and its gift of *techné*, and diminish some of that "inner resonance" of the warrior? Are we retrieving the best or the worst of the "colonial spirit"?

Obsolescing Face-to-Face Contact

> For now we see through a glass, darkly; but then face to face…
> 1 Cor. 13:12.

The cellphone seems to be part of a broader technological culture that is obsessed with finding innumerable ways to keep people apart. One need not leave one's car to buy dinner. No longer do we go into a bank and ask a teller if we can make a cash withdrawal; the ATM satisfies this need among many others. We can expedite most of our banking online. We depend on answering machines and voice mailboxes to manage our incoming calls. A growing number of businesses employ voice recognition software, which can be quite unnerving, especially when one is momentarily tricked into believing there is

[72] Ibid., 22.
[73] Catherine Blyth, *The Art of Conversation: A Guided Tour of a Neglected Pleasure* (London: Gotham Books / Penguin Group, 2009), 9.

actually a human on the other end of the phone. It is easy to download tax forms from the IRD website; one can enrol at university via the Internet; and of course almost anything can be purchased online. And even when you do venture out of the house to buy groceries the old-fashioned way, the chances are you will strike a self-checkout at the supermarket so you can whisk your items through the scanner and exit the building as quickly as possible.

In her book *Distracted: The Erosion of Attention and the Coming Dark Age*, author and journalist Maggie Jackson asks the question, "Do we yearn for such voracious virtual connectivity that others become optional and conversation fades into a lost art?"[74] Writer and editor Catherine Blyth asks the same question in her book *The Art of Conversation*, where she wonders whether we are too distracted to notice those people around us and the rich opportunities for conversation they may provide; so unfortunately, "we don't look at the man selling us coffee, never mind shoot the breeze; we're too busy fiddling with our iPod."[75]

How often do we see people not missing a beat with their cellphone chat, but all the while hardly noticing the person serving them behind the counter at the service station? This evokes Edgar Allan Poe's *The Man of the Crowd* whose anti-hero "entered shop after shop, priced nothing, spoke no word, and looked at all objects with a wild and vacant stare."[76] Like Poe's character, we are in one sense in the world and in another sense completely cut off from it. Blyth believes that so much human interaction is conducted "via electronic go-betweens," such as the cellphone, that we can ignore the "super-responsive information technology that is live-action; up-close-and-personal; snap, crackle, and pop talk – one that has been in research and development for thousands of years."[77] Jackson and Blyth may have a point: people may be over-accustomed to communicating through gadgets.

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[74] Maggie Jackson, *Distracted: The Erosion of Attention and the Coming Dark Age* (New York: Prometheus Books, 2008), 215.
[75] Catherine Blyth, *The Art of Conversation*, 8.
[76] Edgar Allan Poe, "The Man of the Crowd," in *The Complete Stories / Edgar Allan Poe; With an Introduction by John Seelye* (London: David Campbell, 1992), 448.
[77] Catherine Blyth, *The Art of Conversation*, 8.

Neuroscientist Susan Greenfield warns that technologies such as the cellphone may be priming society for a time when offline, face-to-face, real-time contact is considered messy and gauche like hunting and butchering an animal, compared to human interaction that is the clean, safe, distant, processed and prepackaged supermarket product. [78] Andrew [respondent, 39] certainly prefers the safety and comfort of texting and email. He claims that talking over the phone gets his blood pressure up, whereas with texting and email he does not risk getting mired in a difficult conversation where he could be put on the spot: "Texting is easier because I feel like I'm more in control. I can keep the person at arm's length."

One could say that any type of communication is better than none at all. Although if people are encouraged by the cellphone to more frequently choose the safer, "cleaner" version of communication envisaged by Greenfield, as opposed to the version requiring a bit more effort and sacrifice, this has implications for the way in which we forge successful relationships.

Have cellphones taken society away from face-to-face encounters? This is difficult to answer with exactitude. It is hard to make precise and broad quantitative statements about the levels of face-to-face conversation in society. To begin with, one would need to know how much people talked directly to each other before cellphones and other gadgets such as the radio and television entered our homes and workplaces. It may seem straightforward: they must have talked more because there were fewer electronic distractions. However, before electricity, people tended to retire to bed earlier, even with access to other sources of illumination such as candles and kerosene lamps, which were not very effective at dispelling the shadows. Throughout the day people were working hard inside and outside the home, which may not have allowed much time for talk.[79] Furthermore, from a Western perspective, the modern outlook takes for granted the comparative openness towards conversation among people of different ages, social classes, and genders, in workplaces, schools, and among family members – a state of affairs which

[78] Susan Greenfield, *ID,* 206.

[79] For example, manual labourers earning wages often worked very long hours. Historian Colin Heywood cites a Parisian tailor from the 1830s who complained of his comrades having to work 14 to 18 hours a day [Colin Heywood, "Society," in *Short Oxford History of Europe: The Nineteenth Century*, ed. T.C.W. Blanning (Oxford: Oxford University Press, 2000), 62].

until well into the twentieth century was markedly different. Everyone from middle age onwards is probably familiar with the phrase, "Children should be seen and not heard," and, painting in broad strokes, the same picture often applied to women, also until well into the twentieth century. So it is precarious to look back at a "golden age" of face-to-face conversation.

Nevertheless it is still worth asking if the cellphone might be working against face-to-face encounters, because many media researchers and academics consider face-to-face communication to be the most complete form of human interaction, or a kind of template: as communications professor John Peters calls it, the "baseline against which mass media are contrasted."[80] Sociologist Rich Ling, senior researcher at the Norwegian telecommunications company Telenor and adjunct research scientist at the University of Michigan, claims that, "With marginal exceptions, all other forms of mediated interaction pale in comparison with the power of co-present interaction."[81] Norman H. Nie, research professor in the Department of Political Science, Stanford University, comes from the perspective that face-to-face interaction is the richest, most satisfying form of human communication:

> Face-to-face and even telephone communication among colleagues, friends, and family are often about matters of affect. It is not that empathy, tenderness, reassurance, flirtation, sadness, or happiness cannot be written into e-mail. Rather, eye contact, body language, facial expressions, vocalization, hugs, pats on the back, cries, embraces, kisses, and giggles are the fundamentals of our evolutionary socio-emotional wellbeing. Even the most gratifying of personal telephone calls does not replace a personal visit. Nevertheless, the telephone, unlike e-mail, still preserves a number of emotionally verbal cues and intonations. It is not that well-written e-mail is incapable of expressing important emotions; it is simply that written communication is not equivalent to face-to-face interaction.[82]

John L. Locke from the Department of Human Communication Sciences, Sheffield University, agrees with Nie's emphasis on the primacy of face-to-face encounters. He stresses the importance of "being there": "People willing to

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[80] John Durham Peters, "Mass Media," in *Critical Terms for Media Studies*, eds. W. J. T. Mitchell and Mark B. N. Hansen (Chicago: University of Chicago Press, 2010), 267.
[81] Rich Ling, *New Tech, New Ties,* 118.
[82] Norman H. Nie, "Sociability, Interpersonal Relations, and the Internet: Reconciling Conflicting Findings," in *American Behavioural Scientist* 45, no. 3 (November 2001): 432.

give up faces with only the greatest reluctance are people who enjoy the intimacy of human communication. They like 'just the two of us' experiences. They care whether they're being spoken to or talked with."[83]

The World Internet Project of New Zealand published the findings of a study conducted in 2009 that showed there was no significant difference between users and non-users of the Internet in the amount of time they spend socializing face-to-face with friends. It also found that Internet users spend a significantly greater amount of time socializing face-to-face with family.[84] While the research is interesting, it does not take into account the nature and quality of the face-to-face interaction that is occurring.

In 2001 the Stanford Institute for the Quantitative Study of Society (SIQSS) conducted a time diary study that found that Internet use at home seriously compromised time spent with family and friends. The results of the study support a "displacement" or "hydraulic" theory of Internet use, that "time online is largely an antisocial activity that competes with, rather than complements, face-to-face social time – but it is the location and timing of Internet use that determines which interpersonal relationships are affected."[85] The issue of timing and location is germane to the cellphone with its highly portable Internet capability, enabling the user to be online anywhere.[86]

The SIQSS study concludes that "the Internet follows a long string of technological innovations that has each had the unintended consequence of

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[83] John L. Locke, *The De-Voicing of Society: Why We Don't Talk to Each Other Anymore* (New York: Simon & Schuster, 1998), 43.

[84] Philippa Smith et al., *World Internet Project New Zealand: The Internet in New Zealand 2009* (Auckland: Institute of Culture, Discourse and Communication, AUT University, 2010), 25.

[85] Norman H. Nie et al., "Internet Use, Interpersonal Relations, and Sociability: A Time Diary Study," in *The Internet in Everyday Life*, eds. Barry Wellman and Caroline Haythornthwaite (Malden, MA: Blackwell Publishing, 2002), 215.

[86] The number of people in New Zealand who access the Internet via the cellphone or other mobile device is relatively small, but it is increasing steadily; for example, in New Zealand the proportion doing so has more than doubled from 7% in 2007 to 18% in 2009 [Allan Bell et al., *The Internet in New Zealand: 2007-2009* (Auckland: Institute of Culture, Discourse and Communication, AUT University: 2010), 10].
Analysts have predicted that in 2011 Internet connections for mobile handsets will rise to 1.6 million, an increase of 200,000 from 2010 [Hamish Fletcher, "Boom Predicted in Mobile Internet Use" in *New Zealand Herald*, Friday Jan 14, 2011].
In the United States, as of May 2010, 59% of adults (18 and over) access the Internet using either a laptop or a cellphone [Aaron Smith, "Mobile access 2010" *Pew Internet and American Life Project* (Pew Research Center: Washington D.C. July 7, 2010), 2].

reducing the number and meaningfulness of emotionally gratifying face-to-face human interactions."[87] This calls to mind the experience of La Trobe University law student and regular Facebook user Nikkita Venville who rues the time she spent on Facebook away from her real friends: "I did feel like a bit of my social life had [gone] because I couldn't keep in contact with the people I usually kept in contact with – and I didn't know what was going on. People were saying haven't you got my Facebook message instead of calling me up to invite me [to parties]."[88] The SIQSS study focuses on the Internet, but the cellphone integrates the Internet and takes it out of our homes and offices, which may have implications for the amount and quality of face-to-face interaction we experience.

The Amish communities of Pennsylvania carefully deliberate before taking on a new technology. The most important question they ask is, "Does it bring us together or draw us apart?" The Amish leaders have spent more than a century weighing the pros and cons of letting their members have telephones:[89]

> What would that lead to? We don't want to be the kind of people who will interrupt a conversation at home to answer a telephone. It's not just how you use the technology that concerns us. We're also concerned about what kind of person you become when you use it.[90]

Face-to-face communication is viewed as an essential foundation for the strength and vitality of traditional community life. Members of the family meet one another to talk about their work, the goings-on in their daily lives, and their common experiences. The concern is that the telephone in the home would disrupt family time for talking and open up a portal to the world, potentially exposing the family to influences corrosive of Amish religious, social and cultural mores.[91]

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[87] Norman H. Nie et al., "Internet Use, Interpersonal Relations, and Sociability," 240.
[88] Sarah Malik, "Social Media Increasing Stress Levels," in *Sydney Morning Herald*, November 29, 2010.
[89] Naomi S. Baron, "Adjusting the Volume: Technology and Multitasking in Discourse Control," in Katz, *Handbook of Mobile Communication Studies*, 189.
[90] Quoted in ibid., 190.
[91] Ibid., 191.

Neuroscientist Gary Small would probably sympathize with the Amish. He laments that family meals – if indeed his family can get together long enough for one – have been compromised by digital devices. Family members seem to struggle to contribute to discussion in a coherent, sequential fashion, and instead dart in all over the place with truncated contributions resembling instant messages. Dinner is usually cut short because family members feel a pressing need to get back to their digital devices – the video games console, computer, cellphone, and so forth.[92] Fortunati points out that cellphone communication itself is becoming more "rapid and hypodermic," and co-present individuals can have their body-to-body encounters interrupted, which can be very damaging for human relationships.[93]

IT professor Adriana de Souza e Silva explains how cellphones have altered the dynamics of our socializing: "Hybrid spaces merge the physical and the digital in a social environment created by the mobility of users connected via mobile technology devices. Cellphones are digital interfaces that make us 'inhabit' these hybrid spaces."[94] It may be getting harder to find a genuine co-present encounter without the cellphone always there interfacing with another dimension. As James Katz, professor of communication at Rutgers University has found, "Mobile technology also affects the way people interact when face-to-face or, rather and increasingly, face-to-face-to-mobile-phone-face, since people are ever more likely to include the mobile phone as a participant in what would otherwise be a face-to-face dyad or small group, and even parties."[95]

Vodafone conducted a survey in 2008 which found that close to three-quarters of New Zealanders preferred to keep in touch with friends via cellphone calls and text messages.[96] Text messages increased globally from 17 billion in 2001 to 250 billion the following year. In 2005 they had passed a trillion (million

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[92] Gary Small and Gigi Vorgan. *iBrain: Surviving the Technological Alteration of the Modern Mind* (New York: Collins Living, Harper Collins Publishers, 2008), 92-93.
[93] Leopoldina Fortunati, "Is Body-to-Body Communication Still the Prototype?" *The Information Society* 21, no. 1 (January–March 2005), 57.
[94] Adriana de Souza e Silva, "Interfaces of Hybrid Spaces," in Kavoori and Arceneaux *The Cellphone Reader*, 19.
[95] James E. Katz and Mark A. Aakhus, "Introduction: Framing the Issues," in Katz and Aakhus, *Perpetual Contact*, 2.
[96] Alice Hudson, "Kiwi Textaholics Lead the World," *New Zealand Herald*, Sunday, November 23, 2008.

million),[97] and from 2007 to 2010 the number of texts tripled (see Figure 2). Globally, over 192,000 texts are sent every second.[98]

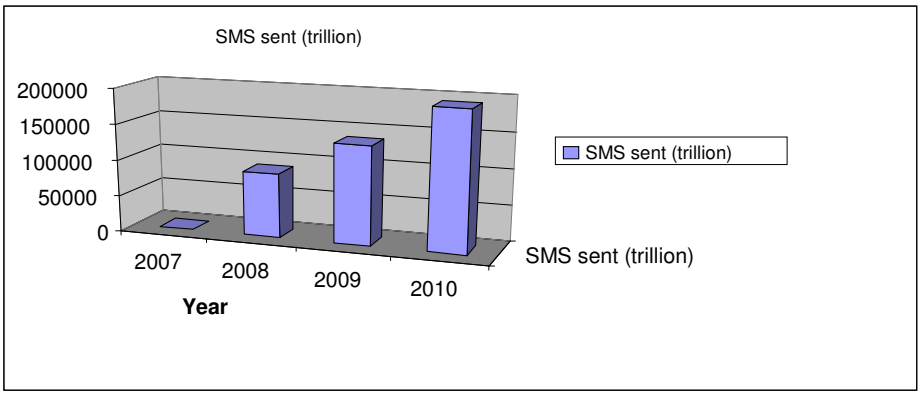

Figure 2 SMS triples in three years.[99]

The *Pew Internet and American Life Project* found that among teens, texting has superseded every other common form of communication (see Figure 3). In three of the age groups from the Pew study, texting and voice calls were a more frequent mode of communication than face-to-face conversation.

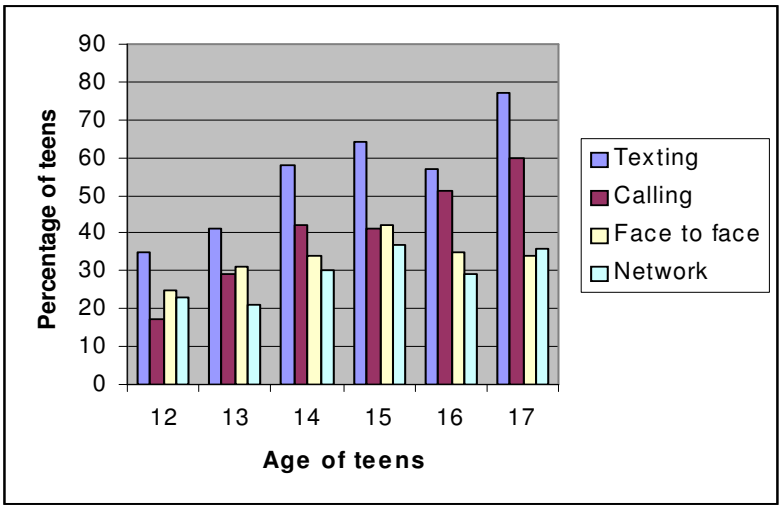

Figure 3 Preferred mode of communication among teens.[100]

[97] David Crystal, *txting: the gr8 db8*, 4.
[98] Ian Hardy, "Report: Globally There's Over 192,000 Text Messages Sent Every Second," in *Mobile Syrup,* October 20, 2010.
[99] Source of data: ibid.
[100] Source of data: Amanda Lenhart, Rich Ling, Scott Campbell and Kristen Purcell, "Teens and Mobile Phones: Summary of Findings," *Pew Internet and American Life Project* (Pew Research Center: Washington D.C., April 20, 2010).

The phrase "Why talk when you can text?" has become something of a mantra for telecommunications firms advertising their text price deals, and the message appears to be getting through. This promotion of a sort of social aphasia has gained a strong foothold among teenagers, often seen texting each other in the same room. A 14-year-old Finnish girl recounts how she took advantage of a texting promotion deal:

> When they had the campaign that allowed you to send SMS for two cents a piece, we pretty much sat there all day with the mobile and probably sent a few hundred messages in all. We could be seated on a bed next to each other typing messages to one another. For three or four hours we just sat on the bed sending messages to one another.[101]

Texting also occurs while co-present friends are put on hold. But is the habitual ignoring of others who are physically present something which should be encouraged? Most teenagers would probably not see it this way. There is research suggesting that this kind of dialogue signifies not denigration or obsolescence of co-present friends but an enhancement, an "augmented 'flesh meet.'" Teenagers use the cellphone to involve friends who cannot physically be there. It gives teens the means to breach the geographical limits of their physical, co-located encounter.[102]

Roslyn Kerr from Canterbury University has asserted that texting is popular due to its "low social weight." She explains that, "We like it when things don't interrupt our everyday conversations."[103] Kerr seems to have been making the point that texting is somehow complementary to co-present conversations or, at the very least, not invasive. But it is hard to see how texting can occur simultaneously with co-present conversation without it affecting the quality of the conversation, in much the same way that texting while behind the wheel of a car affects the quality of the driving – and there are abundant studies suggesting that it does.[104] The very idea that one can multitask effectively, or indeed at all, has come under fire from some recent research. For example, Dr

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[101] Manuel Castells et al., *Mobile Communication and Society*, 158.
[102] Mizuko Ito and Daisuke Okabe, "Technosocial Situations: Emergent Structuring of Mobile E-mail Use" in *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life*, eds. Mizuko Ito, Daisuke Okabe and Misa Matsuda (Cambridge, Massachusetts: The MIT Press, 2005), 266.
[103] Alice Hudson, "Kiwi Textaholics Lead the World."
[104] See "Information Overload" n. 361 of this study.

Edward Hallowell, a Massachusetts psychiatrist whose specialty is the treatment of attention deficit/hyperactivity disorders, believes people are deceiving themselves when they think they can perform several tasks at once.[105] Cognitive neuroscientist Torkel Klingberg draws from a number of studies to explain how difficult it is to multitask using working memory only.[106] It is a moot point, then, whether we can do justice to face-to-face communication when texting.

It may no longer be possible to take for granted that face-to-face communication is the template for human interaction. It may be the original template, but it is becoming increasingly challenged by information and communication technologies (ICTs). In 2005 almost a third of a survey group of 77 cellphone users in Mexico aged 15-29 believed there was no difference between talking to someone on the cellphone and meeting face-to-face. Of the twenty-eight 15-19-year-olds in the group, 43 percent held this perception.[107] Fortunati believes we cannot accept a priori that face-to-face communication is the yardstick, but she adopts more holistic nomenclature, "body-to-body" communication, which includes the gesticulative and postural features of co-present conversation. It also includes other paralinguistic aspects such as spatial position, the clothes we wear and the way we wear them, and also the body itself – size and musculature, for example.[108]

Referring to a list of communications media, Fortunati rightly points out that body-to-body communication has already been diluted by centuries of mediated communication: the printing press, the radio, the telephone, the television, the computer, and now the cellphone.[109] (One could of course go back before the printing press, and before the centuries-earlier Chinese printing venture which produced the Diamond Sutra, to the first coherent writing system etched out on clay tablets in Sumerian cuneiform.) As far back as one can see, humans have always been mediating body-to-body communication with some kind of technology. But the cellphone, at the end of

[105] Christine Rosen, "The Myth of Multitasking," in *The New Atlantis* 20 (Spring 2008), 106.
[106] Torkel Klingberg, *The Overflowing Brain: Information Overload and the Limits of Working Memory* (Oxford: Oxford University Press, 2009), 76-80.
[107] Judith Mariscal and Carla Marisa Bonina, "Mobile Communication in Mexico: Policy and Popular Dimensions," in Katz, *Handbook of Mobile Communication Studies*, 74.
[108] Leopoldina Fortunati, "Is Body-to-Body Communication Still the Prototype?" 53.
[109] Ibid., 55.

Fortunati's list, integrates, miniaturizes and makes portable everything else on the list. The cellphone mediates with an almost consummate thoroughness.

Fortunati concludes that body-to-body communication is becoming an "evanescent prototype," but does not put the blame squarely on ICTs such as the cellphone or Internet. Rather, the fragmentation or discontinuity of social groups with which we interact is used to explain the practical necessity of mediated communication made possible by ICTs. In other words, we may enjoy different sets of friends for school, sports, and cultural activities. It is difficult to engage body-to-body communication with all the friends involved in these pastimes. Mediated communication, such as the cellphone, acts as a substitute and assists in maintaining these networks.[110] This seems to be a positive feature of mediated communication.

Determining whether the cellphone is having a positive or negative impact on face-to-face encounters involves more than a basic content analysis. In the digital environment of cellphones and computers, as in the pre-digital age, the *way* we communicate is just as important as *how often* we communicate; they are not mutually exclusive. With this in mind, can the cellphone enhance intimacy in our relationships? Can it lead to deeper sharing and better understanding and closeness among and between friends and partners?

The cellphone may deepen friendships and nourish intimacy by keeping the lines of communication open and available. Idle phatic communication on the cellphone among friends, of any age, throughout the day can complement other forms of communication, including face-to-face. The cellphone has brought about a lower threshold of communication; therefore, where there would normally be gaps between co-present encounters, friends can be updated. Face-to-face meetings then become an opportunity to "carry certain lines of narration further."[111]

However, this does not always work in practice. The cellphone can unite in one communicative dimension and divide in another. For example, continual

[110] Ibid., 57.
[111] Rich Ling, *New Tech, New Ties,* 156-157.

contact via cellphone calls and texts with a close or intimate friend may end up hampering the fluency of the conversation between the two when they meet in person. As one respondent explained, "I don't like continual talking and texting with my girlfriend throughout the day because when we get together we have nothing to talk about" [Eric, 24]. Eric found that, long after it had been switched off, the cellphone could seriously degrade the conversation dynamic of a co-present encounter. The cellphone made it possible for the daily experiences of Eric and his girlfriend to coincide as if they were going through their day together, but they retrieved one form of closeness and obsolesced another.

In his essay "The Thing" Heidegger recognized this paradox in relation to distance and nearness:

> Yet the frantic abolition of all distances brings no nearness; for nearness does not consist in shortness of distance. What is least remote from us in point of distance, by virtue of its picture on film or its sound on the radio, can remain far from us. What is incalculably far from us in point of distance can be near to us. Short distance is not itself nearness. Nor is great distance remoteness.[112]

Sometimes the more we try to keep people close the more distant they become. Like the striving Tantalus eternally deprived of a drink of water and a taste of the grapes, as we continue to extend our communications reach via electronic intermediaries such as the cellphone, we may be forever doomed to be hungry and thirsty for satisfying depth and vitality in our relationships. The genuine richness and intimacy we desire may always elude us, may frustratingly tantalize us, if we constantly attempt to bridge what we perceive as "distance" in our relationships.

Communications analyst Lara Srivastava comments that text messaging merely offers a show of robust communication. Along with Norman H. Nie, she thinks it lacks the fundamentals or "principal elements," as she puts it ("tone of voice, body language, facial expression and touch"), of human interaction.[113] As a counter to this, the lack of communicative "fundamentals,"

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[112] Martin Heidegger, "The Thing," in *Poetry, Language, Thought*, trans. Albert Hofstadter (New York: Harper and Row, 1971), 165.

[113] Lara Srivastava, "Mobile Mania, Mobile Manners," in Glotz, et.al., *Thumb Culture*, 205.

specifically its asynchronous nature, makes texting so attractive because, unlike co-present conversations or voice calls, it gives both parties gaps for deliberation in their dialogue. By way of illustration, sociologist Rich Ling observes the different stages of the courting ritual:

> Rather than synchronous interaction by telephone, in which it is perhaps easy to make a false step, the couple engage in the exchange of carefully edited text messages. As they gain their footing, the frequency of the messages might increase. This indirect form of interaction allows the individuals to cover over some of their more obvious character flaws and to move through the preliminary stages of a relationship in a more deliberate way.[114]

This may be so, but it is questionable how effective this vetting ritual actually is, particularly when, as Ling informs us, there is an element of subterfuge involved. On the one hand, the ritual keeps potentially undesirable people at a distance, but on the other, it does not seem to provide the kind of information an observant person might glean from a face-to-face encounter. However, this conundrum has always existed with asynchronous communication, such as letter writing. Moreover, a substantial body of research shows that most people are inept when it comes to detecting deceit in face-to-face interaction.[115]

Ling describes the texting ritual as preliminary; however, there is evidence that text relationships go beyond courtship and can constitute the entire relationship. An anthropological study conducted among schoolchildren in Jamaica predicted that text messaging would become the "core" of daily interactions between boyfriends and girlfriends.[116] Kiri [respondent, 15] explains how she used texting in a past relationship with a boyfriend:

> Kiri: Texting was easier because I could carry on doing my own things.
> Author: Would you have had a relationship with him without the option of texting?
> Kiri: No.
> Author: Was he difficult to meet?
> Kiri: No. It's easy to catch a bus and meet up in town. But it would be too awkward if we met up – it would be like, hmmm. It would have been like meeting a new person.

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[114] Rich Ling, *New Tech, New Ties*, 124.
[115] David C. DeAndrea et al., "Dark Sides of Computer-Mediated Communication," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 114.
[116] Heather Horst and Daniel Miller, *The Cellphone: An Anthropology of Communication*, 70.

> Author: How many times did you see this guy face-to-face?
> Kiri: Oh - we definitely met up three times over a relationship that lasted about - um - ten weeks or so. The relationship ended when we ran out of things to text.

Kiri's text relationship appears consistent with research conducted in Finland, where it was found that teenagers projected an SMS (short message service) persona and a real life persona that operated in almost parallel universes. These personae never met. In the Finland example this was played out in the form of a tacit contract whereby the courting teens would carry out all their romantic liaisons from their respective homes at night, whilst at school they would act like strangers:

> BOY: But like every time we'd see each other, once we got the thing going again, we'd never talk about it in school. In fact everything happened by SMS.
> RESEARCHER: Why would you not talk about the messages in school?
> BOY: Well, they were so, you know. I tried to avoid it too, especially face-to-face, I didn't want to say it to her straight out in school or anywhere like that.
> RESEARCHER: Do you think you two had like different personas, like a school persona and an SMS persona?
> BOY: Yeah, you could say that, yeah. (Boy, 17, southern Finland)[117]

The Finnish teens from the study used texts throughout their relationship: to begin, to maintain, and to end. Some of the relationships ended because the teens did not meet in person or, because when they did meet, the person belied the text impression.[118]

It will be interesting to observe how smartphones, with their expanding Internet capabilities, will influence levels of intimacy in communication. Online communication, because of its anonymity, presents an opportunity to share personal information that one may not feel comfortable sharing with a friend or acquaintance, or perhaps even a close friend, depending on the nature of the information. There is little chance that one's offline circle of contacts will ever become privy to the personal information. In addition, a person can present his or her "best" side and not fear judgement based on physical appearance, grooming or socio-economic status. Sometimes, too,

[117] Eija-Liisa Kasesniemi and Pirjo Rautiainen, "Mobile Culture of Children and Teenagers in Finland," in Katz and Aakhus, *Perpetual Contact*, 183.
[118] Ibid.

confiding with a person one knows offline can turn into an awkward co-dependent situation and destroy the balance of the friendship. If one friend is always offering the shoulder to lean on for long periods without a break or reciprocation, this can test a friendship beyond its limits. Online communication also offers a high level of asynchronous communication (higher than texting) that augments the exercise of planning and control in the exchanges. Also, confidants can be accessed online around the world 24 hours a day. For all these reasons, some communications researchers claim that online relationships can be bound by strong bonds of trust and in some cases can be "more intimate and affectionate than parallel, offline encounters tend to be."[119]

Yet it is highly debatable that there are "parallel" online/offline relationships. Obviously there are many kinds of relationships with different functions. But in regard to intimate relationships, disclosure of personal information to a friend – or as Hidenori Tomita has described, to an "intimate stranger"[120] – on the Internet may be likened in some ways to a consultation with a counsellor: the professional distance is there and may mirror the social distance of the Internet. It is hard, however, to see a relationship of this kind as an equal substitute for a physically present friend. In an interview study of Israeli adolescents, respondents did not experience the same degree of closeness in their online friendships. Unfortunately the study did not reveal why they felt this way, but psychologists Barry Schneider and Yair Amichai-Hamburger have speculated that "online relationships do not weather the 'test of time' very well; if there is a conflict, the relationship can be easily 'turned off.' Furthermore, the physical indicators of closeness are, of course, not available online at moments of difficulty in the relationship."[121] As in a counselling situation, a friend can be dispensed with when no longer needed or wanted. This is harder to do offline to a three-dimensional friend.

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[119] David C. DeAndrea et al., "Dark Sides of Computer-Mediated Communication," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 102-104, 96.
[120] Hidenori Tomita, "Ketai and the Intimate Stranger," in Ito et.al., *Personal, Portable, Pedestrian*, 184.
[121] Barry H. Schneider and Yair Amichai-Hamburger, "Electronic Communication: Escape Mechanism or Relationship-Building Tool for Shy, Withdrawn Children and Adolescents?" in *The Development of Shyness and Social Withdrawal*, eds. Kenneth H. Rubin and Robert J. Coplan (New York: The Guildford Press, 2010), 247.

For those seeking online relationships through dating agencies, the time spent online has an opportunity cost measured in the failure to meet people in off-line face-to-face contact. A survey of 132 online dating subscribers revealed that they spent 11.9 hours per week in a combination of searching through profiles and sending and receiving emails, compared to 1.8 hours in offline interactions. For those seeking marriage partners through professional online matching services, the chances of success are slim. For example, research conducted on major online dating services found that only a tiny percentage of subscribers gained marriage partners. From the eHarmony dating website only 1.5 percent of subscribers went on to marry, and when eHarmony recommends a compatible person for marriage there is merely a 1 in 500 chance of marriage. Also, just 20 percent of people who subscribed to an Internet dating site met someone they dated for at least two months. Of course, not all successful couples notify the sites, and not all successful couples decide to marry. Another disadvantage of online dating is that the first face-to-face meeting can still hastily end after weeks of emails, instant messaging or even video-chatting, because the physical chemistry is not there or the in-the-flesh person does not live up to the inflated expectations. It appears that none of the pre-meeting evaluations, in whatever form, are as effective as face-to-face assessments.[122] This information is based on research into Internet dating sites. Other online forums such as social networking sites may reveal greater success for people seeking long-term partners.

Jeremy Rifkin refers to a survey conducted by McKenna, Green and Gleason, all New York University psychologists, in which it was found that romantic relationships originating on the Internet compared very favourably with those formed face-to-face. The study revealed that 71 percent of romantic relationships begun online were still together two years later. Again, anonymity was an important factor in the cultivation of intimacy: the correspondents showed their "true" selves. A key factor was the absence of "gating features" typical of face-to-face meetings, where people make quick judgements based on initial impressions. The respondents in the study were

[122] Susan Sprecher, "Internet Matching Services: The Good, the Bad, and the Ugly (Disguised as Attractive)," in Cupach and Sptizberg, *The Dark Side of Relationships II*, 135-137.

able to make a successful transition to face-to-face encounters because they were more likely to be accepted on the basis of their online interaction.[123]

Smartphones, with their Internet access, appear to enhance the social distance currently appreciated by texters. They amplify all the "protective" dimensions of texting, but they may also encourage a reversal into a co-present avoidance pattern when used to build friendships, intimate or not. A major difference between texting and online communication is obviously that texters normally know in person whom they are texting. One of the risks with forming online friendships is that they can become a self-perpetuating type of escape. The online environment assists in the growth of confidence and success in constructing friendships: there is much more success online, so why not stay there? Some of the research on this issue has focused on the appeal of computer-mediated communication for people suffering from "depression and social anxiety" and "offline social skills deficits" (these people are especially vulnerable to spending too much time online to the continuing detriment of their offline relationship skills), yet these labels would apply to most people at some time or other. Some recent research is wary of classifying this behaviour as an addiction: it is an "adaptation." Nor is it right or wrong: it is a "morally ambiguous paradox." Why should people who are socially inadequate not have a safe and happy space where they can communicate?[124] And this is not to say that most people who communicate online are socially inadequate.

This seems reasonable, but in relation to online interaction, it should also be remembered that many of the factors that free up the communication channels for the scared, the shy, or just the prudently cautious, also lubricate the confidence of those with more nefarious purposes. Anonymity is freedom to divulge intimacies, but also licence to deceive, slander and promote harm in other ways. There are, for example, online communities that incite racial hatred, anorexia and suicide. Groups such as these thrive on anonymity. For the cyber-stalker, the Net is *carte blanche* for "hyperintimacy," an excessive

[123] Jeremy Rifkin, *The Empathic Civilization*: *The Race to Global Consciousness in a World in Crisis* (New York: Jeremy P. Tarcher / Penguin, 2009), 578-79. Jeremy Rifkin is a senior lecturer at the Wharton School's Executive Education Program at the University of Pennsylvania, and is an advisor to the European Union and various heads of state around the world. He has written a number of best-selling books on science, technology, the economy, and society.

[124] David C. DeAndrea et al., "Dark Sides of Computer-Mediated Communication," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 99-101.

display of personal disclosure and affection, which can occasionally turn into offline stalking.[125] To blame the Net or its computer or cellphone portals is to invite criticism for judging the medium and not the perpetrator: the stalker was deviant before going online. In the same way, the socially inadequate person was struggling before the foray into the Net.

Nevertheless, researchers have found that computer-mediated communication produces "deviation-amplifying effects."[126] It amplifies both socially desirable and undesirable behaviour or, in the words of McLuhan, it can "amplify or accelerate existing processes."[127] Therefore, the computer and cellphone are not exonerated as neutral media, as innocent bystanders. This is an important qualification in any assessment of the cellphone's power to enhance the intimacy of human relationships.

Obsolescing Empathy

Empathy is the ability to see and understand another's point of view, to be able to walk in another's shoes, as it were. Psychologist Alison Gopnik is among those who believe it goes even deeper than that: "Real empathy isn't just about knowing that other people feel the same way you do; it's about knowing that they don't feel the same way and caring anyway."[128] How might the cellphone be affecting our capacity to care about others in this very unselfish way?

Technologies such as the computer and cellphone can reconstitute people as cyberspace entities, particularly with social networking sites such as Facebook and MySpace. There is a danger that the nature of our dialogue can become more impressionistic, and our perception of others may become twisted and distorted, as evoked dramatically in Kafka's *Great Wall of China*:

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[125] Ibid., 114.
[126] Ibid., 96.
[127] Marshall McLuhan, *Understanding Media* (London: Routledge Classics, 2001), 8.
[128] Alison Gopnik et al., *The Scientist in the Crib: What Early Learning Tells Us About the Mind* (New York: Perennial/Harper Collins Publishers, 1999), 39.

> Against whom was the Great Wall to serve as protection? Against the people of the north. Now, I come from the south-east of China. No northern people can menace us there. We read of them in the books of the ancients; the cruelties which they commit in accordance with their nature make us sigh beneath our peaceful trees. The faithful representations of the artist show us these faces of the damned, their gaping mouths, their jaws furnished with great pointed teeth, their half-shut eyes that already seem to be seeking out the victim whom their jaws will rend and devour.[129]

Through its embrace of the cellphone, society may be unwittingly building a kind of psychological "Great Wall," or indeed "firewall," where the person is always theoretical – assumed but not actual, digital but not substantial. As Sherry Turkle of MIT explains:

> We are tethered to our 'always-on/always-on-you' communications devices and the people and things we reach through them: people, Web pages, voice mail, games, artificial intelligences (non-player game characters, interactive online 'bots'). These very different objects achieve a certain sameness because of the way we reach them. Animate and inanimate, they live for us through our tethering devices, always ready-to-mind and hand. [130]

Possibly we may reverse into a utilitarian approach to people in an environment where "everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering."[131] Heidegger's term "standing-reserve" is apposite here, because as Heidegger elaborated, "Whatever stands by in the sense of standing-reserve no longer stands over against us as object." [132] An unfortunate consequence of this could be a more ingrained attitude of callousness towards others. Compounding this is the risk that people may come to regard each other as less real and more abstract. Possibly Skype and videophones may overcome this by retrieving a simulation of the body. There are signs that Skype is already threatening the supremacy of voice calls from

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[129] Franz Kafka, "The Great Wall of China," in *Metamorphosis and Other Stories*, trans. Willa and Edwin Muir (Harmondsworth, Middlesex: Penguin Books, 1961), 73-74.
[130] Sherry Turkle, "Always-On / Always-On-You: The Tethered Self," in Katz, *Handbook of Mobile Communication Studies*, 122.
[131] Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. William Lovitt (New York and London: Garland Publishing, 1977), 17.
[132] Ibid., 17.

both landlines and cellphones.[133] It certainly has an appeal: we can see the person and observe her body language and facial expressions. The body is making a comeback. The next step might be three-dimensional holograms.

But is this the answer, or is it what Baudrillard called a "mania for asepsis"? Using America to highlight one of his points about the sterility of modern life, Baudrillard described a culture of faux communication "which sets up specialized institutes so that people's bodies can come together and touch, and at the same time, invents pans in which the water *does not touch* the bottom of the pan … just like those bodies intertwined in 'feeling' and therapeutic love, which do not touch – not even for a moment." For Baudrillard, "This is called interface or interaction. It has replaced face-to-face contact and action."[134] Is there a danger of us becoming like the emotionally anaesthetized Frank Poole from *2001: A Space Odyssey*? He is so much a part of the spaceship's sterile, computerized, emotionally barren environment that he cannot even muster the faintest of smiles when his family wish him happy birthday on the videophone. One of the great ironies of the film is that HAL, the ship's command computer, displays more emotion than Poole ever does. According to Talbott we have already "yielded so passively to mass media and digital technologies today, allowing them to cut us off from vital openness toward the full-fleshed qualities of our human and natural contexts."[135]

Neuroscientist Susan Greenfield recently warned the House of Lords that by the mid-21st century, people might lose among other things the ability to empathize, partly because social networking sites "are devoid of cohesive narrative and long term significance." She sees it as a process of "infantilising" the mind.[136] In her book *ID: The Quest for Meaning in the 21st Century*, Greenfield posits the same argument for computer games, where she suggests that the focus on the here-and-now moment comes at the expense of the context of past and future. She explains that the instant rewards of many computer games may stimulate dopamine production, which consequently

[133] As of October, 2010, apparently 25 percent of New Zealand's overseas calls were made via Skype [Chris Barton, "Webwalk: Roll over Telecom, the Jetson's Revolution has Finally Arrived," in *The Business Herald*, Friday, October 1, 2010, 18].
[134] J. Baudrillard, "Astral America," in *America* (London: Verso, 1988), 32-33.
[135] Steve Talbott, *Devices of the Soul*, 32.
[136] Patrick Wintour, "Facebook and Bebo Risk 'Infantilising' the Human Mind," in *The Guardian* (Tuesday 24 February 2009).

reconfigures the brain towards the action itself instead of its significance.[137] This clearly has implications for the brain's capacity for empathy and may encourage impulsive behaviour more generally. [138]

In many ways, social networking sites have the same feel as computer games and their click-of-a-button rewards and punishments. Social networking sites, accessible by modern cellphones, have a peculiar way of bureaucratizing our network of friends like cyber-characters in a video game: we can keep some and eliminate others. Additionally, on Facebook, MySpace and other networking sites, we can systematically manage, rank and eliminate "friends" in what seems to be a very clinical fashion and in a very public arena, and it is standard practice to furtively scan the list of your friends' friends and delve for information without the need to actually meet them.[139] "Life without hundreds of online 'friends' is virtual death," as Rosen observes. But death online is an intrinsically different kind of death, a death of a digital representation. And as Rosen makes clear, the "friendship" is a very public encounter without the privacy necessary to nurture a friendship of real quality.[140] From a godlike position of power we can control and manipulate our friends and in the process perhaps demean what real friendship is, but can we care quite as much about it if we have become emotionally desiccated? We may have been role-playing the despot for too long: "'Change My Top Friends,' 'View All of My Friends' and, for those times when our inner Stalins sense the need for a virtual purge, 'Edit friends.'"[141]

Computers, and now cellphones, allow us to manage our friends in a very detached way. Internet dating sites, already accessible on cellphones, have also been criticized for demeaning people by corralling them like commodities in a marketplace. Professor Susan Sprecher, of the Department of Sociology and Anthropology at the University of Wisconsin, backs criticism of dating sites that feature personal advertisements extolling subscribers' physical and financial assets. A 37-year-old male seeking a partner on the Internet

[137] Susan Greenfield, *ID*, 200-202.
[138] There is more discussion of impulsiveness in "Enhancing Now."
[139] Christine Rosen, "Virtual Friendship and the New Narcissism," in *The New Atlantis* 17 (Summer 2007), 27.
[140] Ibid., 26.
[141] Ibid., 26-27.

regarded online dating services as opportunities for experimenting with others one would never ordinarily meet, and felt that it was like shopping for groceries. [142]

The cellphone affords us an unnerving degree of Big-Brother-like omnipotence. We may ultimately pay the price as extras in an Orwellian nightmare. However, it could be a sweet dream of global understanding and cooperation, brought about by the freedom and openness of online social networks accessed by the computer and cellphone.

This dream is shared by Mark Zuckerberg, founder of Facebook, who has expressed his vision of community in terms of a "gift economy" based on transparent mutual giving. His model for this community is the potlatch ceremony, held by Native Americans of the northwest coast of North America, where every participant contributes gifts of food and goods into a common pool from which participants can take what they want. Those who give the most are held in the highest esteem. According to Zuckerberg, the small size of the Native American potlatch enables everyone to be seen meeting his or her responsibility to give and take fairly – something that is harder to see in larger communities. This is where Facebook and other similar Internet sites are so effective, Zuckerberg believes, because they enable transparency in large communities.[143]

In his book *The Empathic Civilization*, Jeremy Rifkin proposes that the confidence-building social distance and lack of constraints for personal disclosure of online communication (which have already been explored) could lead to a "universal empathic connectivity" that may be needed to save the planet from climate change, or annihilation from weapons of mass destruction.[144] This "new form of communication," argues Rifkin, "can advance empathic awareness to new heights."[145]

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[142] Susan Sprecher, "Internet Matching Services: The Good, the Bad, and the Ugly (Disguised as Attractive)," in Cupach and Sptizberg, *The Dark Side of Relationships II*, 134-135.
[143] David Kirkpatrick, *The Facebook Effect*, 287.
[144] Jeremy Rifkin, *The Empathic Civilization*, 578, 616.
[145] Ibid., 578.

Not everyone shares the idealism of Rifkin and Zuckerberg. Rifkin himself concedes that the power of the Internet as a cultivator of global empathy can also be a medium for "boundless exhibitionism and narcissism."[146] We can all be narcissistic at times; it is a matter of degree. Technology critic Andrew Keen is deeply wary of the risk to privacy that comes with the ideal of online transparency. He is irritated by the "increasingly ubiquitous social network – fuelled by our billions of confessional tweets and narcissistic updates – that is invading the 'sacred precincts' of private and domestic life." Echoing Rifkin's criticism, Keen deplores the mania for "self-produced legibility," a "self-promotional madness" motivated by our yearning to advertise our uniqueness to all and sundry, and which simply plays into the hands of our "corporate advertising 'friends.'" For Keen, social networking is a trap.[147] It is questionable whether any medium of communication could be designed to compensate perfectly for the perennial foibles of human nature, perhaps because there is too much of our human nature in the technology.

Steve Talbott is doubtful that civilization will be saved by simply connecting everyone up in a communication network to form something akin to the much anticipated Great Singularity[148] or Omega Point of global consciousness:

> Call this, if you will, "Evolution for Dummies" or "Plug-and-Play Evolution." Just add connections and – presto! – a quantum leap in consciousness. What easy excitements we revel in! But our excitement is not for the potentials of our own growth; what we anticipate, rather, is our sudden rapture by the god of technology. No blood and sweat for us, no inner work, no nearly hopeless perils of the hero's quest. If, through our own folly, we face the end of the natural world, no problem: we will be spared the

[146] Ibid., 580. By "narcissism" Rifkin means self-absorbed, self-important, intolerant of others, and lacking in empathy [Ibid., 585]. Thus he conforms closely to the clinical definition of Narcissist Personality Disorder (NPD) as described in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) – a "pervasive pattern of grandiosity, need for admiration, and lack of empathy" [Cited in Joshua D. Foster and Jean M. Twenge, "Narcissism and Relationships: From Light to Dark," in Cupach and Spitzberg, *The Dark Side of Close Relationships II*, 382].

[147] Andrew Keen, "Your Life Torn Open, Essay 1: Sharing is a Trap," in *Wired* (February 3, 2011). Andrew Keen has a background in political science and has taught at Tufts University and the University of Massachusetts Amherst.

[148] There are many versions of the "Singularity." Some concern a time when networked humans become a global consciousness or brain; others relate to a critical mass of computing intelligence resulting in self-awareness and the overthrow of humans [Jaron Lanier, *You Are Not a Gadget: A Manifesto* (New York: Alfred A. Knopf, 2010), 24-25]. Ray Kurzweil is perhaps the most well-known forecaster of the technological singularity of computer super-intelligence. He has articulated his views in *The Age of Spiritual Machines* (1999), *The Age of Intelligent Machines* (1990), and *The Singularity is Near* (2005).

> Tribulation because technology, in a singular salutation, will translate us into new and better conditions of life.[149]

Shades of this kind of unbridled optimism in technology were evident in much of the media coverage of the 2011 demonstrations and subsequent overthrow of President Ben Ali in Tunisia, and the resignation of Hosni Mubarak in Egypt. The media were quick to promote the importance of social networking sites and cellphones in these revolutions, if indeed this is what they were; at the time of writing it is too early to tell. Egypt's has been called the "Facebook revolution." The wonders of the Internet have vanquished injustice. This sounds suspiciously like the "new economy" of the dot.com boom as it was reaching fever pitch early in the new millennium. Suddenly the fundamentals of the "old economy" no longer applied: the old economy of bricks-and-mortar companies had been conquered by the new economy of cyberspace. Such hyperbole then and now is superficial.

Empathy is not the same as awareness. The cellphone and Internet allow people to connect to others in a way that, unhindered, can fuel belief in some current or future state of global togetherness, understanding and empathy, however vague or uncertain these terms and the envisaged form of this "McLuhanish" global village might be. It is undeniable that the modern digital milieu presents an environment in which like-minded people can link up to share common interests and promote causes. Large-scale national and international fundraising causes, such as that for the Japan and Christchurch earthquakes, have undoubtedly benefited – indeed have been made possible – from the communication and information superhighway which is exemplified by the cellphone and Internet. Whether such examples of goodwill and positive action point to some future time of global consciousness or togetherness remains to be seen. Effecting morally edifying global understanding and change at the macro level may be much harder than at the micro-level, especially when the causes are socially, politically and economically complex. An earthquake in Christchurch appears more straightforward in its implications and solutions than a problem such as global warming or global peace. Coalescing for action individuals and groups with

[149] Steve Talbott, *Devices of the Soul*, 13-14.

diverse and often conflicting ideologies may be more challenging on a global scale because of, on the one hand, the need for strong and broadly mandated leadership and, on the other hand, the need to unite the multitude of voices around the world that can be heard through decentralized new media. These voices are less restrained, less muffled, than at any time in history, and one-to-many has become many-to-many.[150] While this may enhance awareness and democracy, does it enhance the unity that seems to be implied by terms such as "global village," "global empathy" or "global consciousness"?

Evgeny Morozov points to the new-media cacophony of voices that paralyses political action on a mass scale. He offers the Iranian protests of 2009 as a good illustration of the way the decentralized nature of digital media can circumvent government censorship in order to promulgate unofficial political messages and images to the wider world. The flip side to this is the disunity and disorganization that can arise when there is so much noise coming from so many different directions: the protest movement could not speak with one voice. As one Iranian observer remarked ruefully, "A protest movement without a proper relationship with its own leaders is not a movement. It is no more than a blind rebellion in the streets which will vanish sooner than you can imagine."[151] This is a case study at the national level. How much more difficult would it be at the international or global level to instigate unity, let alone some sort of global consciousness?

The architecture of the Internet, moreover, may also play a role in undermining visions of global unity and understanding. MIT's Eric Brynjolfsson, with Marshall Van Alstyne of Boston University, created a mathematical model designed to gauge how individual preferences contributed to the character of online communities. In the introduction to their research they make a provocative statement: "Although the conventional wisdom has stressed the integrating effects of [Internet] technology, we examine critically the claim that a global village is the inexorable result of

[150] Michael O'Shaughnessy and Jane Stadler, *Media and Society*, 117.
[151] Evgeny Morozov, *The Net Delusion: How Not to Liberate the World* (London: Allen Lane, 2011), 197.

increased connectivity."[152] Brynjolfsson and Alstyne found that the mechanics of online communication encourage greater polarization or "balkanisation" between communities than exist offline. The efficiency and precision of software that enables us to select, filter, and consequently aggregate only with those people who share our views, likes and dislikes, personality traits, and so forth, ultimately generates a "virtual homogeneity" as opposed to more diverse communities offline. Brynjolfsson and Alstyne explain how their model indicates that "other factors being equal, all that is required to reduce integration in most cases is that preferred interactions are more focused than existing interactions."[153] In our choice of dialogists, the tiniest proclivity towards like-mindedness will likely lead to a greater polarization of online communities (Carr cites, for example, how participants in the political blogosphere have clearly polarized into liberals and conservatives[154]). This is the antithesis of the kind of unity-in-diversity necessary for an empathic global village or global consciousness.

Enhancing Revolution

While acknowledging that, at this time of writing, events in the Middle East are still unfolding and there is much analysis still to come, it is already clear that modern Egypt, for example, has been a pressure cooker of social and political discontent going back to the Nasser regime (1956-70), well before cellphones and the Internet. The seeds of revolution have been watered and fertilized in decades of repressive and corrupt authoritarian rule. Add to this the neoliberal economic policies in the 1990s, disillusionment with the peace treaty and subsequent too-cosy relationship with Israel, falling wages, rising prices, and state-sanctioned torture,[155] and it becomes more obvious that there is a lot more to the revolution than social networking, cellphones and the Internet. If Facebook was a "spark" or "accelerant" for revolution in Egypt, as many news media have interpreted it, then so too was the second Intifada of

[152] Nicholas Carr, *The Big Switch: Rewiring the World, from Edison to Google* (New York: W. W. Norton & Company, 2009), 162.
[153] Ibid., 162-163.
[154] Ibid., 163-164.
[155] All of these factors are lucidly explained in Rabah El-Mahdi and Philip Marfleet, eds., *Egypt: The Moment of Change* (London: Zed Books, 2009).

2000 which inspired and energized many Egyptian activist groups to seek justice and democracy in their own land. The invasion of Iraq in 2003 was another spark to political resistance, and the Kifaya (Egyptian Movement for Change) demonstrations of 2005 have been described as "the spark for prairie fires."[156] There have been many sparks and accelerants towards revolution in Egypt. The decisive factor may have been the unlikely collaboration of a variety of normally antagonistic political groups – Nasserists, Muslim Brotherhood, Socialists – with diverse social, religious and political agendas, the main unifying element being their opposition towards Mubarak.[157]

This is not to imply that new-media communications have not had an important role in the 2011 revolutions in Tunisia and Egypt, and in many other revolutions and political protests elsewhere. The cellphone has enabled people to communicate via SMS and the Internet in cyber-tribes, or "smart mobs" as Howard Rheingold calls them. The people in these smart mobs are able to initiate collective action on an unprecedented scale with acquaintances and strangers irrespective of time or place.[158] This tactic was used to good effect against Philippine president Joseph Estrada in 2001. He ultimately resigned, indirectly because of the pressure of the mass demonstrations.[159] "Swarming" protest tactics of cellphone users were employed with notable success at the 1999 World Trade Organization meeting in Seattle. Here organizers used cellphones and websites to coordinate clusters of demonstrators that would emerge from a crowd, carry out a pre-planned attack, and vanish into the crowd again. Outside the Seattle conference venue, swarming proved to be a very effective guerilla-style tactic that caused mayhem and drew widespread international media attention.[160]

The Internet can promote awareness of issues and events in a way that is more rapid than at any other time in history, and can thereby assist in generating a feeling of affinity or togetherness for a cause, both at home and abroad. Egypt's activists have taken advantage of websites and blogging for the sharing

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[156] Rabab El-Mahdi, "The Democracy Movement: Cycles of Protest," in ibid., 102.
[157] Ibid., 95-98.
[158] Howard Rheingold, Introduction to *Smart Mobs: The Next Social Revolution* (Cambridge, MA: Basic Books, 2002), xii.
[159] Howard Rheingold, "Mobile Media and Political Collective Action," in Katz, *Handbook of Mobile Communication Studies*, 230-231.
[160] Ibid., 230.

of information about arrests and charges and for the devising of strategy and tactics. E-networks have been a "virtual megaphone" for Egypt's opposition movement.[161] One can draw tentative parallels between the demonstrating crowds of Egypt and the protesting crowds at Versailles on the eve of the French Revolution who were "aroused by months of frenzied publicity" about the activities of the Estates General.[162]

In conjunction with the Internet, the cellphone user can capture and disseminate events almost as they happen. Ordinary people become citizen journalists by posting messages and film footage on websites. The London bombings of July 2005 produced opportunities for citizen journalists, in the form of pictures and videos from within the tube tunnels immediately after the explosions. Eyewitnesses and the victims themselves captured the images, which quickly appeared on Weblogs and then soon after on CNN and the BBC.[163] This may enhance democracy because of the relatively unencumbered nature of the news-gathering process. A bystander at the site of a protest or a government crackdown is not beholden to paymasters and may be able to present a side of the event that might otherwise be edited or simply unavailable. In Iran, people disillusioned with the 2010 election results were able to share with the world their sufferings during the government clampdown on protests. Cellphone cameras captured the atrocities of the ruling regime and shared them with the world via the Internet. Similarly, during the revolts in Tunisia, Egypt and Libya, the cellphone furtively recorded events as they transpired.

Their representativeness notwithstanding, these cellphone images are critical for raising international awareness and make it harder for governments sensitive to political and economic sanctions to act with impunity. In countries where professional journalists have been restricted or banned, cellphones are, as the *New York Times* put it, the "eyes and ears" of the world.[164]

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[161] Rabab El-Mahdi, "The Democracy Movement: Cycles of Protest," 90.
[162] William Doyle, *The Oxford History of the French Revolution* (Oxford: Oxford University Press, 1989), 103.
[163] Ilpo Koskinen, "Mobile Multimedia: Uses and Social Consequences," in Katz, *Handbook of Mobile Communication Studies*, 247.
[164] Jennifer Preston and Brian Stelter, "Cellphones Become the World's Eyes and Ears on Protests," in *The New York Times*, February 18, 2011.

Nevertheless, television has been equally if not more potent than Facebook and Twitter as an accelerant of the Egyptian revolution; Mohammed el-Nawawy (a specialist in Middle Eastern media, and with a research interest in new media) is adamant about this: "Social media played a role but this isn't about social media. Now things are at street level in Egypt; most of those people haven't even heard about Twitter. In the Arab world, satellite TV has played a much bigger role than social media." He mentions *Al Jazeera* as having had far greater coverage of Egypt's political tumult than Twitter or Facebook.[165]

Television can still sway the public mood as it did during the "living room" war that was the Vietnam conflict, where one of the most enduring images came from Saigon during the Tet offensive, when a South Vietnamese officer shot a young male Vietcong operative in the head. This image turned many politically moderate Americans against the war. The television coverage of the demonstrations in Tahrir Square, Cairo, was almost certainly a factor in Mubarak not sanctioning the use of extreme military force against the protesters. In the "living room revolution" of Egypt, as in the living room war of Vietnam, America is watching.[166] This is not to say that every country fears America's gaze.

Facebook and other social media provide people with the means to become actively involved in political causes. The power of Facebook was not lost on Barack Obama, who brilliantly used the site to garner votes during his presidential campaign – so much so that 2008 was dubbed "the Facebook election." In addition, there is research that shows online political participation can translate into offline involvement. For example, a study conducted by political scientists at the University of California, Santa Barbara, showed a positive correlation between student membership of Facebook,

[165] Dominic Rushe, "How Twitter has become the People's Voice on the Eve of its Fifth Birthday," in *The Guardian / The Observer*, Sunday 13 February, 2011.

[166] In the author's view, it seems likely that it would have been embarrassing for the Obama administration if Mubarak had crushed the revolt in a very public way. American economic and military aid for Egypt has been huge since the Camp David Accords of 1977. Only Israel has been a bigger recipient of American largesse in the Middle East [Anne Alexander, "Mubarak in the International Arena," in El-Mahdi and Marfleet, *Egypt: The Moment of Change*, 138]. In the event it, was the army that made the difference by siding with the people.

political groups and "real world" activism.[167] It seems the Facebookers and Twitterers do empathize and do get involved. Whether such involvement is sustained is another question.

Rifkin praises the millennial generation as "the most empathic generation in history," and he attributes this to them being networked, collaborative and non-hierarchical, which in turn makes them more inclusive and more understanding of human diversity.[168] Nonetheless, the degree to which members of Facebook, Twitter and other online communities are truly motivated has been questioned by some. Social commentator Malcolm Gladwell, for example, sees such non-hierarchical networks as weak ties that are lacking in a strong leadership structure and the necessary commitment for major social change. He is therefore much less effusive than Rifkin about the chances of "the empathic civilization," at least as an online movement, to radically transform the world. While he acknowledges the power and efficiency of such networks for rallying support for causes where little personal sacrifice is required – such as seeking out a long lost friend or family member, fundraising, or donating bone marrow – when genuine dedication is needed, Facebook communities may have bone marrow but no backbone:

> Donating bone marrow isn't a trivial matter. But it doesn't involve financial or personal risk; it doesn't mean spending a summer being chased by armed men in pickup trucks. It doesn't require that you confront socially entrenched norms and practices. In fact, it's the kind of commitment that will bring only social acknowledgement and praise ... Social networks are effective at increasing participation – by lessening the level of motivation that participation requires.[169]

The motivation for a cause such as the civil-rights movement in America came from strong ties of friendship and camaraderie among activists who met face-to-face for campaign strategy planning. They were organized around military-style hierarchies giving them leadership, discipline and clear direction. In contrast, Gladwell argues that networks like Facebook struggle to gain a consensus, lack strategic nous and clear goals, and are plagued by internal

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[167] David Kirkpatrick, *The Facebook Effect,* 293.
[168] Jeremy Rifkin, *The Empathic Civilization*, 543.
[169] Malcolm Gladwell, "Small Change: Why the Revolution Will Not Be Tweeted," in *The New Yorker* (October 4, 2010), 4. Malcolm Gladwell is a staff writer for *The New Yorker.*

divisions. According to Gladwell, the decentralized nature of cellphone swarms that has made them such a potent protest weapon is one of the main weaknesses of networks. He cites the Palestinian Liberation Organization and Al Qaeda as movements that have lost much effectiveness because of their network structures. Gladwell is convinced that if Martin Luther King had tried a wiki-boycott in Montgomery he would have been crushed by the white power structure.[170]

Gladwell is responding to what he sees as far-fetched claims about social networking's potential for profound social and political revolution, as espoused by proponents like former national-security advisor Mark Pfeifle who called for Twitter to be nominated for a Nobel Peace Prize. In reply, Gladwell argues that the role of Twitter in the demonstrations in both Iran and Moldova has been hugely overstated.[171]

It would seem that Gladwell's opinions have been discredited following the revolutions in Tunisia and Egypt and the spreading protests in northern Africa and the Middle East. However, most revolutions, political or otherwise, have the common denominator of a history of struggle and a vanguard of committed leaders who are willing to put their bodies and lives not only online but *on the line*. Earlier democracy protests in Egypt, for example, were small in scale and highly dangerous.[172] It is easier from a psychological view to get off Twitter and join a massive protest with global media coverage than a small one that barely makes a ripple in the local newspaper. One could argue that it

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[170] Ibid., 4-6.

[171] Ibid., 2, 6.
Evgeny Morozov, visiting scholar at Stanford University and author of *The Net Delusion*, has made the point that on the eve of the protests following the 2009 elections in Iran there were just 19, 235 registered Twitter accounts in Iran, or 0.027 percent of the population [Dominic Rushe, "How Twitter has become the People's Voice on the Eve of its Fifth Birthday"].

[172] Rabab El-Mahdi details the challenges faced by the Egyptian democracy movement's dedicated activists during the nascent stages of the movement: "On 12 December 2004 Kifaya [or the Egyptian Movement for Change (one of many groups constituting the democracy movement)] held its first – silent – demonstration. This came less than three months after the idea for a new campaigning group and the slogan 'Kifaya!' had first been discussed at a dinner by seven veteran activists, including Marxists, Nasserites, Islamists and Liberals. The movement went on to organize a host of public activities – demonstrations, campus rallies, meetings and marches. Its strategy of political disobedience meant that activists risked arrest and abuse, and police tactics sometimes isolated demonstrations so completely that they went unseen and unheard (riot police formed vast concentric circles around protestors so that only the most determined activists reached assembly points)" [Rabab El-Mahdi, "The Democracy Movement: Cycles of Protest," in El-Mahdi, *Egypt: The Moment of Change*, 89].

becomes massive only because of the information that social networking provides. But this is only one part, the later part, of the story.

This notwithstanding, the leaders of the Egyptian revolution, the modern "proactive Mittelbau," have no doubt reaped the benefits of the communicative speed and freedom made possible with the cellphone and Internet. [173] Not the least of these benefits has been the ability of those in the democracy movement, with all its disparate groups, to articulate their experiences via the Internet. This would have engendered a strong feeling of camaraderie. You are buoyed by the fact you are not alone in the struggle; morale is sustained.

In relation to the Middle East, much of the recent publicity surrounding new media has been in their potential to enhance the spread of "truth," "freedom" and "democracy," as far as Westerners understand these concepts. Perhaps, for the sake of balance, more attention should be paid to the destructive potential of technologies such as the cellphone and Internet for the spreading of false and misleading information. In Hungary, for example, political parties used SMS to transmit propaganda in the 2002 elections. As Rheingold asserts, "To the extent that accuracy of information cannot be determined, the positive potential of these powerful technologies may be blunted if not turned against itself." [174] Furthermore, pressure groups and governments with malevolent aims can harness the cellphone to incite civil unrest. For instance, the Chinese government utilized SMS and email to manage anti-Japanese boycotts and street demonstrations in April, 2005. [175] Ominously, the surveillance capabilities of the new media have scarcely been tapped yet – after the French Revolution came the Terror, with everybody turning against friends and allies.

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[173] The "proactive Mittelbau," as Gergen calls it, is an intermediary political body that emerged with the arrival of television. It can draw participation from the local populace and communicate with the government in a way that is unprecedented in history. Surpassing print and radio, television is, properly exploited, able to transform protests from basic expressions of discontent into effective magnets for support. The cellphone has added a new dimension to the proactive Mittelbau: "While television is the technology primarily responsible for the politically proactive Mittelbau, and the Internet its major means of organizing across large geographical domains, mobile communication has served as its chief instrument of refinement" [Kenneth J. Gergen, "Mobile Communication and the Transformation of the Democratic Process," in Katz, *Handbook of Mobile Communication Studies*, 300-301].

[174] Howard Rheingold, "Mobile Media and Political Collective Action," in Katz, *Handbook of Mobile Communication Studies*, 237.

[175] Ibid., 227, 232.

It will be interesting to see whether the Middle East relives this unfortunate chapter in history.

Social networking through cellphones and the Internet is neither a sufficient nor necessary element in political revolution. Sometimes the Internet can hinder political activism. Columbia University communications researcher Rasmus Nielsen was puzzled as to why a volunteer group involved in the 2008 Democratic presidential primary, decided in the final days of the campaign to abandon the Internet and revert to conducting their strategy meetings by phone and in person. He identified three problems associated with their Internet-assisted activism: "overcommunication, miscommunication, and communicative overload." Nielsen has also suggested that other activists elsewhere may find that when planning becomes action, the very Internet features that keep them in touch with a large community may come back to bite them.[176]

It should also be remembered that both pro- and anti-government interests can commandeer the Internet as a hearts-and-minds battleground. The cellphone and Internet may sometimes enhance the organizational efficiency and cohesiveness of political and social movements. They are potent carriers of powerful ideas such as democracy, and they can inject momentum and pace to the process of political change.[177] This may increase the likelihood of a revolution as long as other conditions for revolution are met, including a relatively weak, disorganized and disunited government, and a disaffected military. Not all governments collapse like a house of cards in the face of social networking and mass demonstrations.

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[176] Rasmus Kleis Nielsen, "The Labors of Internet-Assisted Activism: Overcommunication, Miscommunication, and Communicative Overload," in *Journal of Information Technology & Politics* 6, nos. 3/4 (July 2009), 267-268.

[177] The most well known historical precedent for this is the printing press. Historian H. G. Koenigsberger has examined the way the printing press was integral to the acceleration of change:
"For the first time the communication of knowledge and ideas, other than by word of mouth, could reach more than a tiny minority of Europeans. Moreover, this was now possible with a degree of accuracy and uniformity which had been quite unattainable in handwritten copies of any work. From now on writers, artists, musicians and scientists could reach a much larger international audience than had previously been possible. The multiplicity and variety of European cultural traditions would now become a mutual stimulus through the printed word or picture, to a degree that greatly surpassed medieval possibilities. Thus the invention of printing was one of the principal causes of the often observed speeding-up of change in the history of modern European civilization" [H.G. Koenigsberger, *Early Modern Europe: 1500-1789* (London: Longman, 1987, 24].

Lenin once observed that two conditions were necessary for revolution to occur. First, the ruled could not continue to be ruled in the old way; second, the ruler could not continue to rule in the old way.[178] Very new media have not obsolesced very old reasons for revolution.

Enhancing "Now"

In one of its recent advertising campaigns, Vodafone used the slogan, "Making the most of now." It reflects a philosophy of living that likes to pack as many things into life as humanly possible in the most efficient, time-saving, convenient way. It also broadcasts loud and clear that without the digital pot-pourri of cellphone functions, we are frittering away the present moment.

Susan Greenfield sees a relationship between the focus on the instant – the "now" – and its impact on society more broadly. For Greenfield, contemporary society opts for "a rush of adrenalin and the immediacy of the next sensory kick." It has too often sacrificed meaning for the moment, the forming of connections for the dissolving of connections.[179] Cultural theorist Pierre Bourdieu bemoaned journalism's predilection for the snappy, the frothy and the superficial, and the "fast thinkers" who flourish in this environment: they write one book a year, are always on the television opining in sound bites on every subject under the sun and "think faster than their own shadow."[180]

In the culinary sphere, highly technological societies have become less engaged with cooking, less in contact with the optical, tactile, olfactory, imaginative, and aesthetic processes involved in the preparing and cooking of food. Do TV celebrity chefs compensate for our detachment from the actual physical processes of preparing food? Malcolm Bancroft regrets in American culinary history a "trajectory towards increasingly convenient foods," and he

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[178] Fred Halliday, "Why do Revolutions Happen?" in *Big Questions in History*, ed. Harriet Swain (London: Vintage Books, 2006), 77.
Fred Halliday is professor of international relations at the London School of Economics.
[179] Susan Greenfield, *ID*, 6-7.
[180] Jostein Gripsrud, "Tabloidization, Popular Journalism and Democracy," in *The Tabloid Culture Reader*, eds., Anita Biressi and Heather Nunn (Maidenhead: Open University Press / McGraw Hill Education), 36.

puts it in the context of a society enamoured with technology in the form of time- and labour-saving devices and appliances. [181]

From fast food to fast communication, the cellphone underscores society's desperate, technology-driven "need" for instant gratification. Texting helps satisfy this need – often a created and nurtured need – for the quick and instant: it is the "burger and fries" of communication. Texting fits comfortably into a society that has everything at its fingertips, and instant gratification is supreme: "now" is everything. The cellphone camera also epitomizes this "philosophy"; communications researcher Gerard Goggin thinks that it offers a perception of "immediacy" and is anchored in "the now" as much as it is possible to exist truly in the present.[182] Joni [respondent, 13] remarks how a friend has Facebook and Bebo open on her computer all the time: "It's all about convenience; it's all about doing it now."

In a quantitative and qualitative study of the cellphone, researchers Nafus and Tracey (social anthropologist and psychologist/engineer respectively) argue that the cellphone enables people to maximize efficiency in a capitalist environment where time is an object – "spendable, wasteable, stretchable and contractable" – that can be managed or mismanaged. [183]

To a significant degree this Western[184] conception of the cellphone originates from the economic imperative of rapid, mass production in the tradition of Frederick Taylor and Henry Ford. For the person assigned a repetitive task on a Taylor-Ford-style factory assembly line, whether tightening a bolt or discarding blemished peas, life is a continuous present with one action indistinguishable from the previous or the next.[185] It is one eight-, nine- or ten-hour "now." From a Marxist point of view this is part of the human

[181] Malcolm James Bancroft, *From Popular Art to Mass Culture: Autonomous Technology and the Intellectual History of Fast Food.* PhD thesis, Massey University (2005), 12.
[182] Gerard Goggin, *Cellphone Culture*, 149.
[183] Dawn Nafus and Karina Tracey, "Mobile Phone Consumption and Concepts of Personhood," in Katz and Aakhus, *Perpetual Contact*, 215.
[184] The capitalized "Western" is a term referring to cultural and ideological ideas and behaviours most closely associated with, but not confined to, western Europe and The United States.
[185] Frederick Taylor's *Principles of Scientific Management* (1911) inaugurated a new industrial era where the workers would all carry out "the same maximally efficient, radically simplified movements" [Peter Wollen, *Raiding the Icebox: Reflections on Twentieth Century Culture* (Bloomington: Indiana University Press, 1993), 36].

"conditioning" that accompanies important changes in the forces of production.[186] As an adjunct to living in an economy geared towards mass production, to some extent society has learnt to live in its version of an eternal present, and the cellphone keeps us there.

Today post-Fordism may have "liberated" a number of people, at least in the West, from factory floors, but the boundaries of the workplace have simply expanded. Cellphones and computers have contributed to this by making every moment potentially a working moment. For example, in a case study of Canadian BlackBerry users, Catherine Middleton found that because of the very nature of the always-on, always-available modus operandi of the BlackBerry and other mobile technologies, they often intruded upon personal activities. This is despite some in the study believing that the BlackBerry could control and enforce the professional and private spheres.[187] In a felicitous cinematic example, the character Andrea from *The Devil Wears Prada* finds that her cellphone will not let her relinquish the all-pervasive presence of her imperious employer, to the point where it undermines intimate conversation with her boyfriend.

For many in the Canadian study, the BlackBerry is liberating because it allows them to perform their work duties outside the office. BlackBerries assist them in fulfilling an almost 24-hour on-call commitment. For the participants in the study, Middleton sees the BlackBerry as an instrument of engagement with a work environment characterized by a culture of long working hours. Middleton also reveals, however, that such technologies can exist to reinforce and perpetuate the organizational values of "immediacy" and "responsiveness."[188] It seems a short step to the assertion that BlackBerries and other mobile technologies are the material embodiment of such values.

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[186] Langdon Winner, *Autonomous Technology: Technics-Out-of-Control as a Theme in Political Thought* (Cambridge: The MIT Press, 1977), 83.

[187] Catherine A. Middleton, "Illusions of Balance and Control in an Always-On Environment: A Case Study of BlackBerry Users," in *Continuum: Journal of Media & Cultural Studies* 21, no. 2 (2007), 171-173.

Catherine Middleton teaches at the School of Information Technology Management, Ryerson University, Toronto.

[188] Ibid.

As a rejoinder, it can be said that although that the work environment inevitably impregnates mobile technologies with the values of that business, it is not a *fait accompli*. Outside the work environment the cellphone or BlackBerry may reflect different kinds of values. While this argument has merit, it is becoming more difficult to sustain. As has already been explained, the blurring of "work-life" and "home-life" undermines such neatly defined taxonomies; if the former is intruding on the latter, is there an "outside work" that can impose its own values on a device?

One might be advised to exercise a measure of control over the cellphone and simply turn it off, but there is an expectation of availability that comes with the cellphone. When combined with the overlapping realms of the personal and private, all competing for and demanding our attention, disconnecting oneself is very difficult. As Michelle [respondent, 37], a photographer, relates: "For work it [the cellphone] means that clients can get hold of me; clients can phone anytime." Michelle sees this enhancement of contactability as an advantage for her business. On the downside, the same power of cellphonic contactability may obsolesce a certain measure of peace for the cellphone user, and Michelle bemoans this aspect: "I can't have a quiet moment, generally because of friends always wanting to contact you. I'll be watching TV and the phone is buzzing. You have no control over it unless you turn it off, but I don't turn it off. It sounds ridiculous but it's true."

Our experience of time has become what Manuel Castells calls "timeless time," which means a blurring of the sequential structure of human activities. Each activity has breached its temporal container so that work time, family time, personal time, leisure time "converge in us in relentless waves from the ocean of communication."[189]

These waves sometimes threaten to engulf us completely. Users of social media have reported feeling under pressure to be always available, in constant contact. In a survey of 420 Australians over the age of eighteen, 63 percent of respondents felt that social media were contributing to their stress levels; of these people, 37 percent said they felt under pressure to be in constant contact,

[189] Manuel Castells, "Afterward," in Katz, *Handbook of Mobile Communication Studies*, 450.

and 35 percent believed there was an expectation to respond promptly to messages.[190] The new generation cellphones have made social media mobile, so the expectation of rapid response is even greater.

It seems that the value of rapid response embodied in the cellphone has come to enhance (or degrade, depending on one's tastes) the dynamics of our recreational activities. Many leisure pursuits now incorporate a dimension of digital mobile interactivity that ostensibly enhances the events. For example, in an attempt to boost audience participation in a performance of Beethoven's *Pastoral Symphony* at Wolf Trap in Virginia, the orchestra transmitted a series of Twitter tweets which elaborated on some of Beethoven's musical references. Other orchestras have been encouraging audience members to text their preferences for the encore; interestingly, one concert-goer felt the experience was "less passive than just sitting there and listening to music."[191] The act of quietly sitting and listening to a live classical recital, or a play, without any kind of digital mediation, could in future lose its legitimacy as an old-fashioned, "passive" way of experiencing live entertainment. Google's chief executive, Eric Schmidt, has a vision of theatre patrons tweeting each other during a play. In some American churches, parishioners are being encouraged to exchange inspirational tweets and blogs during services.[192] Here the cellphone affords us the ability to act and interact spontaneously during an event; our thoughts fly across the room to the performers and each other.

The cellphone enhances the ability to convert thought into action instantly, anywhere. The advantages of this are obvious in an emergency, for example when immediate action is needed to prevent harm to a person or property. It also confers a degree of reassurance for parents concerned for their children's safety. A survey was conducted in December 2007 in the United States which revealed that 78 percent of parents who were considering gifting their children cellphones were motivated first and foremost by safety concerns.[193] The

[190] Sarah Malik, "Social Media Increasing Stress Levels."
[191] Nicholas Carr, *The Shallows: What the Internet is Doing to Our Brains* (New York: W.W.Norton & Company, 2010), 96-97.
[192] Ibid., 97.
[193] A survey was conducted in December 2007 in the United States which revealed that 78 percent of parents who were considering gifting their children cellphones were motivated first and foremost by safety concerns [Don Tapscott, *Grown Up Digital: How the Net Generation is Changing Your World* (New York: McGraw-Hill, 2009), 46].

cellphone allows people to overcome the barriers of time and space to get the message through. The implications are obvious for a teenager out late needing to call for a ride home: instead of having to search for a phone, a call can be made from a street corner. A car breakdown on a lonely country road can be dealt with quickly by a cellphone call to a friend or the AA. The cellphone is a lifeline for the tramper or mountaineer (in range of a cellphone tower), as is the satellite phone for the sailor. For people of any age, the cellphone can provide an enhanced sense of security. As Maureen [respondent, 67] remarks, "It's good for 'what-ifs'; from a safety point of view you can seek help."

The reassuring sense of safety arises from our ability to quickly make contact, and be contacted, regardless of place. To an extent, the cellphone retrieves parents' perceptions of control and security that existed when their children were younger and more firmly within their ambit of authority. As Anne [respondent, 52] affirms from her own experience, "The cellphone gives you back some of the control and peace of mind that you lose when your kids become teenagers and start asserting their independence."

If pushed to an extreme, however, this perception of security may lead to unnecessary recklessness. The degree of security we attach to the cellphone may far exceed the degree of security it can actually provide. The cellphone is a very long leash for parents; unfortunately it may be too long. The cellphone may seduce parents into allowing children to enter riskier situations and places. As a digital leash the cellphone can sometimes stretch or break. Social scientists Nicola Green and Leslie Haddon highlight the "parent management strategies" teenagers employ to obviate parental control over their activities.[194] The following extracts from interviews demonstrate this point:

> *Moderator*: Is it important for you to be available for your parents?
> *Lena* (14): It's kind of dumb, if you want to do something and then they call and say that you have to come home.
> *Bente*: (17) You turn off the mobile and say that the battery was dead.[195]

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[194] Nicola Green and Leslie Haddon, *Mobile Communications*, 121.
[195] Rich Ling and Brigitte Yttri, "Control, Emancipation, and Status: The Mobile Telephone in Teens' Parental and Peer Relationships," in *Computers, Phones, and the Internet: Domesticating Information Technology*, eds., Robert Kraut et al. (New York: Oxford University Press, 2006), 226.

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Nina (18): With some telephones, you can do it like (if a call comes) from some numbers it goes right into voicemail, like if your parents call then it goes right into voicemail.
Arne (17): I do that.
Moderator: You do that?
Arne (17): Yeah, if I'm out on a weekend and things like that, then I do that.
Moderator: Whom do you exclude?
Arne (17): The family.
Moderator: OK. You do that too?
Oda (18): I just don't answer the phone and then I'll say that I didn't hear it or something.[196]

As can be seen, it is easy to sabotage the safety aspect of the cellphone, along with the reassurance it provides for parents.[197] By looking at the cellphone through the lens of the tetrad, it becomes easier to see flip sides to the device: the cellphone appears to enhance safety by obsolescing place and communicative delay, which retrieves a measure of comfort for parents, but may then reverse teenagers and parents into a complacency that obsolesces safety.

With the cellphone we can respond rapidly, that quick conversion of thought into action. In certain circumstances this does enhance safety. However, the cellphone may also encourage impulsiveness. Acting quickly is not the same as acting impulsively. To be impulsive is to act without deliberation, without thinking about the thought to act.[198] For example, a seemingly innocent blanket text to friends about a party can turn into a riot after gatecrashers arrive in large numbers; or the sending of a sexually suggestive image of oneself to a boyfriend or girlfriend can end up on the Internet. The incidence of "sexting," as this is called, is comparatively low, but it is a "growing concern" according to the Pew Internet and American Life Project which observes that "the desire for risk-taking and sexual exploration during the teenage years, combined with a constant connection via mobile devices, creates a 'perfect storm' for sexting." And Pew also observes that "teenagers have always grappled with issues around sex and relationships, but their

[196] Ibid., 227.
[197] Ibid.
[198] The instant rewards of some of cellphone's functions may also encourage impulsiveness. See pages 42-43 of this study.

coming-of-age mistakes and transgressions have never been so easily transmitted and archived for others to see."[199]

Almost half of American teens regretted a text message they had sent. The truncated, stripped-down nature of texting is partly to blame because it is bereft of subtleties of tone and punctuation. Clarity is also difficult because of the limitation of 160 characters or less of text, and unlimited text plans only increase the probability of a regretted text. Furthermore, the constant exchange of texts among multiple texters leads to misunderstandings as to whom one is actually texting. An American high school student describes the imbroglio: "It's confusing though, cause somebody will text you and you'll text them back and they will, like somebody else will send you a text message and you'll be like, 'Wait what?' And I text the wrong thing and it causes a lot of drama."[200]

Apart from the challenge of not seeing the recipient, managing these information flows is difficult for psychological reasons, some of which are examined later. Missteps can of course happen with any medium of communication; however, unlike voice calls, texting can be performed surreptitiously, nearly continuously, and while other activities are taking place.

Not all impulses have destructive results, of course; however, because the cellphone usurps the thinking between the thought and the action, and thus panders to impulsiveness, it invites us to play Russian roulette with our feelings and urges. The results become chance events. The cellphone's function as a transportable Internet device would seem only to enhance the problem. Author and journalist Lee Siegel warns us: "On the Internet, an impulse is only seconds away from its gratification. Everyone you encounter online is an event in the force field of your impulses."[201] Psychologist Al Cooper, who is a researcher of the Internet, comments: "There is little difference between thought and Internet-enabled action ...The Internet

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[199] Amanda Lenhart et al., "Teens and Mobile Phones: Text Messaging Explodes as Teens Embrace it as the Centerpiece of their Communication Strategies with Friends," in *Pew Internet and American Life Project*, 87-88.
[200] Ibid., 88-89.
[201] Lee Siegel, *Against The Machine: Being Human in the Age of the Electronic Mob* (New York: Spiegel & Grau, 2008), 175.

provides immediate gratification that affects one's ability to inhibit previously managed drives and desires."[202] This may be poetically expressed as an adaptation of T.S. Eliot's *The Hollow Men*:[203]

> Between the idea
> And the reality
> Between the motion
> And the act
> *Falls the cellphone...*

In a recent study of text bullying, Massey University psychology researcher Jim Sanderson found that teenage girls' lack of impulse control is one of the main contributors behind their propensity to bully using text messages. Sanderson implicates the cellphone when he explains how text bullying is different and potentially more damaging to victims than other forms of cyber-bullying, such as threatening or hurtful emails, because cellphones can be used anywhere, anytime.[204] The lines become blurred, however, as cellphones come to be used more often as Internet devices.

Cellphone addiction may be considered an "impulse control disorder" similar to gambling, according to communications researcher Louis Leung.[205] It is easy to dismiss such an addiction as a reflection of a small number of unfortunate people with addictive personalities: they have crossed the line between use and abuse. But where exactly is that line, and has society crossed that line and then moved the addiction "goalposts"? Srivastava remarks on society's "increasing dependence on mobile networks – with the loss of personal mobile phones causing panic and disruption in daily lives."[206] This sounds like the description of an addict. Most of us can relate to this, and most of us would freely admit that we use our cellphones regularly each day, that we take them everywhere, that we need them, but few of us would admit to being

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[202] Quoted in ibid., 175.
[203] T. S. Eliot, *Selected Poems* (London: Faber and Faber, 1954), 80.
[204] James E. Sanderson, *A Cross-Cultural Examination of Personality Factors Associated with Text Bullying in 13 - 14-year-old Girls.* MA Thesis, Massey University, Wellington (2009), 41-43, 10-11.
[205] Louis Leung, "Leisure Boredom, Sensation Seeking, Self-esteem, and Addiction: Symptoms and Patterns of Cell Phone Use," in *Mediated Interpersonal Communication* eds. Elly A. Konjin et al. (New York: Routledge, 2008), 360.
[206] Lara Srivastava, "The Mobile Makes Its Mark," in Katz, *Handbook of Mobile Communication Studies*, 16-17.

addicts. Cellphone addiction may well be an impulse control disorder, but the cellphone is an artefact of immediacy: impulsiveness is built into it.

Strangely perhaps, the sense of now that characterizes many modern highly technological Western capitalist societies is in certain ways a retrieved now of the past: a digitally remastered now. Walter Ong heard the faint echoes of preliterate humanity in the mostly analogue media of the sixties, and he agreed with McLuhan[207] that the simultaneity of electronic culture bears a striking resemblance to oral communities before the written word.[208] However, unlike oral cultures, Ong asserted that the simultaneity stems from an unprecedented accumulation of records, and he could see how "with our knowledge of history and need for planning, the past and the future are forced into the present with an overpowering explicitness unknown to early man."[209]

Today the past and the future are a confluence, beyond anything Ong could have imagined, of readily and speedily available data. This gives the user of modern digital technologies a heightened sense of the present. Although writing before the digital revolution, Ong could still appreciate that compared to oral cultures, "our sense of simultaneity is supercharged."[210] Moreover, Ong described how we receive information from computers in a highly accelerated sequential fashion which creates the impression of simultaneity. Ong would have been impressed by the non-linear hypertextual character of contemporary media, such as the Windows operating system, the Internet, computer games, and cellphones, which all further enhance the experience of simultaneity, while retrieving the simultaneity of oral cultures.

When the voice reigned as the principal medium of communication, human existence exuded a potent perception of the present. The spoken word cannot be grasped, saved or looked up the way the phonetic alphabet allows, and it is always going out of existence, which heightens the immediacy – the sense of

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[207] See Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (London: Routledge & Kegan Paul, 1962), 72.
[208] Walter J. Ong, *The Presence of the Word: Some Prolegomena for Cultural and Religious History*, 2nd ed. (Binghampton, New York: Global Publications, 2000), 90-91.
[209] Ibid., 91.
[210] Ibid.

the present moment.[211] From oral traditions flowed history, beliefs and more mundane daily happenings, all experienced by hearers as live, present events. Moreover, the hearers' senses all engaged simultaneously. It is a delight to witness a captive audience – young, middle-aged and old – mesmerized by a master storyteller. The sudden and dramatic changes in facial expression, the hand gestures, the miming, and perhaps even dancing – all of these contribute to a riveting, live, multi-sensory experience.[212] As Ong elucidated:

> In an oral-aural culture one can ask about something, but no one can look up anything. As a result, in an oral-aural culture there is no history in our modern sense of the term. The past is indeed present, as to a degree the past always is, but it is present in the speech and social institutions of the people, not in the more abstract forms in which modern history deals.[213]

Similarly, for oral cultures, projections and plans for the future were firmly embedded in the present because the spoken word was in the present.[214] Moreover, the word was sacred – a sense that carried over into the earliest scriptural tradition: "In the beginning was the Word, and the Word was with God, and the Word was God."[215] Other religions – African, Jewish, Hindu, and numerous others – also hold speech, the Word, to be sacred, to be, with various qualifications, synonymous with God.[216] Raimon Panikkar observed that the Vedas "intrinsically relate Brahman with *vāk*, the Word, from which all proceeds and by which everything has come into existence."[217]

Once recorded, the spoken word could be read and reviewed privately, repeatedly if desired. Communication could eschew the moment: it no longer needed to be a real-time, face-to-face event. McLuhan explained how this ushered in the primacy of the visual over the audile, an "eye for an ear."[218] The alphabet specifically, as a phonetic system, moved communication from acoustic space to visual space. The alphabet transformed sound as event into

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[211] Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Routledge, 1982), 91.
[212] See also Appendix B: "Speech and Writing," 142.
[213] Ibid., 23.
[214] For further discussion see Appendix B.
[215] The Bible, John 1:1.
[216] Raimon Panikkar, *The Rhythm of Being: The Gifford Lectures* (Maryknoll, New York: Orbis Books, 2010), 338.
[217] Ibid., 339.
[218] Marshall McLuhan, *Understanding Media*, 88.

sound as object, an object that could be dissected and manipulated. More than this, for the many cultures steeped in the Greco-Roman tradition, and in the alphabet, the new emphasis on the visual objectified life itself. One could stand back from the world with a new self-awareness and a new perspective on the whole of nature. Carpenter highlighted the shift in emphasis from the "spiritual to spatial" and from the "reverential to the referential":

> God became "The One on High," and all inner psychological states were described as outer perceptions. We said "thereafter," not the logical *thenafter*; "always" meaning *all ways*, for *all times*; "before" meaning *in front of*, for *earlier*. Language and perception shifted to the spatial, the observable, the *seen*.[219]

Carpenter also drew our attention to the way illiterate people immerse themselves *with* music, whereas literate people listen *to* music.[220] Time has not remained immune to the visual bias. Hence, time is "watched." We "keep an eye on the time." This is because, as with almost everything else, we, predominantly Western cultures, have visually interpreted and "organized" time as a thing. We are detached from it. In decidedly spatial imagery we ask, "Where did the time go?" Time is tangible and solid so we can "catch" the time. Time is also perceived as ordered and sequential, or linear, like the words on a page. Historian Lewis Mumford thought about how the clock orders time in a "succession of mathematically isolated instants," which influences, or prejudices, our attitude towards time. [221] The clock can isolate the present, so we can say, "It's happening now: right this second!" The clock "watches" nature; we watch the clock. Time is not only measured by the clock: it is the clock.

The sad irony is that we have become even more acutely aware of the passage of time because it comes to us as an ominous countdown. Writer Thomas Campion neatly encapsulated the dread in his Latin epigram *De horologio portabili* (1619):

> Times-teller wrought into a little round,
> Which count'st the days and nights with watchful sound;
> How (when once fixt) with busie Wheels dost thou
> The twice twelve useful hours drive on and show.

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[219] Edmund Carpenter, *Oh, What a Blow That Phantom Gave Me!* 155-156.
[220] Ibid., 38.
[221] Lewis Mumford, *Technics and Civilization* (London: Routledge & Kegan Paul, 1934), 16.

> And where I go, go'st with me without strife,
> The Monitor and ease of fleeting life.[222]

McLuhan believed that the impatience of many Western cultures derives from the self-imposed divisions of time into precise units, making us more acutely aware of the duration of time.[223] Thus we try to fill with activities the moments of waiting. People often say they are "filling in time," or worse, "killing time," as if it is some kind of monster that is crouching, waiting to devour us. Postman informed us how time became a nemesis, "an adversary over which technology could triumph," and we can conquer it only by moving faster, doing more things in a shorter time.[224] According to Western technological logic, the cellphone is the "natural" next step following the wristwatch. The need to keep the clock, the time-watcher, as near to us as possible, has been followed by a device that collapses time, space and matter in a kind of big-bang singularity of infinite compression.[225] As physicist Paul Davies explains, close to the big bang, time literally begins to "turn into space."[226] There is no such thing as waiting; we can experience a perpetual "now."

Prior to telecommunications, communication was asynchronous. Letter-writing meant long delays, particularly if the correspondence was international. Even with the telegraph there was a degree of asynchronous communication, but the telephone eliminated this, with the exception of a short delay for overseas calls. The cellphone has combined synchronicity *and* mobility. But more than this it allows us to perceive time, place, distance, presence and communication simultaneously. These phenomena have never existed in isolation, but because the cellphone can alter the way our senses traditionally perceive these phenomena, we increasingly come to see the world as the cellphone determines it:

> The "sensing" of mobile communication and interactive media elicits an intimately audio, visual, sometimes haptic, "handy" and visceral awareness, a mode of

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[222] Quoted in Jonathan Sawday, *Engines of the Imagination: Renaissance Culture and the Rise of the Machine* (New York: Routledge, 2007), 233.
[223] Marshall McLuhan, *Understanding Media*, 157.
[224] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (New York: Vintage Books, 1993), 45.
[225] Cf. Omega Point of global consciousness at conclusion of "Obsolescing Empathy."
[226] Paul Davies, *The Mind of God* (Victoria, Australia: Penguin Books, 1992), 63.

> embodiment which demands the ontological coincidence of distance and closeness, presence and telepresence, actual and virtual.[227]

For a person digitally connected to the cellphone and computer, the present moment or "now" is a series of rapid simultaneous digital pulses which can send and receive text and images at the speed of light. These transmissions are not restricted by geographical or sensory range. The self as thoughts and representations is concurrently dispersed and maintained. At the same time, actions in the form of requests, bill payments, socializing, gaming, trading, planning, researching, and so forth, can all occur within a very short time frame. It all happens at such speed that time as an object is transcended. This is digital immediacy, its momentum propelled by the human urgency for speed and action in unison, and is limited only by the technical parameters and efficiency of the device, as well as the gamut of communication and online networks upon which it depends. This is a modern "now." Moreover, it is not just his own "now" the person is living in. As Naomi Baron of American University, Washington, points out, "When we are always on, we have the ability to live in other people's moments. Relationships can be maintained through running discourse rather than reflective synopsis."[228]

Primary oral cultures probably never thought, "This is the present moment," or "This is now." The condition of navel-gazing about time or enjoying the moment was more likely to be an experienced event rather than a theoretical consideration. Pre-literate humans derived their sense of the present from the immediacy of the spoken word grounded in cyclical organic nature and physical human encounters. This is not to say people from oral cultures could not think, but they tended not to think in purely logical forms, such as syllogisms. [229] Moreover, the growth of literacy contributed to greater awareness of self-as-individual and the self as an object of thought, and Ong clearly understood this: "Primary orality fosters personality structures that in certain ways are more communal and less externalized, and less introspective than those common among literates ...Writing and reading are solitary

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[227] Ingrid Richardson, "Mobile Technosoma: Some Phenomenological Reflections on Itinerant Media Devices," in *Fibreculture Journal* 6 (2005), 8.
[228] Naomi S.Baron, *Always On: Language in an Online and Mobile World* (New York: Oxford University Press, 2008), 226.
[229] Walter Ong, *Orality and Literacy*, 52.

activities that throw the psyche back on itself." Their thinking related to the "human lifeworld," as Ong put it. They lived and thought in and through nature. This is not a call to go back to primary orality. It is also not an attack on the written word, following in the tradition of Plato's *Phaedrus* (a polemic which was, ironically, delivered in some of the most eloquent prose ever written). On the contrary: as Ong appreciated, writing is consciousness-raising, and is crucial in assisting us in reaching "fuller, interior, human potentials."[230] Without literacy the development of the disciplines of science, literature, philosophy and history, to name just a few, would have been inconceivable.[231] It is more a call to be aware of the fact that writing is a technology that governs our thought.

Perhaps it would be beneficial to re-evaluate time from the perspective of oral cultures, or cultures not so affected by the bias of communication of many Western cultures. Anthropologist Edward Hall has identified "polychronic" cultures. They seem to live in the present in a way that is more authentic, or that at least offers a viable alternative to the capitalist conceptualization of time, and indeed may offer a challenge to the cellphone as a driver of efficiency within this conceptualization. These cultures, which include southern Europe, Latin America and a number of African and Middle Eastern countries, prefer to let the "natural context, *in the present*" be their guide for behaviour, and relationships are given precedence over timetables.[232]

McLuhan drew from the experience of the Hopi, for whom time is inseparable from natural events such as crops or animals maturing.[233] Jerry Mander has noted how native peoples, by observing nature, reach an awareness of time: they do things "when the time is right."[234] For some traditional Arabs, activities occur according to divine mandate, "if Allah wills" (in Arabic, *insha Allah*). So an executive trying to schedule a meeting might become unstuck: "Tomorrow, if Allah wills" may mean the next day or the next week.[235] David [respondent, 35] had a similar experience when visiting Tonga and Samoa:

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[230] Ibid., 69, 53, 82.
[231] Ibid., 15.
[232] James W. Neuliep, *Intercultural Communication*, 160-161.
[233] Marshall McLuhan, *Understanding Media*, 160.
[234] Jerry Mander, *In the Absence of the Sacred: The Failure of Technology and the Survival of the Indian Nations* (San Francisco, CA: Sierra Club Books, 1991), 219.
[235] James W. Neuliep, *Intercultural Communication*, 160.

"They are not ruled by the clock like we are; they are much more relaxed about it."

In contrast, "monochronic" cultures such as the United States, Canada, Germany, France, Scandinavia, and most of Northern Europe tend to compartmentalize time and emphasize scheduling at the expense of the "natural context and progression of human communication."[236] "We have a new now," writer John Freeman is convinced, "a now that doesn't care about time zones or distance, a now that is muscularly, aggressively rearranging our lives and circadian rhythms."[237] To explore this further, Rifkin regrets that with each new "time-reckoning and time-ordering system, humanity has opened up a deep chasm between it and the 'rhythms of nature'":

> The living earth, whose once powerful rhythms resonated with clarity, now appears frail and weary in the presence of a field of artificial rhythms crisscrossing the planet and beaming up into the cosmic reaches.[238]

Jacques Le Goff accounted for an important shift in the Western perception of time, one he called "merchant's time," where the dictates of commerce introduced another chronological rhythm into the temporal fabric of medieval civilization:

> Like the peasant, the merchant was at first subjected by his professional activity to the dominion of meteorological time, to the cycle of seasons and the unpredictability of storms and natural cataclysms. He long had no choice but to submit to the natural order and no means to act other than prayer and superstitious practice. Once commercial networks were organized, however, time became an object of measurement.[239]

Time became a thing, a commodity. "Time is money," as the saying goes. To return to the Ford factory once more, it was here that time and money became more inextricably bound than had been seen hitherto, when Frederick Taylor showed that by segmenting the manufacturing process into specialized, timed

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[236] Ibid.
[237] John Freeman, *The Tyranny of Email: The Four-Thousand-Year Journey to Your Inbox* (New York: Scribner, 2009), 183.
[238] Jeremy Rifkin, *Time Wars* (New York: Simon and Schuster, 1987), 222.
[239] Jacques Le Goff, *Time, Work, and Culture in the Middle Ages*, trans. Arthur Goldhammer. (Chicago: The University of Chicago Press, 1980), 34-35.

tasks, the production of goods could be streamlined.[240] The corollary of this, of course, is that more goods can be manufactured at the cheapest price (so long as wages can be kept down).

Sometimes scheduling is clearly necessary, and natural time has its limitations. It is a valuable exercise nonetheless to meditate on how technologies like the cellphone can come to shape and enhance our perception of time and lock us into an attitude that we are more beholden to it than we need be. Other individuals and cultures may understand it differently. Indian educationalist and philosopher Rabindranath Tagore left us a timely gem of wisdom: "You can't make the flower bloom faster by pulling on its petals."[241]

Modern societies may want to consider if the cellphone is "pulling on the petals" and reversing us into an attitude of impatience.[242] There is less need to wait for communication and information. The cellphone signals "the end of anticipation," as Baron expresses it; therefore, "there's little point in asking, 'So how was it?' You've already heard."[243] There used to be a certain cheese advertisement on television that unwittingly but incisively summed up the kind of culture the West has become. With its catchphrase "Good things take time," the advert paid homage to the value of waiting patiently for the good things in life; yet, in the same advert, the four seasons were seen to flash by within the time constraints of a thirty-second commercial. We instinctively know the benefits of slowing down, but pay lip service to it in practice. And in practical terms does this lip service extend towards others? Are we less likely to leave a gap for a fellow motorist to enter the lane? Are we less likely to stop and help an elderly or disabled person cross the street? Or are we too busy meeting the demands of the moment to even notice them? Are we less likely to take the time to listen to a mentally frail grandparent recount stories we have heard before, and to be patient enough to accept with equanimity the gaps that accompany his gathering of thoughts? "All communication technologies

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[240] Naomi S. Baron, *Always On*, 194.
[241] Quoted in Eric Wesselow, "I Never Know How or Why," in *Interculture*. Issue No.134, Vol. XXXI, No. 1 (Winter-Spring, 1998), 23.
[242] Neuroscientist Gary Small stresses the importance of years of face-to-face communication for the development of emotional self-control, especially feelings of impatience and anger [*iBrain*, 121]. The risk is that too often cellphones and other devices are compromising the quantity and quality of face-to-face interaction. See "Obsolescing Face-to-Face Contact."
[243] Naomi S. Baron, *Always On*, 226.

alter manners and create (and reflect) new standards as more and more people use them," asserts John Freeman. [244] The cellphone epitomizes haste, but it may also breed hastiness towards those who do not conform to the digital deification of the present moment.

The cellphone gathers everything together – messages, news, music, images, games – in a sensory torrent, a flashflood of information that brings to mind accounts of people having their life flash before their eyes when they feel the sudden closeness of death. We do not want death, but the cellphone gives us that kind of pre-death experience without tipping over into the reality, although distracted cellphone-using drivers constantly take this risk. Kierkegaard would have appreciated the nature of the distraction as the "sensuous nature and the psycho-sensuous completely dominate him…" [245] Recently, while I was walking through a large public park, cellphones seemed to be everywhere, mainly in the hands of teenagers, but brandished by many adults too. There was a young girl on a swing frantically texting on her cellphone: this is the new "now." The old "now" is the tactile, the wind in the hair, the thrill of the ride, the immersion in the moment. The new "now" is experiencing the world in a digital bubble, moment usurping moment – experiencing everything and nothing.

We cannot catch the moment with a cellphone any more than we can catch "Becoming," because once we are there "that being has already become something else." [246] What are we trying to catch – a more authentic way to exist? But we cannot attain that until, paradoxically, we realize that existence is not something we can *attain*. The authenticity is in existing or in being. Panikkar recalled Aristotle's teaching: "Being is *act*. An entity is an entity insofar as it *is* being. If an entity is, it is." There is no perfect moment that we can create; the moment will not become better because of our striving, because as Panikkar discovered, "Becoming is the *coming to be* of the being that *is* – precisely

[244] John Freeman, *The Tyranny of Email*, 112.
[245] Soren Kierkegaard, *Fear and Trembling and The Sickness Unto Death*, trans. Walter Lowrie (New Jersey: Princeton University Press, 1954), 176.
[246] Raimon Panikkar, *The Rhythm of Being*, 99.

becoming …Becoming is the 'permanence' of being in Being."[247] If one could conceive of an authentic, eternal "now," this may be it.

In certain ways the explosive impulsivity and almost tangible feeling of the present moment that seem reified in the cellphone, may broadcast in a literal and metaphorical sense a deep-seated insecurity about death. Does the cellphone delay or even obsolesce death?

The only way we can permanently lock in the "now," the present moment – to stop experiencing the inexorable passage through time – is to die. Most happy and healthy people do not want to die, so the cellphone, and all its descendants, is designed with the human imprint of the fear of death, as much as it appears to signify the opposite: the *joie de vivre*. The effort to jam as much of "life" into the cellphone as possible, to capture as much "informational territory" as humanly imaginable, is a strange admixture of breathless excitement and crushing depression. In a positive way, the effort both parallels the ideal of the "Renaissance man" (discussed later); in a negative way, it is haunted, like the clock, by the spectre of our mortality.[248]

Conceivably, the desire to banish the reality of death, to somehow obsolesce the awareness of death, is an important element in the attractiveness of the cellphone. By packing into the cellphone a world of functions, and by its multi-pronged abstraction/distraction dynamics which are all heightened by its sheer accessibility, the cellphone may serve to deafen us to the knocking of the grim reaper. It was Heidegger's view that we should accept death as an essential condition for our authenticity as mortals. Anxiety about death should liberate us (or the *Dasein* – literally "being-there" – that each one of us *is*) from feckless decisions and behaviour.[249] Heidegger's answer is not so much to resist technology (which he saw as inevitable), but to transcend it: a reaching towards *Gelassenheit*, a serenity achieved through a contemplative "inner emigration" away from the intrusiveness and shallowness of modern

[247] Ibid., 98-99.
[248] Robert Abbott, *The World as Information* (Exeter: Intellect Books, 1999), 5.
[249] Mark Wrathall, *How to Read Heidegger* (London: Granta Books, 2005), 11, 61-62.

life.[250] This is merely one response to an increasingly common way, as exemplified in the cellphone, of living in the moment by grasping it tightly and fitfully. The image of Atlas holding the vault of the heavens is a powerful and unforgettable one. Today such a punishment would hardly suffice, because the burden of Atlas now weighs just a few grams: we can literally hold the heavens in one hand. Yet the weight of a cellphone is not measured in grams alone. Heidegger was simply telling us to loosen our grip. Put the cellphone down occasionally.

Retrieving the Renaissance

Various English and media scholars, historians, sociologists and other interested observers of culture have tried to comprehend the current era of computers, cellphones, and the Internet by adopting nomenclature such as the information age, the computer age, the digital revolution, the digital renaissance, and so forth.[251] English professor Jonathan Sawday identifies modern digital culture with the familiar Renaissance expression of the tension between the artificial – as contrived in art forms such as poems and paintings – and the natural.[252] From this and a much broader perspective, as a key player in digital culture is the cellphone really worthy of the name "Renaissance"?[253]

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[250] Richard Campbell et al., "Heidegger," in *The Penguin Dictionary of Philosophy*, 2nd edition, ed. Thomas Mautner (London: Penguin Books, 2005), 269.

[251] Academics and business/technology consultants Don Tapscott and Anthony Williams have drawn parallels between burgeoning Renaissance knowledge and culture, and the rise of the Internet and digital culture more broadly [Don Tapscott and Anthony Williams, *Macrowikinomics: Rebooting Business and the World* (London: Penguin Books, 2010), 24].

[252] Sawday explains that, "In this respect, modern theorists of artificial reality may be unknowingly tracing a landscape whose features first began to be mapped in the European Renaissance" [*Engines of the Imagination*, 313].

[253] The word "Renaissance" is used with a cautious awareness that, as with other titles ascribed to historical epochs – antiquity, the Middle Ages, the Enlightenment, the Industrial Revolution – such periods are never clearly and cleanly delineated from other historical periods: change is almost never prolonged steady "development" (by whatever measure and how positively or negatively one chooses to use the word "development"). More often than not it is convenience that governs the use of such nomenclature for historical periods. However, this is not to deny any kind of logical coherence to such periods; it is simply to admit that historical change is never tidy and straightforward. The sixteenth-century artist and art historian Georgio Vasari is the first-known to have used the term "Renaissance" (*rinascita*: "rebirth") to celebrate the revival of classical brilliance [John F.H. New, *The Renaissance and Reformation: A Short History*. 2nd ed. (New York: Alfred A. Knopf, 1977), 57]; however, it is largely from Jacob Burckhardt's *The Civilization of the Renaissance in Italy* (1860) that the term has come to assume validity (albeit dubious) in the once scholarly and now popular imagination.

Renaissance humanism (*humanitas*) in its richest meaning went beyond a revival of classical scholarship and aestheticism. As John New has clarified, "Strictly speaking, all humanists were scholars of the classics, but in the broader, Ciceronian sense, *humanitas* meant a literary refinement and

The closest thing to the quintessential Renaissance man was probably Leonardo da Vinci.[254] He embodied the zeitgeist of the period with his extraordinarily eclectic array of skills and interests: this is the Renaissance ideal. Historian Norman Davies has described it in this fashion:

> The prime quality of the Renaissance has been defined as 'independence of mind'. Its ideal was a person who, by mastering all branches of art and thought, need depend on no outside authority for the formation of knowledge tastes, and beliefs. Such a person was *I'uomo universale*, the 'complete man'.[255]

According to historian J. M. Roberts, the Renaissance man is the "all-rounder."[256] Jacob Burckhardt effusively espoused the example of Leon Battista Alberti who excelled in gymnastics, music, civil and canonical law, painting, sculpture, architecture and writing.[257] One must be careful here, because the ideal of the all-rounder was not confined to the Renaissance.[258] This being said, the prized polymath as extolled in Castiglione's *The Courtier*, with his "quiver full of accomplishments,"[259] has subsequently become, justifiably or not, a trademark virtue of the period. From the twentieth century, the thrust of education in western Europe has mostly followed instead the

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a mental cultivation that went far beyond mere academic discipline. In the fullest sense it amounted to an attitude toward life, to a rosy view of man's place in the cosmos, and to a substantial reassessment of his scale of values" [*The Renaissance and Reformation*, 65].

[254] If the masculine pronoun grates for the reader, it does more so for the author. Men dominated the public sphere during the Renaissance, as they have for most of history, although women benefited in some respects from the new learning; for example, girls received the same classical education as boys in the cities of Renaissance Italy. They learnt Greek as well as Latin, were well-versed in the poetry of Ovid and Virgil, and could speak one or more of the "modern" languages, such as Spanish or French. However, such learning was designed to prepare upper-class women for their supportive role as social functionaries in the home: "An educated lady was supposed to know how to attract artists and literati to her husband's court and grace her husband's household" [John P. McKay et al., *A History of Western Society. Volume I: From Antiquity to the Enlightenment* (Boston: Houghton Mifflin, 1987, 407)].

[255] Norman Davies, *Europe: A History* (London: Oxford University Press, 1996), 471.

[256] J. M. Roberts, *A History of Europe* (Oxford: Helicon Publishing, 1996), 193.

[257] Jacob Burckhardt, *The Civilization of the Renaissance in Italy*, ed., Irene Gordon (New York: Mentor Books, 1960), 126-127.

[258] In Aristotle's *On the Parts of Animals* one can read of the man of "universal education," a label that can be applied to someone who "is thus critical in all or nearly all branches of knowledge, and not to one who has a like ability merely in some special subject." By "critical,"Aristotle meant having enough knowledge to be able to discern the truthfulness or falsehood of theories and claims propounded by specialists from a broad range of disciplines [Charles Van Doren, *A History of Knowledge: Past, Present, and Future* (New York: Ballantine Books, 1991), 135].

[259] John F.H. New, *The Renaissance and Reformation*, 65.

nineteenth-century German academic model of achieving competence in a particular discipline.[260]

There is scant evidence that there has ever been a complete Renaissance man; however, we may have achieved it vicariously in the cellphone: "it" is a digital polymath. Unlike most of our technologies that specialize – a vacuum cleaner sucks dirt, a washing machine washes, and a car gets us from point A to point B – the cellphone in its sheer versatility is a Renaissance device. Emulating Proteus of Greek myth, the cellphone continues to remake itself; it continues to integrate new functions. It seems that in this sense the Renaissance ideal never really disappeared; we simply projected it onto the cellphone. Burckhardt's maxim, "Men can do all things if they will," [261] becomes "Machines can do all things if they will." The modern parlance is "convergence." What we cannot efficiently accomplish ourselves is assigned to the cellphone, a mobile basket of technologies with formidable capabilities. For computer scientist Teruyasu Murakami, the cellphone is the trailblazer for a more expansive device performing an enormous array of tasks: the "Ubiquitous Communicator."[262]

Yet this is not the Renaissance envisaged by Lewis Mumford; for him, the Renaissance polymath was a template for a gradual and holistic approach to human endeavour. In casting the net of knowledge far and wide, to the humanities, the sciences, and the arts, he saw a mollifying force, a system of checks and balances against any one ideology coming to dominate. If the West had learned from and emulated Leonardo, then Western culture and thought may have developed rather differently:

> ...naturalization, mechanization, organization, and humanization might have proceeded together. Thus one method could have influenced and sustained the other, maintaining continuity with the past, yet alertly absorbing useful or significant novelty, constantly reviewing and correcting past errors, and seeking a wider selection

[260] Historian John New remarks that in the Renaissance, "The specialization of functions, characteristic of both modern and medieval society, did not then exist, and distrust between the humanities and science was not yet abroad" [ibid., 66].
[261] Jacob Burckhardt, *The Civilization of the Renaissance in Italy*, 128.
[262] Adam Greenfield, *Everyware*, 167.

> of possibilities; introducing new values, not to destroy but to enrich and fortify those already achieved by other ages and other cultures.[263]

For Mumford, the Renaissance has been "buried" by a too narrow preoccupation with one line of thinking. Leonardo da Vinci was the model of even-handed erudition; all his technological pursuits had remained grounded in and informed by a fertile cultural and historical terrain. In failing to keep alive the Renaissance ideal so potent in Leonardo, Mumford believed the West has allowed "megatechnics" to completely overshadow Western thinking, and to expand the resultant "empire of the machine," which has oppressed, colonized and destroyed.[264]

In the Renaissance the emphasis was on humanity. In the new "renaissance" the emphasis is on digital technology. Renaissance humanism tended to shift the focus towards *humanity's* nobility and its potential to achieve great accomplishments. The Enlightenment increased the tempo by encouraging human empowerment from the application of knowledge acquired through scientific methodology.[265] The full flowering of technological rationalization in the West occurred with the Industrial Revolution and its application of mechanization on a massive scale. Then, in the twentieth century, another revolution ushered in a new age of the "thinking" machine: the computer. In attempting to assess the cellphone from a diachronic perspective, it is hard not to conclude that the cellphone is the adoptive child of the computer. Its "father" is the telephone, but its "mother" is the computer. Both ideologically

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[263] Lewis Mumford, *The Myth of the Machine: The Pentagon of Power* (New York: Harcourt Brace Jovanovich, 1970), 160.
[264] Ibid., 160.
[265] If the Renaissance emphasis was on the nobility of humanity for the glory of God, the Enlightenment, as realized and articulated by the educated elites of Europe, was more secular in character. As a worldview it was more deistic than theistic, assigning God a more peripheral role in the natural world (as "primal clockmaker") and human consciousness. For the intelligentsia the Enlightenment was notably [and with echoes of Protagoras – "Man is the measure of all things"] anthropocentric, a dimension that is obvious in Alexander Pope's *Essay on Man* (1733):

> Say first, of God above, or Man below,
> What can we reason, but from what we know?
> Of Man what we see, but his station here,
> From which to reason, or to which refer?
> …
> Know then thyself, presume not God to scan;
> The proper study of Mankind is Man.

[Quoted in Tim Blanning, *The Pursuit of Glory. Europe: 1648-1815* (London: Penguin Books, 2007), 491]

and functionally, the cellphone exemplifies rebirth, but it is a machine given birth by another machine.

One wonders if Thales, Anaximander and the other Milesian philosophers might have viewed ironically the modern dependence on technology as a new kind of god. They sought a naturalistic explanation of the world, a world without the interference of capricious gods.[266] Unfortunately, in trying to explain the world without recourse to the gods we almost invariably create new ones. As Ellul observed, "The religious and the sacred that we have chased out of nature are now transferred to objects."[267] But have we thrown our "selves" into the river of technology as a votive offering to the god of reason?[268] Have we become less noble in breech of humanism's covenant and given over our nobility to the machine: humanism becomes "machinism"? In socio-evolutionary terms, the West appears to have journeyed from God, to Man, to machine.

Within an influential strand of the Western intellectual tradition, this kind of "evolution" would appear perfectly natural. It is tempting to take as axiomatic that the cellphone is a material justification for belief in the steady, general improvement of humanity, as expressed in different ways by nineteenth-century intellectuals such as Auguste Comte, John Stuart Mill, Karl Marx[269] and Herbert Spencer, to name just a few. The century before, Enlightenment prophets Chastellux and Condorcet had equated technological improvement

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[266] Historian David Noble has hypothesized that technology and religion have been closely bound together in what he sees as the "Christian view of redemption." While examples of the association between hopes in technology and religious belief are easy to find, Noble overstates his case on often tenuous evidence. He appears, for example, to deliberately conflate religious inspiration with religious terminology: after proposing in the introduction to his book that the aforementioned Christian doctrine is behind almost all of the undue hopes (both past and present) for technology, he later, in evidence for this hypothesis, posits Karl Marx (an avowed atheist) who, Noble claims, saw machines, if used properly, as an "Edenic respite from labor"[David F. Noble, *The Religion of Technology: The Divinity of Man and the Spirit of Invention. 2nd ed.* (New York: Penguin Books, 1999), 87]. The term "Edenic" is Noble's, not Marx's. Other historians have used the term "utopian" [for example Howard Segal, *Technological Utopianism in American Culture* (New York: Syracuse University Press, 2005), 71].

[267] Jacques Ellul, *The Technological Bluff*, trans. Geoffrey W. Bromiley (Grand Rapids, Michigan: William B. Eerdmans Publishing, 1990), 121.

[268] Raimon Panikkar has reflected on the West's elevation of reason to God-like status: "It is important to note the profound and paradoxical affinity between theism and rationalism – to the point that Reason has dethroned God and taken its place in many offshoots of modern culture. What is "according to Reason" amounts to "the will of God" [*The Rhythm of Being*, 117].

[269] Perhaps surprisingly, even Marx was not against technology. He was interested in seeing the control of technology wrested from the bourgeoisie, and he saw the potential of technology to improve the lives of the proletariat [Howard P. Segal, *Technological Utopianism in American Culture*, 71].

with moral advancement.[270] This brand of idealism was, for many, seen to be buried under three feet of mud in the trenches of northern France during the Great War. But praise of technology as a marker for human progress is still common. For example, in his book *A History of Knowledge*, literature scholar and mathematician Charles Van Doren is effusive in his admiration of computers:

> Let me try to talk about computers in a new way that may make clear how the twentieth century's greatest invention fits naturally into the history of the progress of knowledge.[271]

This could easily be the voice of English Comtean historian Frederic Harrison espousing the frothy narrative of human progress: "The history of the human race is the history of growth."[272] Or it could be Herbert Spencer with his Social Darwinist biological historicism, where scientific, technological, and even moral advances were married to misunderstood evolutionary theory and became "naturally" occurring phenomena:

> The ultimate development of the ideal man is logically certain … Progress is not an accident but a necessity. Instead of civilization being artificial, it is part of nature, all of a piece with the development of the embryo or the unfolding of a flower.[273]

Along the same lines, Paul Levinson looks far back in time and sees the cellphone as an inevitable progression from the human ability to walk and talk to someone who can also walk and talk, regardless of where each person is walking. This is communication on the move and it is, according to Levinson, prehistoric. For Levinson, talking and walking had roles of comparable importance on the human evolutionary stage. The bipedal capacity of our primate ancestors left our hands free for other tasks such as, eventually, the brandishing of cellphones. As we journeyed out of Africa our ability to both walk and talk presaged our future love affair with the cellphone; the cellphone

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[270] Norman Hampson, *The Enlightenment* (Harmondsworth, Middlesex: Penguin Books, 1968), 232.
[271] Charles Van Doren, *A History of Knowledge*, 345.
[272] Roland N. Stromberg, *European Intellectual History Since 1789*. 3rd ed. (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1981), 140.
[273] James J. Sheehan, "Culture," in Blanning, *Short Oxford History of Europe: The Nineteenth Century*, 143.

is the logical outcome of the application of raw intelligence and ingenuity to our yearning to talk.[274]

For Levinson, the cellphone is something that was predetermined, the satisfaction, through a number of intermediary stages, of a primeval human desire. One could therefore infer that the cellphone makes us more human, and that as well as enhancing contactability it simultaneously *retrieves* a millennia-old urge. However, Levinson may simply be ascribing natural or teleological characteristics to media developments, as does Microsoft researcher Gordon Bell in the midst of waxing lyrical about the artificial memory concept Total Recall,[275] a new system of artificial memory of which he is a pioneer and promoter: "The arc of human development from the Stone Age through the present can be seen as an ongoing quest for Total Recall. One thing that has defined our progress as the pre-eminent species on the planet has been our ability to develop better and better systems of memory."[276]

Even if one accepts as reasonable Levinson's claim that the cellphone is the inevitable result of a natural inclination, this may tell us more about human urges than human ends. There has probably always been a primeval urge to kill as well as talk. Must this inevitably lead to the multiple-warhead ICBM? Admittedly this is a dramatic analogy, but it illustrates that human "natural progressions" can come at a cost, and that the technological forms of our instincts and desires need to be constantly questioned and not taken for granted as "natural" stages in human evolution.

If the cellphone beckons us to an earlier epoch, the Renaissance, which in turn beckons us to an even earlier epoch, classical antiquity, then the cellphone is really a rebirth of a rebirth. The digitization of phenomena is redolent of sixth-century BC Pythagorean ponderings on the mathematical underpinnings of reality. For Pythagoras and his followers, numbers were *archai* – "the

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[274] Paul Levinson, *Cellphone: The Story of the World's Most Mobile Medium and How It Has Transformed Everything!* (New York: Pelgrave MacMillan, 2004), 16.
[275] There is more on Total Recall in "Reversing into Robot."
[276] Gordon Bell and Jim Gemmell, *Total Recall: How the E-Memory Revolution will Change Everything* (New York: Dutton, 2009), 15.

principles of all things."[277] Though no writings of his are extant, we know from later writers how important was the concept of number to Pythagoras and his followers:

> ... the so-called Pythagoreans, who were the first to take up mathematics, not only advanced this study, but also having been brought up in it they thought its principles were the principles of all things. Since of these principles numbers are by nature the first, and in numbers they seemed to see many resemblances to the things that exist and come into being – more than in fire and earth and water (such and such a modification of numbers being justice, another being soul and reason, another being opportunity – and similarly almost all other things being numerically expressible)...[278]

Light and sound are also "numerically expressible," and this is of course the operating principle behind digitization; binary numeration, the system of choice, makes possible the "resemblances" to these phenomena.

It was during the Renaissance that the West assessed numbering systems apart from base ten. Bishop Juan Caramuel Y. Lobkowitz wrote the first published treatise on binary arithmetic in 1670. His work was overlooked, so the discovery of the binary system is widely credited to Gottfried Wilhelm Leibniz who, 33 years afterwards in 1703, published his "Explication." In it he described how calculations could be performed in binary, but he did not intend the system to be applied in everyday life.[279] In the cellphone, the computer and other digital technologies the dream of Pythagoras has come to fruition beyond anything he could have imagined, or even intended. For Pythagoras, mathematics was the foundation of rational cosmological harmony, analogous to harmony originating in musical ratio.[280] Whether mathematical *quantification* (Wolfe uses the word "quantization")[281] is

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[277] Anthony Gottlieb, *The Dream of Reason: A History of Philosophy from the Greeks to the Renaissance* (London: Penguin Books, 2000), 32.

[278] "Testimonies" in Albert B. Hakim, *Historical Introduction to Philosophy*. 5th ed. (New Jersey: Pearson Prentice Hall, 2006), 21.

[279] Mark J. P. Wolf, *Abstracting Reality: Art, Communication, and Cognition in the Digital Age* (Lanham, Maryland: University Press of America, 2000), 31

[280] S. Marc Cohen et al. eds., *Readings in Ancient Greek Philosophy: From Thales to Aristotle*. 3rd ed. (Indianapolis: Hackett Publishing, 2005), 15.

[281] Wolf provides a definition of "quantization" (quantification) in relation to "digitization": "Conceptually, digitization is often connected with *quantization*, a process closely related but not synonymous to it. While digitization concerns the conversion of data into numeric form, to *quantize* something is to restrict the values or states of a system so that variables can only appear at discrete magnitudes which are multiples of a common unit. In other words, quantization sets a number of distinct levels or units which are used to measure something, and these are the *only* levels at which data

verisimilitude is a moot point, especially bearing in mind the Pythagoreans' adherence to principles of equilibrium governing all of nature, encapsulated in their doctrine the "Golden Mean," or "moderation in all things."[282] The Pythagoreans viewed mathematics as a means to discovering harmony in nature; they did not seek to impose mathematics onto nature by quantifying it.

The benefits of digital quantification are impossible to ignore. Perhaps the best example is in medical technologies for the early detection of disease and the accurate targeting of treatments. We can produce detailed three-dimensional images of the heart, brain, and every part of the human body. Mathematics knows almost no bounds for its potential to represent, and binary is the common mathematical currency that has opened up almost the entire strata of human experience to a profound and unprecedented degree of re-creation and scrutiny, to an extent that analogue representation could never hope to achieve. For the cellphone it has meant greatly enhanced versatility of function, storage capacity, and speed of information transmission.

The word "abstract" is from the Latin word *abstractus* which means literally to drag or pull away. Wolf asserts that quantification is a form of alienation from nature: "To rely on series of numbers as representations of the world around us is to abstract us from it, distancing or even cutting us off from experience, the subtler sides of things, moods, and feelings that cannot be captured in words, much less in numbers ... As numbers grow, we grow numb-er."[283] Galileo believed that mathematics is the language of nature, but he never intended that numbers would be able to capture human emotion, achievement, perception and understanding.[284] Is this caveat applicable to the cellphone, when it seems to be a device that connects people in a very potent way? It may be that the cellphone simultaneously connects and alienates,

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can be represented….Quantizing, then, takes something analog with infinite detail or gradations, and simplifies it into something with a limited amount of detail, making it easier to work with or "store" as data in a limited amount of computer memory. Once the data is broken up into pieces (like grades, samples, pixels, etc.), those pieces can be represented by numbers and encoded into numerical form; this is the basis of *digitizing*. Thus, in an analogue-to-digital conversion, some form of quantizing must occur before digitizing can occur" [preface in *Abstracting Reality*, ix-x].

[282] Scott Eastham, *American Dreamer: Bucky Fuller and the Sacred Geometry of Nature* (Cambridge: The Lutterworth Press, 2007), 80.

[283] Mark J. P. Wolf, *Abstracting Reality*, 23.

[284] Neil Postman, *Technopoly*, 13.

personalizes and abstracts. The digital representation of your words, your voice, your face is not *you* and can never be you, however close the approximation, but the *you* I am spending most of my time with is an abstraction.

An obvious objection to this is that any form of representation, analogue or digital, is an abstraction, so why the concern about specifically digital representations? One answer to this question is in the manner in which the representations are generated. In the shift from analogue to digital, we have taken another step away from human involvement. In analogue media a reproduction of a visual image is directly dependent upon what is seen by the human eye; and a song, as an auditory image, is dependent on the reproduction of sound waves emanating from human vocal chords: the medium of reproduction is analogous to the original source. Grooves on a record are thus analogous to the oscillating frequency of the human voice; in film, the light impressions on a light-sensitive material are analogous to what is seen by the human eye. In a digital representation there is no direct analogy between the human senses and the digital correlate. The caller's voice on a cellphone is translated into a binary code of 0's and 1's, which a computer then processes and translates back into the human voice that will be recognized by the receiver at the other end. According to Mark Hansen, a professor of literature and visual studies at Duke University, "new media" are "new" because they have a new "vocation": they broker or mediate the conditions of mediation. This is at the heart of what Hansen describes as "transcendent technicity." In this environment the cellphone and other digital media assume a "qualified" autonomy; in the process of mediation, computers are becoming more necessary and humans more "contingent."[285]

Perhaps somewhat ironically, Jaron Lanier, dubbed the "father of virtual reality," opts for the real over the virtual. Using art as an example, Lanier believes that it is a vain endeavour to seek to capture every nuance in a digital reproduction. Even in the most sophisticated program that can simulate in fine detail an oil painting, right down to texture and smell, something would

[285] Mark B. N. Hansen, "New Media," in Mitchell and Hansen, *Critical Terms for Media Studies*, 178-181.

always be missing, including its history, presence and distinctiveness. In contrast, Lanier maintains that "no digital image is really distinct from any other; they can be morphed and mashed up." Far from condemning digital representations – he sees them as a useful compromise – Lanier simply reinforces the value of the real and tries to impress upon us that it is impossible to reproduce anything with exactitude; this is, in his view, "what makes something fully real."[286]

It may be argued that this is paying undue deference to the "aura" of the original. Walter Benjamin extolled the virtue of mechanical reproduction in its power to destroy the prestige of original works of art – a prestige or "cult value" which was conferred by magical and then religious rituals. The Renaissance had its own secular cult of beauty which contained vestiges of the more traditional sacred rituals. For Benjamin, mechanical reproduction rescued the original work of art from its "parasitic" dependence on ritual. The aura of nature is related to our appreciation of it from a distance and our not letting it come too close to us, for instance in the form of a photo or an audiovisual recording.[287] Benjamin may have underestimated, however, the psychological and physiological significance of the direct human experience of nature.

Communications researcher Nathan Freier and psychologist Peter Kahn discovered that adults recovered better from low-level stress when they could view a real, aesthetically appealing natural scene through an office window, compared to a digital recording of the same scene projected onto a plasma screen. In terms of heart rate recovery from stress, the digital recording was no more effective than a blank wall.[288] Scott Eastham argues in *The Media Matrix* that people are losing the ability to distinguish between reality and simulation within their Western "frames of reference."[289] However, as Kahn

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[286]Jaron Lanier, *You Are Not a Gadget*, 133-134. Lanier is former professor of computer science at Columbia University.

[287] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*: *Walter Benjamin*, trans. Harry Zorn, ed. Hannah Arendt (London: Pimlico, 1999), 216-218.

[288] Nathan G. Freier and Peter H. Kahn, Jr., "The Fast-Paced Change of Children's Technological Environments," in *Children, Youth and Environments* 19, no.1, 2009. 2-3.

[289] Scott Eastham, *The Media Matrix* (Lanham, MD: University Press of America, 1990), 55. Eastham refers to Heidegger's "framework" [ibid., 57], that Heidegger called "Enframing" (*Gestell*), where technology classifies everything as a resource (or "standing-reserve," as already discussed) for exploitation. See Heidegger, *The Question Concerning Technology and Other Essays,* 31-33.

and Freier's experiment seems to suggest, there are "lines of resistance" etched in our nervous systems that are telling us something is unsettlingly wrong with the digital media matrix, with the "ersatz world of manipulable replicas and simulations";[290] something is out of kilter.

McLuhan wrote that our central nervous system is benumbed whenever and wherever it is extended by way of our technologies.[291] It would seem there is still some physiological resistance to certain digital technologies. The lines of resistance tell us it is not the content but the container that is culpable in our distorted way of seeing. For Eastham, the "container" is the "rectilinear"[292] perspective or "box."[293] Of Greek origins and revived in the Renaissance system of perspective,[294] it persists to this day in our digital technologies that keep the world within the bounds of a precise, quantitative "box," whether it be the camera, the television, the computer or cellphone. The "box" is a mode of thinking that is apparent, both literally and figuratively, in the way we attempt to render nature intelligible; as Eastham tells us, too often from our Western bias "we try to fit practically everything into the neat us/them, right/left, black/white, yes/no, on/off, 0/1 compartments with which we propose to divide and conquer reality."[295]

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[290] Ibid., 54, 57.

[291] Marshall McLuhan, *Understanding Media*, 51.

[292] A good example of this can be seen with the gridiron as used in architecture and town planning. In the ancient Greek world and its environs in the fourth century BC, the gridiron was integrated with "rectangular public buildings, and with urban houses in which rectangular rooms were arranged around a rectangular court" [Peter Kidson, "Architecture and City Planning," in *The Legacy of Greece: A New Appraisal*, ed. M.I. Finley (Oxford: Oxford University Press, 1984), 393]. Since at least the ancient Greeks right up until today, the gridiron has been employed to abstractly "flatten" the globe. As Wolf elaborates, "From ancient times onward, the grid pattern, breaking up space in units of equal size and shape, has been forcibly applied onto the land, and onto the surface of the earth in general. Latitude and longitude were introduced by the Greeks around 500 BC, and Eratosthenes, who estimated the earth's circumference, also devised a world map with lines of latitude and longitude, although the lines on these early maps were not evenly spaced; they were drawn to connect places that had the same length of daylight on the longest day of the year. The first uniform grid of parallels and meridians was developed in the second century BC, and is credited to the astronomer Hipparchus. From the stereographic projection of 130 BC and on through to the modern-day Peters projection and satellite mapping, cartographers have tried their hand at squaring the sphere, in their attempts to apply grids and develop flat projections of the earth's surface. In both the gridiron method and the system of longitude and latitude, mapmakers struggle to impose designs onto nature, even when the fit is a forced one due to land formations, terrain, or the curvature of the earth…the need for quantization again takes measurement and division away from the natural and into the abstract" [*Abstracting Reality*, 11].

[293] Scott Eastham, *The Media Matrix,* 55.

[294] Marshall McLuhan has discussed this perspective at length in *The Gutenburg Galaxy*. For example, he cites Tobias Dantzig's *Number: The Language of Science* (1954) to illustrate the arbitrariness and cultural bias that characterizes the Western point of view. Dantzig explains the Euclidean way of thinking by showing how the length of an arc is measured: see Appendix C.

[295] Scott Eastham, *The Media Matrix*, 57-58.

Amherst College physics professor Arthur Zanjonc has warned of the dangers of confusing a model for understanding reality for reality itself.[296] The cellphone is another "box" that invites or indeed compels us to see other people and the world from inside the square of digital quantification and, in so doing, it may be said to bear the legacy of a Greek and then Renaissance perspective that has been a definitive trait of Western thought to this day. Digitization is a heightened form of quantification, in that it assigns discrete values to physical phenomena (in this case that of the binary symbols of zero and one). It imposes divisions on everything it represents. The danger is that the mechanism for quantifying takes priority over the object of quantification, a perspective which has a long tradition in Western thought. Thus Euclid's straight-line universe leads us to conceive of nature in terms of straight lines; Brunelleschi's and Alberti's application of "perfect" symmetry, proportion, and precisely measured lines of three-dimensional perspective can impel us to view the world and everything in it with the same stultifying exactitude. Wolf has gone so far to suggest that "digital-style thinking can easily lead to all-or-nothing positions, extremism, stereotypes, and oversimplification."[297]

The feature of quantification that involves the breaking down of information into manageable parts – into bits and bytes, for example – is a central part of scientific endeavour. The CERN particle accelerator is designed to smash atoms in order to find the smallest particle;[298] the mapping of the human genome, and all genetics, seeks to understand and control the smallest biological elements of information.

The development of communication has also assumed features typical of this incessant desire to break everything down. As Jacques Ellul reasoned, "Since the dominant model is technical, everything *must* become technical. The least technical of realities … the word, must be cut up until it has been reduced to

[296] Parker J. Palmer et al., *The Heart of Higher Education: A Call to Renewal* (San Francisco: Jossey-Bass, 2010), 60.
[297] Mark J. P. Wolf, *Abstracting Reality*, 22.
[298] CERN – European Organization for Nuclear Research (trans.)

something that can be dismantled."[299] Hence, on the computer and cellphone the word is "processed," emailed, texted and twittered.

In his book *Biotech Time-Bomb*, Scott Eastham challenges the two-dimensional sender/receiver model of communication which had been originally conceived for machine communication but was subsequently extended to all forms of communication, human or machine.

The machine model of communication was developed by Claude Shannon (of Bell Laboratories) and Warren Weaver in their book *The Mathematical Theory of Communication* (1949). The "transportation" theory of information transmission espoused in the book is concerned with matching, with a minimum of noise, the input transmitted and output received through a telecommunications channel. Critically, as Eastham points out, "From a humanistic point of view, it is a bizarre theory in many respects – in particular because it has nothing to do with *meaning*, which is in fact held to *reduce* the information potential of the system …"[300]
It is precisely this loss of meaning – and also the stripped-down nature of such a model of communication, eviscerated of its other dimensions – to which Eastham guides our attention:

> Because it is so blindingly obvious, the sender/receiver model is both easy to critique and difficult to refute. Yes, in any act of communication, there is a sender and there is a receiver. This is a little like saying that any geometrical solid has both height and width. Of course, but the resulting two-dimensional picture is not only flat but flawed. The real figure also has depth (volume), it exists in *time*, and it has both intrinsic and extrinsic relations with other geometrical figures. Similarly, there is in any human communication an interiority, the dimension of meaning, untouched by the sender/receiver model. There is always also the medium, which as we have seen shapes and inflects the character of whatever may be communicated. Time enters any human picture of communication too, and in a profound way, since sender and receiver alike are *changed* in and by the very act of communicating with one another. Moreover, there are undeniable intrinsic (pre-existing) and extrinsic (actual or

[299] Jacques Ellul, *The Humiliation of the Word*, trans. Joyce Main Hanks (Grand Rapids, Michigan: William.B. Eerdmans Publishing, 1985) 170-171.
[300] Scott Eastham, *Biotech Time-Bomb: The Side-Effects Are the Main Effects* (Cresskill, NJ: Hampton Press, 2009), 35.

> possible) relationships between human beings, which a machine model of communication will either simplify to an absurd degree or ignore entirely.[301]

The serious shortcomings of the machine model, as highlighted by Eastham, should sound alarm bells for a society hooked on digitally mediated interaction, although the only alarm bells we pay attention to may be those emitted by our cellphones.

To find precedents for the reductionist method of dismantling, of seeking out the smallest unit of matter, one can look back to the atomism of the pre-Socratic philosophers Leucippus and Democritus. Yet one has only to witness a curious child taking apart a watch to see how it works. This image is especially evocative because the watch is the precursor to the cellphone – the portable machine we use to organize our lives. As Mumford has noted, it was the transition from the large, cumbersome clock of the fifteenth century to the portable watch that set an important precedent for the miniaturization of machines.[302]

Mark Wolf sees time as one of the salient examples of the "quantization of everyday life," and he adds to time the concepts of space, value and information. All have been, according to Wolf, "broken up into units and continuously subdivided and abstracted into increasingly smaller units for greater manipulation and interchangeability";[303] this in turn changes the way we construct, order and think about the world. The process of cognition itself is changed when worth comes down to measurability and exchange value, and Western thinking displays symptoms of "quantophrenia," an obsessive preoccupation with mathematical models and solutions.[304] Panikkar regretted that even our thinking about God is confused with a mathematical matrix that "however elegant, is lifeless and abstract."[305]

In the cellphone all of these concepts – time, space, value and information – have powerfully coalesced to provide us with a device that supersedes the

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[301] Ibid.
[302] Lewis Mumford, *The Myth of the Machine*, 177.
[303] Mark J.P. Wolf, *Abstracting Reality*, 5. See also "Enhancing Now" in this study for a more expanded discussion of time.
[304] Ibid., 23.
[305] Raimon Panikkar, *The Rhythm of Being*, 402.

clock in its capacity to quantify our environment. This brings to mind Mark Twain's aphorism: "If the only tool you have is a hammer, everything begins to look like a nail." It may be recast: "If all you have is a cellphone, then everything begins to look like a cellphone application."

What, then, happens to the "self" in all of this? Is the self in danger of becoming somehow quantified and obsolesced?

Jaron Lanier cautions against the loss of the individual in his book *You Are Not a Gadget: A Manifesto*. He argues that "the deep meaning of personhood is being reduced by illusions of bits." His is a humanist agenda for digital technology. One could argue that the two are incompatible. Lanier seems to possess a deep awareness, however, that anyone who uses information technology is engaging in a form of social engineering:

> When I work with experimental digital gadgets, like new variations on virtual reality, in a lab environment, I am always reminded of how small changes in the details of a digital design can have profound unforeseen effects on the experiences of the humans who are playing with it. The slightest change in something as seemingly trivial as the ease of use of a button can sometimes completely alter behavior patterns.[306]

Lanier is essentially reiterating Marshall McLuhan's famous insight that "the medium is the message": it is more important than the content, because "it is the medium that shapes and controls the scale and form of human association and action."[307] The medium sets the parameters. Lanier's concern is that too many developers of software and other digital technologies have in recent times forsaken a more sober, humanist approach for one that aims to "chop up a network of individuals so finely that you end up with a mush." For these people, the abstraction of the network is more important than the people themselves.[308] Ethan Beard, former Google executive and now Facebook marketing boss, has promulgated this kind of philosophy: "As we've continued to evolve our thinking we've realized there is more to the graph than just people – the objects, items, organizations, and ideas you are connected with.

[306] Jaron Lanier, *You Are Not a Gadget*, 20, 4.
[307] Marshall McLuhan, *Understanding Media*, 9.
[308] Jaron Lanier, *You Are Not a Gadget*, 17.

Anything. By mapping out all these things we can come up with an extremely robust sense of a person's identity."[309] But this is an identity based on a classification of preferences – favourite music, coffee, author – that may later be used for marketing purposes. Less important is who your friends are.[310] It seems that, in the end, what we most cherish takes second place to the precepts of a market-driven algorithm. Panikkar once observed that people have become "a disturbing factor, a modifying parameter – necessary, to be sure, but somehow obscuring the purity of the measurements."[311]

Environmentalist Gary Holthaus defines the problem as one of perspective. We are on the outside looking in at nature, a consequence of Cartesian thinking. Comparing Western culture with pre-European Native American culture, he bemoans the dissect-and-analyse approach of Western thinking which has transformed us into spectators rather than participants.[312] This theme is echoed by Talbott:

> The world we ought to be engaging has disappeared behind a tissue of brittle, yes-or-no abstractions. Just as we have ignored the student in favour of an array of measurements, so also we have turned our faces away from the world itself, as qualitatively given – the world that might, unnervingly, *speak* to us. From the scientist's instrumentation to the sociologist's surveys, we have perfected the means for ignoring the immediate, expressive presence of the people and the natural phenomena around us, and therefore we have no meaningful context in which to anchor our swelling cascades of data.[313]

Once a feature of a traditional culture has been isolated and scrutinized by an anthropologist or educator, Holthaus contends, the culture has been irrevocably broken by virtue of the fact that the cultural artefact, perhaps a dance or an initiation rite, has been removed from its cultural whole. It is then not possible to fully return from the alien vision and to see the whole again.[314] The cellphone may perpetuate this kind of alien vision, one of detachment instead of involvement.

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[309] Quoted in David Kirkpatrick, *The Facebook Effect*, 313.
[310] Ibid.
[311] Raimon Panikkar, *The Rhythm of Being*, 400.
[312] Gary Holthaus, *Learning Native Wisdom: What Traditional Cultures Teach us about Subsistence, Sustainability, and Spirituality* (Lexington: The University Press of Kentucky, 2008), 79-80.
[313] Steve Talbott, *Devices of the Soul*, 159.
[314] Gary Holthaus, *Learning Native Wisdom*, 79-80.

On a recent solitary walk it came to me that tuning in to the cellphone is tuning *out* of nature, and tuning into nature is tuning into myself, where the only media are my senses: sight, sound, touch, smell, and taste. That direct connection with the grass, the leaves, the trees, and the water in a river, somehow replaced and reordered something within myself. It may be better to see the autumn leaves in their natural rust-colored hues instead of through the garish glare of the cellphone camera. It may be better to hear the human voice in its distinctive timbre, from quivering vocal chords, as you slowly exhale – an exchange of electrical impulses and wires for spirit and flesh. The word "phoney" is derived from the word "telephone"; the telephone (and now cellphone) voice sounds "phoney."

The direct link from our senses to the natural world should be revered and revisited.[315] It is about the reinforcement of primal connections and the primacy of raw human experience. It is about letting the mind with all its dreams, memories, concerns and insights flow unmediated and unchecked for sustained periods, and about maintaining the bridges between our bodies and the earth without the clutter of technological accoutrements. For artist and philosopher Eric Wesselow, people should be preserving "the relationship between thinking and making grounded in touching the material, most important in today's industrialized world where our only manual activity seems to be pushing buttons and turning dials"[316] – including those of our cellphones. It is also about experiencing the *indivisibility* of the whole and its parts: the complete experience. Arthur Zanjonc explains this from the perspective of a scientist, though with the underlying vision of a poet:

> … our method of inquiry shapes, in part, the phenomena themselves, and it is only these phenomena to which we have access. If we attend to separate parts, that is what we see. If we are interested in wholes and devise an experimental method suited to

[315] Richard Louv, Visiting Scholar at the Heller School for Social Policy and Management at Brandeis University and adviser to the National Scientific Council on the Developing Child, points to an increasing number of studies that show that direct contact with nature is vital for emotional and physical health. He believes that deprivation from nature causes "nature-deficit disorder," a type of illness which affects individuals, families and communities, the symptoms of which include "diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" [Richard Louv, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (Chapel Hill, North Carolina: Algonquin Books, 2005), 34].

[316] Eric Wesselow, "Making or Breaking," in *Interculture*, 30.

> that interest, then wholes show themselves. This is no mere relativism or pure constructivism, but rather an example of the world's richness that reveals itself in stages in response to us and our properly posed questions.[317]

Many a nineteenth-century romantic writer has penned similar sentiments, albeit in more evocative language and phrasing. Among them, Ralph Waldo Emerson acutely appreciated nature's richness as well as its sufficiency:

> We must trust the perfection of the creation so far, as to believe that whatever curiosity the order of things has awakened in our minds, the order of things can satisfy.
>
> *Nature* (1836)

The romantic period was about the exalting of emotion and passion; in the quantum universe these and other "non-Euclidian" ways of seeing are permissible. The "irrational" experience of human beings is now as scientifically legitimate as empirical knowledge; in fact it *is* empirical knowledge. This is not to uphold science as the supreme arbiter of what is legitimate knowledge. It is a plea to be always expanding our ontology beyond digital models of understanding.[318] Otherwise the digital chimes of the new technological "renaissance," as epitomized by the cellphone, will invariably ring hollow.

The cellphone retrieves the Renaissance tension between the artificial and the natural, but does it retrieve in its fullest sense the "soul" of Renaissance art and learning – the *humanitas*?

It is fitting that the "father of virtual reality," Jaron Lanier, should have the last word in an evaluation that could equally apply to the cellphone:

> It is utterly strange to hear many of my old friends in the world of digital culture claim to be the true sons of the Renaissance without realizing that using computers to

[317] Parker J. Palmer et al., *The Heart of Higher Education*, 80.

[318] Arthur Zanjonc further expands this concept: he argues that "the ontological standing of experience be elevated from mere secondary appearance to a central position in our new phenomenological orientation. We are most powerfully affected by deep and sustained experiences, which leave enduring imprints on our very constitution and consciousness. We not only know more but see differently and become another human being through transformative experiences" [ibid.,108].

> reduce individual expression is a primitive, retrograde activity, no matter how sophisticated your tools are.[319]

Enhancing Intelligence

What is intelligence? There is no watertight definition. Adaptability to one's environment appears to be important in any attempt to formulate a definition, as does the ability to reason and make insights; however, measuring intelligence is much harder and is influenced to some degree by cultural bias. The type of intelligence necessary for life in a city, for example, will be different from the type of intelligence needed for life in a rural setting: the lifestyles are different, and, to an extent, each emphasizes a different set of skills. Also, some people are better at written tests than others. IQ tests may only measure candidates' ability to pass IQ tests. Exacerbating the difficulty of reaching a consensus on intelligence is that there is more than one "species" of intelligence. More recently, research has looked at "social" intelligence and "emotional" intelligence as distinct from "intellectual" intelligence. Such compartmentalizing of different varieties of intelligence may be an arbitrary exercise, but it highlights the difficulty in pinning down one simple, incontrovertible definition of intelligence. Issues that align more closely with social and emotional intelligence are dealt with elsewhere in this study; hence, this section will focus on the more familiar or "traditional" brand of intellectual intelligence.

Does the cellphone enhance our intelligence? There are reasons to answer a very qualified yes. Neuroscientist Gary Small has advanced the idea that the digital evolution of our brains goes hand-in-hand with the steady rise in IQ test scores.[320] James Flynn, political scientist from Otago University, noticed an increase in IQ (intelligence quotient) among twenty mostly industrialized countries, beginning as least as early as the last decade of the nineteenth century.[321] This is known as the "Flynn Effect."

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[319] Jaron Lanier, *You Are Not a Gadget*, 48.
[320] Gary Small and Gigi Vorgan, *iBrain*, 21.
[321] Flynn identified a rising IQ, initially with 14 nations; a decade later, this list was expanded to 20: The Netherlands, Belgium, France, Norway, Sweden, Denmark, the former East and West Germany, Austria, and Switzerland, Britain including Scotland and Northern Ireland, Canada, the United States,

The increase in IQ has been more noticeably in evidence with *fluid* intelligence. This is the kind of intelligence linked with more abstract nonverbal reasoning and problem-solving tasks, as compared to *crystallized* intelligence, which is based on vocabulary as well as general knowledge acquired from teachers, books or other sources.[322] Flynn has cautioned that psychologists should not infer general intelligence from IQ tests, specifically the Raven's test and other similar tests which do not measure intelligence per se, but abstract problem-solving ability.[323] The Raven's test measures "a correlate with a weak link to intelligence," much like measuring the population of a city by the weak correlate of the city's growth in land area. The correlate of abstract problem-solving ability does not necessarily translate into what Flynn has defined as a "real-world problem-solving ability called intelligence."[324]

Psychologist Patricia Greenfield has attempted to find a correlation between the notable rise in nonverbal IQ scores and the spatial and iconic imagery characteristic of information and communication technologies such as computers, television, video games and film. She has demonstrated how skills learnt in action video games involving iconic imagery and visual-spatial representation are transferable to important nonverbal parts of major IQ tests.[325] Visual-spatial skills may also be sharpened by games and puzzles that rely on the rotation and positioning of shapes, such as Tetris and Mahjong.[326] There are thousands of very detailed computer and video games that involve careful control of mostly iconic characters in three-dimensional settings; thus they can finely hone a combination of visual-spatial and iconic skills.

Iconic imagery plays a pivotal role in the user-friendliness and navigability of the cellphone, just as it does on the computer. We navigate around the

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Australia, New Zealand, Israel, urban Brazil, Japan and urban China [James. R, Flynn, "IQ Gains Over Time: Toward Finding the Causes," in *The Rising Curve: Long-Term Gains in IQ and Related Measures*, ed. U. Neisser (Washington, D.C: American Psychological Association, 1998), 26].

[322] Torkel Klingberg, *The Overflowing Brain*, 148.

[323] The Raven Progressive Matrices or Raven's test invented by John C. Raven in 1938 consists of a series of abstract challenges of systematically varying difficulty. Each question is composed of a 3x3 matrix with one missing cell. From a selection of eight possible figures, the candidates choose the answer that best completes the matrix. Of all the IQ tests administered, the Raven's test produced the most notable increase in scores over time [Ulric Neisser, "Introduction: Rising Test Scores and What They Mean," in Neisser, *The Rising Curve*, 9].

[324] James Flynn, "Massive Gains in 14 Nations: What IQ Tests Really Measure," in *Psychological Bulletin* 101, no. 2 (March 1987), 187-188.

[325] Patricia M.Greenfield, "The Cultural Evolution of IQ," in Neisser, *The Rising Curve*, 91.

[326] Ibid., 92-93.

cellphone by manipulating a treasure trove of icons. This is especially true for the latest smartphones, but also for the new tablet computers (the Apple iPad and HP Touch Pad, for example). Yes, there are words as well as icons, but as Patricia Greenfield has observed, in computers, television, films and video games – and we may add cellphones too – the image is privileged over the word, the nonverbal over the verbal (here, "verbal" meaning words written or spoken). [327] Exposure to media favouring iconic imagery can therefore improve our results in nonverbal sections of IQ tests, which are also iconic.[328]

With the cellphone as a platform for so many media applications, out in the "real world" it may contribute to a steeper rise in fluid intelligence. [329] Already abundant on computers, these "trainers" of fluid intelligence have found a home in cellphones. One of the main drivers behind Google's decision to create "Android," an open-source operating system for smartphones, was because mobile devices outnumbered personal computers by three to one. In the five months after the first 3G cellphones entered the market in July 2008, almost ten thousand applications had appeared for the cellphone (and there are now over 200,000) including games, travel, book, finance, and social networking sites.[330] Kathryn Montgomery, from the School of Communication at American University, has highlighted the popularity of video games among teens. Between 2001 and 2005 the number of American teens playing online video games increased by 50 percent to two thirds of the teen population.[331] A 2009 Pew survey conducted on 625 American 12-17 year-olds showed that 46 percent used their cellphones to play games.[332]

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[327] Here one recalls Ellul's displeasure at the "triumphant march of the Visual and (visual) Images in our society and thought" [Jacques Ellul, The *Humiliation of the Word*, 2].
[328] Ibid., 99-103.
[329] Patricia Greenfield has noted cross-cultural differences in people's style of representation before any experimental conditioning; for example, students in Rome were found to be primarily symbolic (i.e. verbal) while students in Los Angeles were mainly iconic. This has been hypothesized as an effect of the greater dissemination in the United States of electronic media featuring iconic imagery. Thus outside the laboratory one can acknowledge "the role of the everyday environment in producing the real-world effect" ["The Cultural Evolution of IQ," in Neisser, *The Rising Curve*, 105].
[330] Ken Auletta, *Googled: The End Of The World As We Know It*, (London: Virgin Books, 2009), 265.
[331] Kathryn C. Montgomery, *Generation Digital: Politics, Commerce, and Childhood in the Age of the Internet* (Cambridge, Mass: The MIT Press, 2007), 130.
[332] Amanda Lenhart et al., "Teens and Mobile Phones," Text Messaging Explodes as Teens Embrace it as the Centerpiece of their Communication Strategies with Friends," in *Pew Internet and American Life Project*, 56-57.
Some of the teens from the Pew study said that the iPhone was better for accessing the Internet, but that it was too expensive. Perhaps when iPhones other similarly advanced smartphones come down in price, mobile games, and gaming, will become more popular [ibid].

Cellphones have the potential to become the personal tutors of abstract problem-solving and, at least in this way, may enhance intelligence. Nevertheless, while the cellphone may enhance nonverbal skills, it may not do the same for more verbal, non-iconic skills. Aptitude for general knowledge, memorization, vocabulary and maths has not been boosting the historical rise in IQ scores to anywhere near the same degree, and, interestingly, the Flynn Effect may be on the wane as evidenced by flattening or falling IQ test scores in Norway, Denmark and Britain.[333] The distracted nature of online reading may play a role here.[334] Smartphones such as the iPhone incorporate more online reading than less sophisticated cellphones. Technologies such as the cellphone and Internet may also affect users' ability to produce the kind of prose necessary for more complex ideas requiring greater elucidation. The research in this area has so far produced mixed results.[335] If, however, there turns out to be a genuine problem, some of the fault may stem from the truncated nature of texting, as well as the shift among young people away from blogsites with their generally lengthier prose, towards the briefer prose of social networking sites. Moreover, blogsites themselves appear to favour iconic expressions and brief notes over more substantive prose:

> Kim Hou, a high school senior in San Francisco, said she quit blogging months ago, but acknowledged that she continued to post fashion photos on Tumblr [a blogsite]: "It's different from blogging because it's easier to use," she said. "With blogging you have to write, and this is just images. Some people write some phrases or quotes, but that's it."[336]

Clearly, the too-recent spread of digital technologies such as the computer and cellphone cannot have been the sole contributors to the Flynn Effect, but they may have complemented it by providing people with some of the necessary abstract abilities for specific parts of IQ tests. To say that the cellphone or,

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[333] Nicholas Carr notes that in the period 1999-2008, scores for the verbal part of high school PSAT maths tests fell considerably. In the same period, the average marks for writing skills and critical reading fell by 6.9 percent and 3.3 percent respectively. Marks for the verbal portions of the SAT tests for students seeking entry to college have been falling. Twelfth-graders' reading aptitude suffered a decline between 1992 and 2005 according to a 2007 report released by the US Department of Education; literary reading skills saw the greatest fall of 12 percent [Nicholas Carr, *The Shallows*, 145-146].

[334] There is more on this in "Reversing into Information Overload."

[335] David Crystal, *txting: the gr8 db8*, 167.

[336] Verne G. Kopytoff, "Blogs Wane as the Young Drift to Sites Like Twitter," *The New York Times*. February 20, 2011.

more generally, that information technology enhances intelligence may simply be saying that prolonged exposure to a particular environment leads to a heightened level of adaptability to that environment, and other similar environments. [337] Other socio-economic factors relating to IQ, including industrialization, urbanization, parenting, education and nutrition, also need to be considered.[338]

For Don Tapscott, author of *Grown Up Digital*, to say that generation Y is smarter than generation X, or any other generation,[339] probably tells us less about Y's general intelligence than their higher level of exposure to a variety of digital technologies. If digital technologies such as the computer and cellphone are making people smarter in a broader sense, then, as Bauerlein comments, "we should notice momentous signs and wonders of intellect all around us."[340]

Does the cellphone enhance intelligence? Yes, but only within carefully defined parameters; outside those parameters it may do the opposite. The limited cognitive benefits of cellphone use could be outweighed by some other, very disruptive elements. This will be more closely explored in the next section.

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[337] Carmi Schooler from the Laboratory of Environmental Studies, National Institute of Mental Health, Maryland, has argued that "there is substantial evidence that the environmental conditions to which one is exposed continue to affect one's level of intellectual functioning throughout the life span. A person's future intellectual functioning will definitely be affected by the nature of the environments to which he or she will be exposed" [Carmi Schooler, "Environmental complexity and the Flynn Effect," in Neisser, *The Rising Curve,* 68].

[338] For more on this see Neisser, *The Rising Curve*, especially the contributions from "Part One: Gains on Intelligence Tests."

[339] Tapscott claims that "the evidence is strong that they [generation Y] are the smartest generation ever" [Don Tapscott, *Grown Up Digital*, 30].

[340] Mark Bauerlein, *The Dumbest Generation*: *How the Digital Age Stupefies Young Americans and Jeopardizes Our Future [Or, Don't Trust Anyone Under 30]* (New York: Penguin Books, 2008), 93.

Reversing into Information Overload

> Only a flicker
> Over the strained time-ridden faces
> Distracted from distraction by distraction
> Filled with fancies and empty of meaning
> Tumid apathy with no concentration
>
> T. S. Eliot[341]

The cellphone reflects an attitude that we need constant access to information to both empower us and improve our lives. As an Internet access device, it enhances the ease and access of information, but it can also reverse into information overload and become a "weapon of mass distraction."[342] Does the cellphone foster a desultory way of thinking and approaching tasks? Maggie Jackson warns that society may be suffering some rather pernicious effects from its ever-expanding preoccupation with digital mediation:

> For efficiency's sake, do we split focus so finely that we thrust ourselves in a culture of lost threads? Untethered, have we detached from not only the soil but the sensual richness of our physical selves? ... The costs are steep: we begin to lose trust, depth, and connection in our relations and our thought. Without a flourishing array of attentional skills, our world flattens and thins. And most alarmingly, we begin to lose our ability to collectively face the challenges of our time. Can a society without deep focus preserve and learn from its past? Does a culture of distraction evolve to meet the needs of its future? These surely are litmus tests of a new dark age and challenges we look perilously at risk of failing.[343]

Today it seems that everyone is buried under an avalanche of information. It must be ready-to-hand, in fact *in* our hand every moment of the day. In a world of rapid-fire info-bullets, our capacity to focus our attention for an extended period may in some instances have been shot to pieces. Writer Nicholas Carr feels like HAL, the supercomputer from *2001: A Space Odyssey* who, in a futile attempt to stop the disconnection of his memory circuits,

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[341] From "Burnt Norton," in *Four Quartets*, in Derek Traversi, *T. S. Eliot The Longer Poems: The Waste Land, Ash Wednesday, Four Quartets* (London: The Bodley Head, 1976), 116.
[342] Michael O'Shaughnessy and Jane Stadler, *Media and Society*, 121.
[343] Maggie Jackson, *Distracted*, 215.

pleads to astronaut David Bowman: "Dave stop. Stop, will you? Stop Dave. Will you stop Dave? Dave, my mind is going. I can feel it. I can feel it."[344]

Carr's main concern is his inability to concentrate on a length of prose. His mind wanders after two or three pages: "I get fidgety, lose the thread, begin looking for something else to do. I feel as if I'm always dragging my wayward brain back to the text. The deep reading that used to come naturally has become a struggle."[345] Many of Carr's friends and colleagues report the same trouble focusing on a length of text. For example, Bruce Friedman, a pathologist on the faculty of the University of Michigan Medical School, describes how his thinking may have changed: "I now have almost totally lost the ability to read and to absorb a longish article on the web or in print." He claims his thinking has taken on a "staccato" quality, indicating the way he rapidly scans brief lengths of text from many online sources.[346]

Given his struggle to focus, one may ask how Carr managed to write a whole book (*The Shallows*) on the subject. He explains how he had to flee his highly connected Boston home for a new home in the relatively low-tech alpine serenity of Colorado. He scaled back his Internet service, closed his social networking accounts and curtailed his email, and there was no cellphone. He describes how for months his "synapses howled for their Net fix." Eventually, without all the digital diversions, his "brain could breathe again."[347]

Beyond his own intriguing albeit anecdotal evidence, Carr cites a five-year study of online research habits conducted by scholars from University College, London. The scholars monitored the behaviour of visitors to two popular research sites containing a variety of forms of written information, such as journal articles, e-books and other sources. They found that visitors to the sites usually read only one or two pages of a book or article before clicking to another site. Moreover, was no evidence that the visitors would return to read long articles they had occasionally saved. As the study's instigators report:

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[344] Nicholas Carr, "Is Google Making Us Stupid?" in *The Atlantic* (July / August 2008). Carr has written for *The New York Times*, *New Republic* and *Wired*, and has written a number of books about new media.
[345] Ibid.
[346] Ibid.
[347] Nicholas Carr, *The Shallows,* 198-99.

> It is clear that users are not reading online in the traditional sense; indeed there are signs that new forms of "reading" are emerging as users "power browse" horizontally through titles, contents pages and abstracts, going for quick wins. It almost seems that they go online to avoid reading in the traditional sense.[348]

Carr believes the results of this study suggest we are in "the midst of a sea change in the way we read and think."[349] This view accords with the views of James Flynn who expresses dismay that fewer and fewer of his advanced students bother to read: "Maybe 20 years ago they would say Aldous Huxley. But today either they have no favourite novelist, or they say Wilbur Smith or other airport trash." [350] English professor Mark Bauerlein echoes these sentiments with his own students: "A Raymond Chandler novel takes too long, an Emily Dickinson poem wears them down. A history book requires too much contextual knowledge, and science facts come quicker through the Web than through *A Brief History of Time*."[351] Gary Small believes that young people spend less time on recreational reading than ever before.[352]

Tufts University developmental psychologist Maryanne Wolf emphasizes, "We are not only *what* we read, we are *how* we read." She is apprehensive about the possible effects of online reading on our ability to read deeply and without distraction. According to Wolf, the style of reading we do on the Net puts "efficiency" and "immediacy" above all else. She asserts that our capacity to "interpret text, to make the rich mental connections that form when we read deeply and without distraction, remains largely disengaged"; we become "mere decoders of information."[353] E-readers, many of which use the iPhone as a platform, ostensibly retrieve reading. However, they employ webpage formats punctuated with hypertext Internet links to online dictionaries, Google, Amazon and various other shopping sites that detract from a focused reading experience.[354]

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[348] Quoted in Nicholas Carr, "Is Google Making Us Stupid?"
[349] Ibid.
[350] Matt Nippert, "Who Needs to Know? Is Learning Under Threat from the Morass of Information Masquerading as Fact?" in *New Zealand Listener*, (October 25-31, 2008), 18.
[351] Mark Bauerlein, *The Dumbest Generation*, 95.
[352] Gary Small and Gigi Vorgan, *iBrain*, 25.
[353]Quoted in Carr, "Is Google Making Us Stupid?"
[354] Nicholas Carr, *The Shallows*, 101-102.

The rapid-fire, capsulated and dispersive nature of online information, which seems to encourage the reader to browse but not to concentrate and absorb, may be putting at risk the powers of discernment that are needed in order to sort through the constant flow of information, to separate the wheat from the chaff. Oxford Brookes University teaching fellow Jude Carroll laments the indiscriminate way that today's generation of university students, instead of writing in the traditional sense, simply cut and paste information from online sources: "They see research as just harvesting stuff. Going out and finding stuff and putting it together."[355]

In their defence, the students may be the products of what Steve Talbott calls "The Age of Stuff."[356] The seemingly ethereal nature of what passes as information ought to invite reflection as to what it actually is; Talbott was unable to get an answer despite asking over five hundred librarians in the US and over three hundred in Canada. A guest at one of Talbott's seminars replied, "What's the problem? We all know what information is. It's the stuff our users need." Yet as Talbott argues, people in a wide array of different industries, from dentistry to McDonald's, give customers what they need, which invites the question, "Does this make them information workers?" If so, then they are "stuff" workers living in the "Age of Stuff."[357] If information is so elusive, so insubstantial, is it any surprise that students struggle to apply discernment? In today's world, anything and everything can pass off as "information," and we are constantly assailed with it. Baudrillard called it a "pornography of information and communication" that dissolves everything into its vortex: "All secrets, spaces and scenes abolished in a single dimension of information. That's obscenity."[358]

Neil Postman eloquently challenged the necessity of the sheer volume of information we receive today, on the basis that much of it does not lead to the betterment of humanity:

> If a nuclear catastrophe occurs, it shall not be because of inadequate information. Where people are dying of starvation, it does not occur because of inadequate

[355] Nippert, "Who Needs to Know?" 19.
[356] Steve Talbott, *Devices of the* Soul, 160.
[357] Ibid.
[358] Jean Baudrillard, "The Ecstasy of Communication" in Foster, *The Anti-Aesthetic,* 151.

> information. If families break up, children are mistreated, crime terrorizes a city, education is impotent, it does not happen because of inadequate information. Mathematical equations, instantaneous communication, and vast quantities of information have nothing whatever to do with any of these problems.[359]

Postman's critique is both piquant and pertinent in our age of sophisticated cellphones, of iPhones and BlackBerries that go far beyond the human-to-human communication function. From a communicator to an information provider, the cellphone consolidates its indispensableness with each new accretion, and the information footprint it leaves on us may be more than just skin-deep. It may profoundly affect our ability to process information.

The cellphone's breathtaking capacity for communication and for information access may be diverting and ultimately destroying our powers of concentration. Chris [respondent, 40] likens the cellphone to "an electronic infant, always demanding our attention when it's inconvenient or awkward." Gary Small explains how by focusing attention on a cellphone call or text, the brain fails to register other vital information coming in. He notes that peripheral vision is particularly impaired.[360] Obviously this has implications for motorists, which is why a number of countries including New Zealand have banned the use of cellphones while driving.[361] Continual use of the cellphone may, however, affect us in other ways we may never have thought of or taken seriously.

Edward M. Hallowell and John J. Ratey, both internationally renowned experts in the study and treatment of attention deficit disorder or ADD, recount the thoughts of an adult with ADD:

> "What is my ideal fantasy? ... To live my day in a room with three TVs going, me holding the blipper, my PC running, the fax operating, a CD playing, portable phone

[359] Neil Postman, *Technopoly*, 119.
[360] Gary Small and Gigi Vorgan, *iBrain*, 162.
[361] Gary Small provides some sobering information about the dangers of using a cellphone while driving: "A recent National Highway Traffic Safety Administration Study found that driving while holding a cell phone to your ear can increase your risk for an auto accident by at least 30 percent. Even speaking on a hands-free device divides your attention between your conversation and your driving. Recent studies have found that the attention impairments associated with using a cell phone while driving are comparable to those associated with driving while drunk" [ibid].

> held to one ear, the newspaper spread out before me, with three deals about to close."[362]

More and more we seem to be living in an environment that over-stimulates us, and the cellphone makes omnipresent this environment. One of the chief symptoms of ADD in adults and children, as Hallowell and Ratey point out, is the seeking out of situations that provide maximum stimulation.[363] Some neuroscientists believe that devices of the digital age, such as the cellphone and computer, are changing the physiology of the human brain, and may be inducing ADD or ADHD (attention deficit hyperactivity disorder). Too much exposure to digital technology can cause a "maladaptive" brain response, particularly if the individual has a genetic predisposition for ADD or ADHD. Some individuals cannot cope with the multitasking demands of modern technology, a situation which can spawn conditions such as ADD and ADHD.[364]

Young children's brains are particularly sensitive to auditory and visual stimuli which shape incipient neuronal and synaptic development. A number of studies have shown a positive correlation between exposure to electronic and digital technology and the symptoms of ADHD in children and adolescents.[365] These studies have focused mainly on television and the

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Researchers Fernando Wilson and Jim Stimpson at the University of North Texas Health Science Centre, found that drivers distracted by talking or texting on cellphones killed an estimated 16,000 people in the United States from 2001 to 2007. Wilson believes that the heightened distractions from ever more sophisticated smartphones will considerably exacerbate the problem [Maggie Fox, "Talking to death: Texts, Phones kill 16,000: Study," *Reuters* September 23, 2010].

Intriguingly, there is research that shows cellphone conversations while driving are more dangerous than talking to a passenger while driving, as Amy Novotney reports:

"[Meanwhile], new research in the December journal of Experimental Psychology: Applied (vol. 14, No. 40) shows that cell phone conversations are especially detrimental to driving. The researchers found that cell phone users are more likely to drift out of their lanes and miss their exits than people having in-person conversations. Interestingly, conversations with passengers barely affected any of these three measures. In fact, most passengers took an active role in supporting the driver, often by discussing surrounding traffic" [Amy Novotney, "Dangerous Distraction," in *American Psychological Association* 40, no. 2 (February 2009), 2].

[362] Edward M. Hallowell and John J. Ratey, *Driven to Distraction: Recognizing and Coping with Attention Deficit Disorder from Childhood through Adulthood* (New York: Touchstone, 1995), 178.

[363] Ibid.

[364] Gary Small and Gigi Vorgan, *iBrain*, 64-66.

[365] For example, Drs. Philip Chan and Terry Rabinowitz of Brown University observed that teenagers who played console or Internet video games daily, for more than an hour, had greater symptoms of ADHD or inattention than those who did not. Other studies have shown that Internet addiction in elementary school children significantly increases the likelihood of ADHD and inattention symptoms.

Researchers from Kaohsiung Medical University in Taiwan conducted a study on over two thousand students and found a link between Internet addiction and a significantly higher rate of ADHD. In South Korea, psychiatric investigators found that 20 percent of Internet-addicted children and adolescents

Internet. Given the popularity of cellphones among children and adolescents, however, it is worth considering their vulnerability to attention deficit disorders.[366]

Those continually exposed to this information assault (and without denying that it comes from other sources besides the cellphone) could be susceptible to or already suffering from a form of gadget-induced attention deficit disorder. The rapid spread of cellphones may be a contributor towards society flipping into a state of what some observers are calling "culturally induced" ADD. Dr Theodore Gross, a specialist in attention deficit disorders, believes that people are developing attention deficit disorders without inheriting them, while Evan I. Schwartz, senior editor for MIT's *Technology Review* magazine, thinks "we could be becoming the first *society* with attention deficit disorder."[367]

Psychologist Michel Posner has spent most of his academic life studying the psychological mechanisms of attention. In an interview with Posner, Jackson discovered how the three "pillars" of attention – focus, judgement and awareness – are being compromised by a culture of distraction. At about 18 months old, a baby understands for the first time that he or she is sharing a moment of joint focus. It might be the cat or dog, a tree or a toy. According to Posner, autistic children suffer impairment in this special appreciation of a moment of shared focus. As a result they can become socially marooned and unable to connect with others.[368] Jackson asks whether we as a society may be experiencing a kind of "social autism" with the time we spend relating to one another in virtual worlds, always missing the joint focus or orientation which acts as a bridge to one another. Instead we grow satisfied with "snippets and

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displayed relatively severe ADHD symptoms. Dr. Dimitri Christakis and colleagues from the University of Washington conducted a study which demonstrated that by age seven, the more a child watched television each day the higher the risk of being diagnosed with ADHD [ibid., 66].

[366] In a study conducted by Colmar Brunton in 2007 on behalf of the Broadcasting Standards Authority it was found that of a sample of over 600 New Zealand children aged 6-13, 27% owned their own cellphone – 62% of 12-13 year-olds; 25% of 9-11 year-olds; and 5% of 6-8 year-olds [Broadcasting Standards Authority (BSA), "Seen and Heard: Children's Media Use, Exposure, and Response," *BSA*. May 2008].

A recent Pew study observes that "Some 75% of 12-17 year-olds now own cellphones, up from 45% in 2004. Those phones have become indispensable tools in teen communication patterns" [Amanda Lenhart et al., "Teens and Mobile Phones: Text Messaging Explodes as Teens Embrace it as the Centerpiece of their Communication Strategies with Friends," in *Pew Internet and American Life Project*," 2].

[367] Quoted in David Shenk, *Data Smog: Surviving the Information Glut* (San Francisco: Harper Edge, 1997), 36.

[368] Maggie Jackson, *Distracted*, 240.

glimpses" bred in the virtual realm. This has implications for the cellphone. As Jackson warns, "Lose the will to focus deeply, to point the compass of our lives firmly in one another's direction, and we become islands."[369]

The danger today is that the cynosure is the cellphone and not the person right in front of us.[370] It may be that with all the possibilities for communication with those not present, we feel the pull to fulfil that potential instead of the potential with those in our physical presence. This may manifest itself in the form of restlessness and agitation to be texting or calling someone who is, at one level, just as accessible as those in front of us. We may compromise the conversation with another person, even a friend or loved one, by not being fully "there" with the person – perhaps by thinking about contacting another friend who isn't there and by cutting short the immediate conversation to meet the requirements, real or imagined, of our absent friends. One has to wonder how this might sway our attitudes towards people in general. What happens to love and trust?

In relation to judgement, the second pillar of attention, Posner has studied the behavioural aspects of "executive attention" and its physiological workings. Executive attention is that ability to select, control and discipline our attention towards the most important objects of our focus. A number of disorders such as schizophrenia, attention deficit, and borderline personality are associated with dysfunctional executive attention. Jackson asserts that contemporary culture is built upon "split focus and info-skimming," and that it needs to cultivate the power of executive attention in order to reshape itself and turn back a "tide of distraction."[371] Again, this is relevant for a society so enthused with the cellphone. It may be affecting our ability to filter and discriminate the constant flow of information we receive.

The third pillar of attention is awareness or alertness. Posner recounts two complementary but distinctive types of alertness in the brain. One is called "tonic" and is thought to be right-brained. It is the alertness associated with our different waking states. Thus most people experience a lowered level of

[369] Ibid., 241.
[370] See also "Obsolescing Face-to-Face Contact."
[371] Maggie Jackson, *Distracted*, 244.

alertness for a brief period after they first wake up, which gradually elevates to a peak during the day, and subsides in the evening. This contrasts with "phasic" alertness believed to be left-brained, which is that sudden "get ready" feeling triggered by audible or other cues.

The cellphone, along with other electronic gadgets such as the iPod and iPad, could be making us less susceptible to audible cues that trigger phasic alertness, the "ultra-on" state of readiness, but it may also be interfering with our more general, fluctuating tonic awareness. As Jackson asserts:

> When we race breathlessly through life, detached from our surroundings and addicted to a kind of mindless mobility, we are short-circuiting this third power of attention. When we seek relationships with our inanimate machinery, we begin to deaden ourselves to the pinpricks and caresses of the real world. [372]

Sadly, however, those "caresses" are sometimes harmful or even deadly blows. In 2008 in Los Angeles, the driver of a commuter train was momentarily distracted while texting, which is believed to have played a role in a collision with a freight train; 25 people died and 113 were injured. In the same year, The American College of Emergency Physicians Foundation reported a rise in deaths and injuries caused by inattention while texting. Interestingly, in addition to drivers, these accidents involved texting by cyclists, rollerbladers and pedestrians. On a lighter note, in 2008 as part of a pedestrian safety campaign, a London-based organization fitted padding to lamp-posts to protect distracted cellphone users.[373]

Apart from these perhaps more obvious risks owing to our lack of attentiveness, the cellphone, particularly as an Internet-ready device, may impede the anchoring of long-term memories.[374] The most effective way to retain memories is to focus our attention on the object of remembrance.[375] A former high school principal of mine used to say, at what seemed like every assembly, "Repetition reinforces recall." There is a lot of truth in this adage. Staying on task is crucial for the transfer of information to long-term memory.

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[372] Ibid., 248.
[373] Amy Novotney, "Dangerous Distraction," 1, 4.
[374] For more on memory see "Enhancing Intelligence."
[375] Nicholas Carr, *The Shallows*, 193.

Regrettably, the digital media environment of fast-links, of hopping page to page, never seems to allow enough time to read and comprehend, let alone remember the content. Indeed the whole surfing experience is like a drive-through library where there is just enough time to digest a few bestseller titles and a couple of newspaper headlines.

Steven Johnson, author of *Everything Bad Is Good For You: How Popular Culture Is Making Us Smarter*, attributes the rise in IQ to the burgeoning culture of digital media technologies. Johnson highlights the technological savvy of a modern ten-year-old "shifting effortlessly from phone to instant messaging to email in communicating with friends,"[376] as one example of the way today's young people have developed skills transferable to IQ tests.[377] However, this is a Pyrrhic victory if it compromises our ability to crystallize and consolidate information.

The brain needs time to linger, to concentrate, and build associations between the new fact or insight and the existing store of facts and insights; this way the information sticks. This is anathema to an Internet environment that demands we move on quickly. But when we do speed off, the electrical charge in the synapses of our short-term memories, having lasted only a few seconds, has most likely gone, along with the information we have failed to absorb.[378] Gary Small claims that when we switch from one task to another the brain takes a break in between and "reboots" before each task, therefore reducing efficiency.[379]

There is also the risk of a self-perpetuating cycle of diminishing returns: continuous Internet exposure derails our ability to focus and retain, and thereby trains the brain to adapt physiologically to this skimming process and thus propels us back to the Internet environment.[380] Moreover, the future of

[376] Steven Johnson, *Everything Bad is Good for You: How Popular Culture is Making Us Smarter*, (London: Allen Lane, 2005), 144.
[377] For more on IQ see "Enhancing Intelligence."
[378] Nicholas Carr, *The Shallows*, 193.
[379] Gary Small and Gigi Vorgan, *iBrain*, 68.
[380] Nicholas Carr, *The Shallows*, 194.

the Internet may not just be mobile but literally boundless. The cellphone is set to be a major player in this future, enhancing a kind of "infotopia."[381]

An essential feature of this infotopia is to create a computerized habitat which is functionally conducive to humans' expert but serene command as they organize "an unceasing and torrential flow of data."[382] This prophecy (or is it promise?) appears to be reaching its fulfilment with the cellphone in its different guises – the iPhone, the BlackBerry, and the range of Google Android phones – and other handheld digital gadgets such as the iPod and iPad. It is not that information itself is terrible, but surely it is wise to consider who controls the information, and the kind of world that is emerging.

Marketing companies, for example, often employ sophisticated data-gathering methods in order to appeal to the consumer tastes of young people. Kathryn Montgomery has looked at the way digital tracking technologies can build up elaborate personal profiles on users of cellphones, the Internet, and other new media. Psychological, social and behavioural information is aggregated over time for the purposes of exploiting teenagers' deep-seated vulnerabilities, including their "anxieties, fears and sense of identity," in order to sell products.[383] Disturbingly, as we become more swamped and distracted by the glut of information spewing from our cellphones and other gadgets, we may become more susceptible to marketing messages.[384] Cellphone applications (apps) are a 15 billion dollar business, and 2 billion of that profit comes from advertising. The marketing industry sees the cellphone as a critical advertising platform for the future.[385]

From commerce to science fiction, the cellphone may one day become a "tuft" in a world of "cloud" computing where the whole environment acts as a computer gateway. The cellphone will not be the solitary platform; it will be one of many portals to an overarching computer brain.[386] These portals will

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[381] I have borrowed this term from Cass Sunstein, *Infotopia: How Many Minds Produce Knowledge* (Oxford: Oxford University Press, 2006).
[382] Adam Greenfield, *Everyware*, 1-2.
[383] Kathryn C. Montgomery, *Generation Digital*, 217.
[384] David Shenk, *Data Smog*, 152-153.
[385] Rory Cellan-Jones, "Mobile Mad Men: Advertisers Want to Dominate Your Phone," in *BBC News: Business* (20 February 2011).
[386] There is a more detailed discussion of similar concepts in the next section, "Reversing into Robot."

exist everywhere or "everyware," as is the designated portmanteau word of IT analyst Adam Greenfield; so a desk, a fridge, a kitchen bench, a street sign, a bus shelter, coffee cups, or even paint could be information processors and entrances to a colossal networked computer. Computers in their current form, as desktops and laptops, would all but vanish. In March 1997, *Wired* magazine heralded the rise of these "push media," where the Internet would segue from a passive source of information waiting for a user, to an active, aggressive medium pushing itself onto people from every environment.[387] It is hard to reconcile this ambition with the convergence culture imagined by media analyst Henry Jenkins, who explains somewhat euphemistically that people, or "consumers," are "encouraged to seek out new information." Jenkins does, however, acknowledge the unequal participants in media convergence culture: corporations, both wholly and individually, exercise more power than do individual or collective consumers.[388] This power differential between the producers and consumers of media technologies is central to a deeper understanding of the way technology exists in society.

Lewis Mumford drew our attention to the ancient precedent for the controllers of modern media technologies and their pervasive infrastructures in the "megamachine." These were, by the standards of the time, gargantuan human machines designed for massive construction projects such as the pyramids. Here, two components of control made the machine viable. The first was organized and monopolized "higher knowledge"; the second was a complex structure for the execution of orders, achieved via the institutions of divine kingship, priesthood, and a vast bureaucracy. According to Mumford, the "higher knowledge" is what we would now call science, and Mumford could see an example of organized science in the Pentagon with its "specialized scientists, technical experts, games theorists and computers."[389]

Historian Theodore Roszak outlined three cardinal assumptions of technocracy. First, all human problems are essentially technical problems that

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[387] Peter Suderman. "Staying Afloat: Treading Water in a Sea of Data," in *The New Atlantis* 22 (Fall 2008) 104.
[388] Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2006), 3.
[389] Lewis Mumford, *The Myth of the Machine: Technics and Human Development* (New York: Harcourt Brace Jovanovich, 1971), 198-199.

experts can solve by formal analysis, the fruits of which come in the shape of economic and social programs, human resource systems, commodities and devices. If there is no technical solution, then it cannot be a genuine problem. Second, the analysis of human requirements is nearing completion; anything unresolved is minor and can be settled with reasoned arbitration. Third, only experts can truly fathom and provide for our needs and wants, and the only credible experts are those in the employ of the state or the "corporate structure."[390]

Roszak was writing at the end of the 1960s; fast-forward to the 21st century and Roszak's critique still strikes a chord. Today in the information age the technical experts, the "high priests" of knowledge, are telling us that digital technology is the path to a better world, an information utopia or "infotopia." Jaron Lanier targets "the folks from the open culture/creative commons world, the Linux community, folks associated with the artificial-intelligence approach to computer science, the web 2.0 people, the anticontext file sharers and remashers," among a variety of others whose tentacles of power have global reach.[391] They are the "cybernetic totalists" or "digital Maoists," an ascendant "tribe" which at its core is materialistic, but in its implacable allegiance to a goal of cybernetic totalism, has come to resemble a type of religious or political extremism. This "ascendant tribe" or subculture has its capital in Silicon Valley.[392]

Lanier challenges what he sees as the less-than-humanistic ambitions of the cybernetic totalists. But a broad-based, popular attitude questioning the cellphone, a Pandora's Box for these technocratic fantasies, is usually harder to find. Hence, David [respondent, 35] sees the cellphone as a "progressive" device that, as with technology more broadly, "just happens and we have to deal with the consequences," and he claims that "you can't turn the clock back on technology." To some extent David differentiates human values and motivations from apparently inevitable technological developments. Apart from the technological determinism this implies, David's view appears to

[390] Theodore Roszak, "Technocracy's Children," in *The New Technology and Human Values*, ed. John G. Burke (Belmont: Wadsworth Publishing, 1972), 34.
[391] Jaron Lanier, *You Are Not a Gadget*, 17.
[392] Ibid., 16-18.

exemplify historian Theodore Roszak's argument that the technocracy deliberately obscures its own ideological foundations.[393] Technocracy's "assumptions about reality and its values," asserts Roszak, "become as unobtrusively pervasive as the air we breathe"[394] – or, indeed, the cellphones we carry. They become part of nature like the Internet, which many computer engineers expect will become a living being, a "metaorganism"; computer engineers, by rendering the workings of the Internet incomprehensible, make it easier for them and us to imagine this will happen.[395]

Another conviction of cybernetic totalists, also consistent with Roszak's understanding of technocracy's assumptions, is that information is alive and deserves to be free. All human institutions should therefore be redesigned to reinforce this perception. There are two sides to the debate here. Armed with our cellphones and computers, we can promote the emancipation of information for any number of reasons: to make governments more accountable, to make the world more transparent, and to enlarge democracy. Though it may seem inspirational-sounding, bedrock-of-democracy thinking, without a critical and discerning approach, the principle of the freedom of information can become an ideological wrecking ball, harming as much as it helps. Democracy depends as much on the concealing of information as its dissemination. Thus when we exercise our democratic right to vote, we do it secretly in a booth. The end of secrecy would spell the end of democracy. This point may have been lost on Julian Assange. In a way that Assange never intended, WikiLeaks, ostensibly a site committed to a global culture of transparency, punishes governments, businesses and all human endeavours

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[393] According to the *Concise Oxford Dictionary*, a *technocracy* is "the government or control of society or industry by technical experts."

[394] Theodore Roszak, "Technocracy's Children," 32.
Technocracy's "assumptions" and "values" are bound up in what Roszak calls "the scientific world-view of the Western tradition" [ibid]. For further elucidation of this worldview see "Retrieving the Renaissance."

[395] Jaron Lanier, *You Are Not a Gadget*, 124.
Lanier explains that in the Internet, "The decentralized nature of the architecture makes it almost impossible to track the nature of the information that is flowing through it. Each packet is just a tiny piece of a file, so even if you look at the contents of packets going by, it can sometimes be hard to figure out what the whole file will be when it is reassembled at the destination.

In more recent eras, ideologies related to privacy and anonymity joined a fascination with emerging systems similar to some conceptions of biological evolution to influence engineers to reinforce the opacity of the design of the Internet. Each new layer of code has furthered the cause of deliberate obscurity. Because of the current popularity of cloud architectures, for instance, it has become difficult to know which server you are logging into from time to time when you use particular software" [123-124].

that are more open and more likely to have leaks to the site, while rewarding those that are information watertight. If the political realm comes to imitate the Internet perfectly, Lanier believes that "the world will be restructured around opaque, digitally delineated power centers surrounded by a sea of chaotic, underachieving openness."[396]

Lanier lays a good deal of the blame on the "architecture" of the Internet, which tends to polarize into extremes: from absolute transparency, as exemplified by the almost infinite copying of music files or the sharing of a light-hearted Facebook profile; or to extreme opacity, for instance as seen with Facebook's catalogue of individuals' dossiers, which is highly prized by other commercial interests – or, indeed, as seen with the files WikiLeaks retained for the purposes of blackmail.[397]

Much of the online environment is driven by the ideology that "information in sufficiently large quantity automatically becomes truth"; the corollary of this, of course, is that "the truth will set you free." The more information you have, the freer you become.[398] This is where information becomes a cult. Apart from the obvious fact that the sheer multiplication of untrue information does not cause it to become true, such an ideology gives one pause to consider the relationship between information and truth. A formidable battery of facts does not necessarily lead to higher truths; conversely, the complete absence of facts may lead to the wisest insights.[399]

Roszak takes it as a "paramount truth that the mind thinks with ideas, not with information."[400] This is a timely observation for the cellphone user with his portal to an exponentially expanding information universe, where a glut of information may leave no room for ideas.

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[396] Jaron Lanier, "The Hazards of Nerd Supremacy: The Case of WikiLeaks," in *The Atlantic* (December 20, 2010), 2.
[397] Ibid.
[398] Ibid., 1.
[399] Theodore Roszak expands on this paradox in the chapter "Of Ideas and Data" in his book *The Cult of Information: a Neo-Luddite Treatise on High-Tech, Artificial Intelligence, and the True Art of Thinking* (Berkeley: University of California Press, 1986), 87-107.
[400] Ibid., 88, 90.

Ideas can emerge from finding patterns from facts or information, through deductive and inductive reasoning. But where there are no facts we can create what Roszak calls "master ideas." There are countless master ideas; here are just a few of them: God is love; you only get out of life what you put into it; liberty, equality, fraternity; the Tao that can be named is not the true Tao; all men are created equal; the end justifies the means; (and so forth). These ideas are not based on a body of facts or a massive agglomeration of information; rather, they were born out of a combination of experience and conviction. The equality of all people is impossible to prove by amassing facts or information, and yet it is one of the most important and influential ideas in human history.[401]

Some master ideas are illuminating and constructive, others dark and corrosive. Roszak explains that facts grow from ideas – or "integrating patterns" – and not vice-versa.[402] For Thomas Kuhn, author of *The Structure of Scientific Revolutions* (1962), the integrating pattern or "paradigm" arguably precedes and to a degree determines the "facts." It seems clear that information as raw sensory data comes to us first, but in order to translate this basic material into something coherent requires theories or ideas. In a startling fashion, this happens from the very beginning. The English philosopher John Locke was wrong: the human brain is not a *tabula rasa*, a blank slate at birth. Even babies possess the innate mental capacity to impose patterns and order amidst the sensory blitz.[403]

The current obsession with information fails to appreciate that accumulating information is not the same as accumulating wisdom. The meaning of the word "information" is very broad. It can means facts, as far as we can discern them, but it can also mean anything we receive from our senses. Scott Lash focuses on the way information is packaged. Its primary characteristics today are "flow, disembeddedness, spatial compression and real-time relations."

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[401] Ibid., 91-95.
[402] Ibid., 90.
[403] Psychologists have observed the way babies make the world intelligible:
"If you give young babies a complicated picture and record their eye movements as they look at the scene, you'll see them tracing the outside edges of objects. Newborns are already imposing order on what William James called 'the blooming, buzzing confusion' of their senses. They're already organizing the world into a bunch of different things. Paying attention to edges is the best way of dividing a static picture into separate objects" [Alison Gopnik et al., *The Scientist in the Crib*, 65].

Lash is also concerned with the quality of the information; it is not "information-rich goods and services," but "out-of-control bytes of information." He argues that what is at stake is a "*dis*informed information society."[404]

The word *information* is derived from the Latin *informare* which means to form into shape: from *in* – "into" + *forma* "form." It was only from the 14th century that "to inform" came to mean to report facts or news. Today the information we receive seems to be losing the older meaning of the word: human involvement – that is, the creative human thinking, the pattern-making and recognition (we see, for example, that birds fly "in formation"), and the shaping and moulding.[405] Lanier, referring to information stored as bits on a computer, believes "experience is the only process that can de-alienate information."[406]

Outside the hard drive, sociologist Scott Lash regards the "constant bombardment by signals, the ads of consumer culture and the like" as "chaos" or "noise" until people can derive meaning from it: "If there is no meaning, then there is no information."[407] Perhaps in our understanding of information it is the experience of shaping the lump of informational clay that we too often forget. Instead, information splatters us from all sides and real thinking has no chance to sculpt and shape like the potter's hands, and so the mind is, in Roszak's words, "distracted by sterile, disconnected facts, lost among shapeless heaps of data."[408]

To this extent the cellphone may reverse our minds into a state of disorientation and confusion. Lash believes that, in a very reflexive fashion, critiques of information themselves are lost within these information flows as they pass through our devices – "your laptop, PDA, your movement from interface with auto and mobile phone to aeroplane to television to pager to the

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[404] Scott Lash, *Critique of Information*, 2.
[405] Jacques Ellul also discusses this in relation to the shaping of conduct: "If the same information is given to many people, by being led to adopt this conduct, they form a coherent group. Thus the information given by bees tells other bees where there is nourishment, in what direction, and how far away, so that they all know where to fly" [*The Technological Bluff*, 327].
[406] Jaron Lanier, *You Are Not a Gadget*, 29.
[407] Scott Lash, *Critique of Information*, 18.
[408] Theodore Roszak, *The Cult of Information*, 88.

streaming-enabling baseline software in your TV set top box." According to Lash, and consistent with many theories of postmodernity, there is no Cartesian "I" as subject, and everything outside, the object.[409] The self is also object and is "transacted" through the television, airwaves, Internet, cellphones and the entire infrastructure of the information superhighway.[410] Yet the "I" has not disappeared. It is a "saturated self," as Gergen aptly phrases it, where multifarious media offer a plethora of identities or potentialities of being, a "multiphrenia."[411] Nevertheless, it is a self that seems acutely aware of where it should be, even though the human species has extended its sensorium in an "autoamputation," as McLuhan graphically described it.[412] Information overload may well be the "I" in the sense of our displaced nervous systems coming back to us and reverberating within us as a kind of unsettling feedback loop (which adds a new layer of meaning to the "i" Phone!). McLuhan believed the shock of the autoamputation is felt as numbness, much like a person who experiences a dulled sensation of pain in response to a shock or accident. Normal sensitivity and reactions to sensory stimuli return only after a delay.[413] Chris [respondent] experienced this kind of response to the glitzy, bedazzling media of Times Square in New York:

> About 2 or 3 minutes after we arrived, I started to feel dizzy and nauseous… At first I just tried to cast my eyes down towards the street, and then I tried looking in shop windows, but even through my peripheral vision the electronic billboards with their flashing and weird angles became too much to bear … About 20 minutes after we left the area the nausea and dizziness finally subsided.

David Shenk sees sensory overload as a hazard of modern, urban living. The multisensory onslaught of convergence media such as the cellphone and computer may reverse into almost continuous stress on users' nervous systems. It is as if they are carrying the city with them:

> For these people, who have a visceral reaction against the sensory overload of the big city, information technology arrives with fangs: Regardless of where you live, a

[409] Scott Lash, *Critique of Information*, 10-11.
[410] Ben Agger, *The Virtual Self: A Contemporary Sociology* (Malden, MA: Blackwell Publishing, 2004), 117.
[411] Kenneth Gergen, *The Saturated Self*, 73-74.
[412] Marshall McLuhan, *Understanding Media*, 47-49.
[413] Ibid., 48.

> virtual rendering of Times Square's hustle and bustle is on its way to your living room and your workplace.[414]

The sensory bombardment of Times Square is now handheld, and with us always.

Interestingly, as a postscript to this discussion, Sergey Brin and his equally Internet-entrepeneurial wife, Anne Wojcicki, recently decided to turn off their cellphones, computers and other gadgetry for twenty-four hours as part of a "National Day of Unplugging," begun in 2010 by a New York group called Reboot. Wojcicki, who owns four cellphones and sleeps with a BlackBerry under her pillow, shares her thoughts on her reasons for the big switch-off: "It's really about achieving balance and spending some time where you're really just connected with the environment and the people around you." This is an encouraging first step, but is it also a case of shutting the technology gate after the cellphone "horse" has bolted?[415]

Reversing into Robot

> There waited on their King th' attendant maids;
> In form as living maids, but wrought in gold;
> Instinct with consciousness, with voice endued,
> And strength, and skill from heav'nly teachers
> Drawn.
>
> (*Iliad*, 18.468-471)[416]

It is always a precarious task trying to describe what is "natural" and what is not. Technologies, when defined as extensions of ourselves, may be justifiably called natural; after all, are human beings not natural? Are humans simply doing what is "natural" when they create technologies?

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[414] David Shenk, *Data Smog*, 39.
[415] James Temple, "National Day of Unplugging this Weekend," in *The San Francisco Chronicle*, Friday March 4, 2011.
[416] E. Rhys, ed., *The Iliad of Homer*, trans. Edward Earl of Derby (London: J.M. Dent and Sons, 1910).

In describing humans in their "ideal natural state," one can hear Jean-Jacques Rousseau's almost lachrymose disenchantment with the accoutrements of "civilization": "I dared to strip man's nature naked ... and showed that his supposed improvement was the fount of all his miseries."[417] And to a degree, voyages to unspoilt "Edens" in the New World and the South Seas have culminated in the alluring concept of humanity in its natural state. From these places, or at least in the myths they generated, came a cultural self-consciousness with intellectual credence attributed, fairly or not, to philosophers such as Montaigne, Voltaire, and Rousseau;[418] even in the twentieth century, Margaret Mead's anthropological studies of Samoa bear the hallmarks of utopian dreams.[419] It is important to remain aware of the origins of juxtapositions of the "modern" and the "primitive." Yet without becoming too mesmerized by the overly romantic vision of the "noble savage," it is necessary to ask what we are – with or without our technologies.

There is often tension between what is retrieved and what is obsolesced in our "raw humanity" when our technologies become ever more sophisticated. Sometimes technology becomes too much the "other." Sometimes we look upon our technological wizardry and wonder if we have departed too far from our purely human selves, just as Frankenstein wondered, when he beheld his creation: "I gazed on him while unfinished; he was ugly then, but when those muscles and joints were rendered capable of motion, it became a thing such as even Dante could not have conceived."[420] The technological sinews of the cellphone allow people to connect with others in a way that is both exciting and uncertain, but in so doing are we accepting those "muscles and joints" too literally as our own?

Humans have embraced the possibility of replicating themselves artificially for as long as one can imagine. Hephaestus's helpers in the *Iliad* are constructed

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[417] Jean-Jacques Rousseau *Confessions* (1781) quoted in Felipe Fernandez Armesto, *Ideas That Changed the World* (London: Dorling Kindersley, 2003), 259.
[418] For example, Rousseau advocated turning, not *returning*, to nature. And in Dryden, not Rousseau, is the phrase "noble savage" [J. Christopher Herold, "Jean Jacques Rousseau," in *The Horizon Book of Makers of Modern Thought*, ed. Joseph J. Thorndike (New York: American Heritage Publishing, 1972), 192].
[419] For more on this see Felipe Fernandez Armesto, *Ideas That Changed the World*, 259.
[420] Mary Shelley, *Frankenstein or The Modern Prometheus* (London: Vintage Books, 2007), 51.

entities. So too, humans can be designed, forged and built. Daniel Crevier looks back:

> As if driven by some invisible hand, humans have always yearned to understand what makes them think, feel, and be, and have tried to recreate that interior life artificially. Long before the vacuum tubes and silicon chips of the modern digital computer, long before the first analog computer, mythologies and literature recorded a timeless need to animate the inanimate, from Pygmalion's attempt to bring to life the perfectly sculptured Galatea to Gepetto's desire that the wooden puppet Pinocchio be a real boy.[421]

The metaphor of the human brain as a computer, and vice versa, is taken for granted today. Our language reflects this. Thomas Hobbes, as an early example, believed that human rationality was little more than the act of adding and subtracting thoughts in the manner of a calculating machine.[422] It is common now to hear phrases such as the "thinking computer." Conversely, people no longer think; they "process information."[423] Cybernetics pioneer Norbert Wiener frequently compared humans to machines. And John Von Neumann, a key conceptualist of game theory and a colleague of Wiener's, drew an analogy between the conduct of electrons in vacuum tubes and neurons in organisms. Harvard neurobiologist Lorente de Nó perceived an approximation between the digital binary processes of computing machines, and neurons firing. These comparisons prefigure the theories and debates of the information age.[424] Moreover, they cannot be simply dismissed as benign instances of anthropomorphizing. As Postman recognized, "In other words, what we have here is a case of metaphor gone mad. From the proposition that humans are in some respects like machines[425], we move to the proposition that humans are little else but machines and, finally, that human beings *are*

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[421] Daniel Crevier, *AI: The Tumultuous History of the Search for Artificial Intelligence* (New York: Basic Books, 1993), 1. Crevier is a historian and artificial intelligence researcher.
[422] Jonathan Sawday, *Engines of the Imagination*, 239.
[423] Neil Postman, *Technopoly*, 111.
[424] Thomas P. Hughes, *Human-Built World: How to Think about Technology and Culture* (Chicago: The University of Chicago Press, 2004), 94.
[425] On the subject of scientific and technical imagery for humans and their environment, Stanford University historian James J. Sheehan has noted that there is nothing new about this: "Plato, after all, had compared the creation of the world to the work of carpenters and potters; seventeenth-century thinkers had imagined the universe to be like a clock; in the late twentieth century we sometimes compare the mind to a computer" ["Culture," in Blanning, *Short Oxford History of Europe: The Nineteenth Century*, 139].

machines. And then, inevitably … to the proposition that machines are human beings."[426]

Humans appear to be merging with the cellphone on a trajectory of cybernetic enhancement, or reversal. The word *kännykkä* is the most common moniker for the cellphone in Finland. It means "an extension of the hand."[427] In China it is called *sho ji* or "hand machine." The image is nothing new: in his celebration of the "mechanical arts" – a range of technologies of tradespeople and artisans – Denis Diderot's *Encyclopédie* refers to them as the "tools and rules" that provide for the person "additional muscles to his arms and new faculties to his mind."[428] However, going beyond "tools and rules," and metaphors, Adriana de Souza e Silva explains that when the cellphone became a mobile phone it represented the moment when the technology was "no longer just a tool, but rather part of ourselves, and part of our identity."[429] It is difficult to know sometimes when the body ends and the machine begins:

> One of the Nokia owners in my class has now learned to carry the phone attached to his belt. The other is still constantly fiddling with it as if it were a body part, something that he can't detach from his hand. Perhaps it is a body part, at least an extension of a certain part of the body (seventeen-year-old boy in 1999).[430]

Emma [respondent, 36] is quite excited about the future possibilities of the cellphone as a multi-functional embedded device:

> I think it [the cellphone] will become obsolete – by definition it's a single-purpose device, but already we're shifting to multi-purpose devices. Why would I want to carry a separate mp3 (mp4) player, games console, phone, laptop, book, watch, wallet, camera, etc.? All that stuff just stretches out your pockets! The chance of forgetting one of those things or the battery running out – better to have all those things in one tiny device that doesn't even require carrying, perhaps something you wear or have

[426] Neil Postman, *Technopoly*, 112.
[427] Adriana de Souza e Silva. "Interfaces of Hybrid Spaces," in Kavoori and Arceneaux *The Cellphone* Reader, 31.
[428] John Hope Mason, *The Irresistible Diderot* (London: Quartet Books, 1982), 90.
[429] Adriana de Souza e Silva. "Interfaces of Hybrid Spaces," in Kavoori and Arceneaux *The Cellphone* Reader, 31.

[430] Virpi Oksman and Pirjo Rautiainen. '"Perhaps it is a Body Part': How the Mobile Became an Organic Part of the Everyday Lives of Finnish Children and Teenagers," in *Machines That Become Us: The Social Context of Personal Communication Technology*, ed., James E. Katz (New Brunswick: Transaction Publishers, 2003). 294.

> implanted into you? The iPhone is a step towards this, once it's all included in a single device the size of a wrist-watch, and charged kinetically as you walk around, then we're getting somewhere!

Emma's musings on the cybernetic possibilities of the cellphone fit neatly into Ray Kurzweil's grand vision of twenty-first century bodies where the distinction between humans and robots is no longer tenable: "What, after all, is the difference between a human who has upgraded her body and brain using new nanotechnology and computational technologies, and a robot who has gained an intelligence and sensuality surpassing her human creators?"[431] In the 1990s some young researchers at the MIT Media Lab called themselves "cyborgs" in a humorous reference to all the gadgetry they were carrying about with them, including computers, radio transmitters and keyboards. They also integrated digital displays into the frames of their eyeglasses.[432] To a great extent the modern cellphone eliminates the need to carry all these devices separately; moreover, common perceptions of cyborgs derived from movies and television would probably rule out the validity of the label "cyborg" to a cellphone user, and perhaps even to the MIT researchers. For example, Anne [respondent] when asked, "What comes to mind when you think about the word 'cyborg'?" she replied, "A walking talking robot with head armour and body armour, with the death of the human race as its aim … um … from *Doctor Who*."

The word "cyborg" is a contraction of "cybernetic organism." Just after World War II, Norbert Wiener coined the word "cybernetics" as a way of classifying the broad range of decision-making machines that had been developing since the 1930s. The war itself was a tremendous stimulus for these developments, with the need for automatic gun directors, aircraft navigation systems, bombsites and missile control systems. Wiener's neologism was intended to describe machines that could process information, make decisions and control other machines. "Cybernetics" comes from the Greek word *kubernetics* or

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[431] Ray Kurzweil, "Twenty-First Century Bodies," in Kaplan, *Readings in the Philosophy of Technology,* 390.
[432] Sherry Turkle, "Always-On / Always-On-You: The Tethered Self," in Katz, *Handbook of Mobile Communication Studies*, 121.

"steersman." The Greek word sounds like the English word "governor."[433] Unsurprisingly, "governor" means not only a person who rules but also a mechanism that regulates the speed of an engine. The helmsperson or pilot of a ship is a cogent symbol of the cyborg inasmuch as it represents the unity of the biological and mechanical. In a strange feeling of déjà vu, one is taken back to Odysseus at the helm of his ship, employing *techné*, as he does on so many occasions during his voyage home to Ithaca.

Of course, the helmsperson with her oar, the gardener with her shovel, the baker with her rolling pin, are all cyborgs if the simple image of the steersman – the person using a tool – shapes our concept of the cyborg. But if one is true to Wiener's definition of cybernetics, the definition of a cyborg as a tool user is clearly inadequate. Central to the issue is the question of who is governor. It seems perfectly natural for humans to make machines that can do the things we would rather not. Why spend hours washing and wringing clothes by hand when an automatic washing machine can do it for us? As the tasks become more complex it follows that the decision-making capacity of the machine has to increase: the machine has to become "smarter," while our demands are limited only by the imagination. Eventually we come to realize that machines can do *us* better than we can. Unlimited augmentation of every human capacity must inevitably lead to the usurping of the human.

The cellphone extends our ability to hear others and (with the video function) to see others, but it also represents a serious breach of the boundaries between humans and computers. In what may serve as a pertinent illustration of how a machine, in this case the computer, can by increments assume the role of humans, communications lecturer Mark Wolf has conceived of a model of machine-human interaction which shows what he sees as a transition from human-to-human to machine-to-machine communication.[434] Wolf remarks how "it is easy to see how a society relying on one type of interaction could gradually make the shift to the next, since they form a smooth continuum. Together, they bridge the gap between interaction with a human being and

[433] Milton A. Rothman, *Cybernetics: Machines That Make Decisions* (London: Collins Publishers, 1972), 8.
[434] See Appendix D.

that with a machine."[435] Furthermore, "interfaces" – meaning literally, "between faces," or "from one face to another" – are designed to ensure that communication through and with machines is similar to that of human social interaction.[436] We take this technology for granted. Interfaces which have passed the Turing test[437] have already been designed for computers, and can fool average adults into thinking they have been conversing with a real person.[438]

Obviously people would prefer it if machines replaced them for some situations. Robots are useful for dismantling bombs or inspecting mines, for instance. It would be churlish to complain about *all* technologies that replace human involvement. But should technologies replace *all* human involvement? If this is the future, how do humans keep up? One answer is for humans to become more like their machines. If machines can do ourselves better than ourselves, then can we not play the same game in reverse? The problem is that no one knows who will win the game in the end. How much of the human will be left?

Whatever the outcome, the cellphone appears to be grooming us for a cybernetic makeover. Google's founders Sergey Brin and Larry Page have shared their thoughts on the potential of the cellphone as a "wireless brain appliance." The dream is to enhance the intelligence of the human brain by turning Google into a formidably powerful intelligent computer. As one way of accessing it, the cellphone could be wirelessly connected to the human brain whereby one could engage in dialogue with Google. You would merely have to think of a question and the cellphone could discreetly whisper the answer in

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[435] Mark J. P. Wolf, *Abstracting Reality*, 165.
[436] Ibid.
[437] In 1950 English mathematician and World War II code-cracker Alan Turing developed a test to evaluate the "humanness" of computers. He claimed, "I believe that in about fifty years' time it will be possible to programme computers…to make them play the imitation game so well that an average interrogator will not have more than a 70 per cent chance of making the right identification after five minutes of questioning" [A. Turing, "Computing machinery and intelligence." *Mind* 59, 442. Cited in Melanie D. Polkosky, "Machines as Mediators: The Challenge of Technology for Interpersonal Communication Theory and Research," in Konjin, et.al., *Mediated Interpersonal Communication*, 40].
[438] A computer program called "PC Therapist III" deceived five out of ten judges over three hours at a competition at Boston's Computer Museum in 1991 [Mark J. P. Wolf, *Absracting Reality*, 164].

your ear.[439] Voice recognition Google searches on the iPhone are a halting first step in this direction.

A very similar concept has been dreamed up by some of Facebook's managerial team. The primary platform is the mobile device but this is just the beginning:

> Facebook might even begin to function as a sort of auxiliary memory. As you walk down the street you could query your profile to learn when you were last there, and with whom. Or a location-aware mobile device could alert you to the proximity of people you've interacted with on Facebook, and remind you how. The software could even start to make elementary decisions on your behalf.[440]

For Microsoft researchers Gordon Bell and Jim Gemmell, cloud computing will form the structural basis for ubiquitous e-memory. The smartphone and a slew of other devices will function as access points and information feeders, constantly loading the e-memory database with a complete record of the user's life experience. This means a person will be able to access a vast storehouse of personal information: all past achievements, dreams, conversations, thoughts and actions – in short, the entire totality of the person's experience, or "Total Recall," as Bell and Gemmell call it. They both see the cellphone of the future as a platform for an individual's life-experience archive.[441]

The cellphone, then, could become a powerful appendage to the human brain, enhancing human memory in its totality; forgetting will be obsolesced. Bell and Gemmell argue that if we do not have to remember so much, then we will have greater capacity for creativity and reflection.[442] But is this true, or is it

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[439] Nicholas Carr, *The Big Switch*, 213. In a less direct fashion, this is already happening; the cellphone has become a kind of ready-reference encyclopaedia. Consider the following example:

"Laurence Douglas is a professor of law, jurisprudence, and social thought at Amherst College. One day he was giving a lecture to students … Douglas began rummaging through his notes, trying to find this stat he scribbled down moments earlier in his office. After 30 unsuccessful seconds, he opened up his briefcase to test his luck again. No need. By the time he had pulled the first crumpled page from the bag, help was at hand – from sophomore Adam Shniderman. He had accessed the Internet on his BlackBerry and had found the U.S. Justice Department's Bureau of Justice Statistics page. … [Quoted in Don Tapscott, *Grown Up Digital*, 81].

[440] David Kirkpatrick, *The Facebook Effect*, 316-317.

[441] Gordon Bell and Jim Gemmell, *Total Recall*, 13-14.

[442] Ibid., 135.

Paul Golding, a mobile technology consultant and author who has worked with many telecommunications companies including Motorola, Vodaphone, O2 and Virgin mobile, sees a similar future for the cellphone:

another case of the human-machine metaphor running amok and producing a fundamental misunderstanding of the workings of the human memory? Can people really outsource their memories in a hard drive just as we can click the save icon on a word processor?

The human brain is an organic entity that interacts with memories in ways that scientists have come to appreciate only in the last few decades. Part of the problem is that the language of these imaginings betrays an outdated schema of the brain as a fixed, inflexible structure (much like a computer). The human brain stores memories in a radically different way to a computer. When a computer stores memory, the user knows that when retrieved the memory will be unchanged. But the human brain essentially communicates with stored information, or memories, in an ongoing reflexive process. The cortex and, beneath it, the hippocampus, coordinate in brilliant synergy to consolidate long-term memories. The memories do not remain static in location or form. They are reprocessed and re-stored every time they are recalled and "forgotten." Thus, memories are continually altered, however minutely. In recalling a family reunion, for instance, one may reminisce on the emotions one felt, or some unusual happenings of the event; then one might think about the experience in the light of the present situation. In this way, the memory is reworked. Furthermore, over the time since the memory was last recalled, the brain itself has changed in subtle (or perhaps not so subtle) ways, so it will store the newly recalled memory slightly differently and build new neural pathways as it does so.[443]

The brain has virtually unlimited storage capacity; moreover, it thrives on new memories. Evidence shows that as we add to our personal cache of memories our intelligence escalates.[444] "Freeing" it from new memories by outsourcing is

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"Any content generated or processed by the mobile [phone] could be perpetually stored … such as music files, location history, search requests, financial transactions and barcode swipes – our entire digital trail. More radical storage possibilities will also emerge. With effective voice coding techniques, it is possible to record all of our daily conversations, phone or otherwise, and store them in the network. Offline transcribing and non-linear indexing methods will facilitate searching back through any conversation. Merged with pictures, location and any other event in the memory bank (e.g. a web search or shop purchase), glued with copious semantic data, an incredible alter-persona potential begins to emerge within the 3G era. 'Where was I when I said X to Y?' 'Who was I with when I took this picture of X?'" [Paul Golding, "The Future of Mobile in the 3G Era," in Glotz et al., *Thumb Culture,* 245-246].

[443] Nicholas Carr, *The Shallows*, 189-193.

[444] Ibid., 192.

actually a kind of deprivation. Memories are what nourishes it, so, paradoxically, outsourcing memories does not liberate the brain for "creativity and reflection": on the contrary, it stifles it. It also inhibits the growth of intelligence. And it threatens the depth of the person, the "self," and the depth of the culture to which the person contributes. Rather than rich repositories of human experience and cultural inheritance, we become mere shadows of ourselves. Writer Nicholas Carr remonstrates:

> Culture is more than the aggregate of what Google describes as 'the world's information.' It's more than what can be reduced to binary code and uploaded onto the Net. To remain vital, culture must be renewed in the minds of the members of every generation. Outsource memory, and culture withers.[445]

This is not the global consciousness envisioned by McLuhan; it is more like a global unconsciousness: "The area of impact and incision is numb. It is the entire system that is changed." [446]

The concept of a super life-experience memory bank may sound wonderful in theory, but do we really want to record everything about our lives? Surely only an absolute optimist could guarantee the integrity of the memory bank from the intrusion of hackers, corporations, governments, or all three. An unforgotten past may well turn out to be a millstone round our collective necks. This is the view of Viktor Mayer-Schönberger, a professor at the Lee Kuan Yew School of Public Policy in Singapore, and author of *Delete: The Virtue of Forgetting in the Digital Age*, where he makes the case for losing rather than saving much of our digital data. Cellphones, laptops, tablets (the iPad and Touch Pad) and so forth have all made remembering easier than forgetting. Saving pictures on our cellphones and digital cameras, for example, is easier and cheaper than sorting through them and printing them off. More ominously, our pasts will be used against us, and the risk is that we will all be punished, not just those unfortunate people with criminal records or bad credit ratings. A student protest against corporate greed, for instance, may later result in the students being blacklisted by the same companies. Mayer-

[445] Ibid., 196-197.
[446] Marshall McLuhan, *Understanding Media*, 70.

Schönberger argues that by unlearning forgetting, society has erased "one of the most fundamental behavioral mechanisms of humankind."[447]

A basic mechanism of the human brain allows it to edit what it does not need. The memories may still be there, but we remember only what we require. Often the brain may blot out episodes of trauma. More mundanely, though still mysteriously, it sifts through – even in our dreams – all our general daily experiences and retains what we need, "enigmatically patterned in memory."[448] In contrast, the computer is like a blunt instrument that stores everything indiscriminately, something that random memory programs will never ameliorate because the program can never capture the flavour and originality of human experience: "The stew of personal experience is too thick, too filled with unidentifiable elements mixed in obscure proportions."[449]

Conceivably, the outsourcing of memory is merely the beginning, an appetizer for a more comprehensive downloading of the entire brain: the most literal interpretation of the human as "an organism that now wears its brain outside its skull."[450] One possibility is to sever the nerve between the two hemispheres and connect it to a computer that listens to the data flow, and in time builds up a blueprint of the brain's operation. By the time the brain has wasted away, a fully functional, replicated "self" is reborn in a computer, without the person perceiving any loss of self in the process.[451] Or will the computer merely register a simulation of the self while, deep inside, the consciousness of self has vanished, leaving something like the "person" in Searle's Chinese room, handling data without awareness?[452] It may be wise to linger on Raimon Panikkar's insight: "Everything Man *has,* including genes, may be

[447] Quoted in Adam Keiper, "When Folly Is Forever," in *The Wall Street Journal* (October 22, 2009).
[448] Theodore Roszak, *The Cult of Information*, 97.
[449] Ibid., 98-99.
[450] Marshall McLuhan, *Understanding Media*, 63.
[451] Gregory Benford and Elizabeth Malartre, *Beyond Human*, 85.
[452] "Imagine that someone who understands no Chinese is locked in a room with a lot of Chinese symbols and a computer program for answering questions in Chinese. The input consists in Chinese symbols in the form of questions; the output of the system consists in Chinese symbols in answer to the questions. We might suppose that the program is so good that the answers to the questions are indistinguishable from those of a native Chinese speaker. But all the same, neither the person inside nor any other part of the system literally understands Chinese" [From John Searle, *The Rediscovery of the Mind*, 1992, quoted in Thomas Mautner, ed., *The Penguin Dictionary of Philosophy*, 104].

conveniently digitized, homogenized, and fed into the latest supercomputer, but this does not tell us what Man is, or *who* Man is, much less who I am."[453]

All this may seem a long way from the cellphone, but the rush to make the cellphone our own should give us pause to ask where we are heading. Society has accepted the cellphone as a "natural" appendage of the human body – or an extension of our nervous systems as adumbrated by McLuhan.[454] Yes, we have gratefully accepted prosthetics, artificial hips, pacemakers and so forth, but grandiose technocratic visions take us beyond the brilliant ingenuity and artifice of Odysseus's *techné* to the point where we cannot say where the machine ends and the human begins. Panikkar contends that technocracy has created a "fourth world," the "Techniculture," where the artificial is idealized and will ultimately be fully consummated in nature with the realization of artificial intelligence. [455] Meanwhile, humankind has regressed from *homo sapiens* to *homo technologicus*.[456]

Writ large within the orchestration of global brains, artificial intelligence and robots is the melody line of eternal life so many find irresistible. Isaac Asimov's short story *Bicentennial Man* has a delicious and poignant irony: it takes a self-aware *robot* to show what the human condition really is. In his quest to become fully human he decides to die. The irony is delicious for those who seek immortality through cellphones and computers. Striking a more discordant note is the belief, albeit controversial, that computers will become more intelligent than humans. Thus our smartphones could one day be smarter than us. The exponential increase in computing power, often referred to as Moore's law (which is not really a law but an observation[457]), lends credence to the belief that computers will surpass humans in intelligence. The consequences of this scenario have long been realized in the movies (*2001: A Space Odyssey* (1968), *Bicentennial Man* (1999), *Terminator* (1984) and its

[453] Raimon Panikkar, *The Rhythm of Being*, 400.
[454] Marshall McLuhan, *Understanding Media*, 47.
[455] Panikkar has asserted that this world has dispensed with the three other worlds, in Sanskrit the *Triloka* – the Divine, Human, and Cosmic worlds; in kairological order, they are the world of submission to the gods; the world of liberation from nature (as in the untamed natural world); and the world of human domination of nature [ibid., 290-291].
[456] Ibid., 292.
[457] Gregory Benford and Elizabeth Malartre, *Beyond Human*, 17.
In 1965, computer engineer Gordon Moore formulated his now famous "law" that microprocessing power doubles every one or two years [Nicholas Carr, *The Big Switch* 58].

sequels), if not in real life, although the defeat of Gary Kasparov by the supercomputer *Deep Blue* threw down the gauntlet to those who would scoff at computers ever attaining intellectual parity with humans. Based on the conclusions of Searle's experiment, however, no matter how much processing power is built into them, computers may always be in the dark.

One man who is never in the dark, figuratively or literally, is Steve Jobs. It is interesting and ironic that Steve Jobs' return to the limelight of the Apple stage in September 2009 sparked off a rise in the share price. His absence at the annual Apple sellathon had hurt investors, but they found cause for celebration in the presence of his admittedly emaciated self.[458] Basically, Apple presented Steve Jobs downloadable to your iPhone in all his present absence. The symbolism is both poignant and fitting for a man who has built a brilliant career on the virtual. Like a modern (or perhaps postmodern) Prometheus, Steve Jobs invited eerie parallels to the rebellious Titan, with his launch of a new version of Apple's online media store, iTunes, and updated software for the iPhone. Having survived what could be called the "punishment of Zeus," there was Jobs, his liver functioning after months at the mercy of a ravenous, one might say "vulture-like" cancer; there was Jobs, a gaunt but triumphant figure onstage in a gesture of defiance to Zeus, and savouring the plaudits of an ecstatic audience of disciples. After a long period of convalescence his "return" was more virtual than actual. So ravaged and emaciated was his body, yet this waif of a figure found his ethereal substance in the machine. In and through the hypertextual portals of his iPhone, Jobs' spirit burned brightly like the fire Prometheus snatched from the heavens. Thus was Jobs reincarnated; he had fully become the fire he coveted: non-linear, immaterial and all-consuming. Perhaps in all his absent-present glory he has come to be a mascot for new media and the latest prototype of the "post-human" being.

[458] Gabriel Madway and Sinead Carew, "Frail-looking Steve Jobs returns to Apple stage," in *Reuters* (September 9, 2009).

Conclusion

One of the primary intentions of McLuhan was to uncover and demystify the "ground" of a medium, or of any human artefact, which the tetrad was designed to unveil.[459] Throughout the course of this study, the tetrad has proved to be an excellent fulcrum for unmasking obscure or ignored dimensions of the cellphone. This methodological efficacy is attributable largely to the discipline and balance built into the tetrad, which to a significant extent flow through to the researcher. This is not to say that the tetrad quashes all subjectivity. Every researcher entertains a particular worldview, and to feign impartiality is not only impossible but unnecessary. The tetrad can tolerate a measure of freedom of expression, while also ensuring the exercise of an exploratory, multi-perspectival approach. The nature of the tetrad questions (what does the artefact enhance, obsolesce, retrieve, and reverse into?) conduces to a more lucid understanding of how a medium exists in the world. Moreover, the questions tend to lead to more questions and encourage thoughtfulness about the cellphone from a phenomenological and existential position.

Michael Arnold has concluded in his study of mobile phones that they expose "Janus-faces" in ways that are "ironic, perverse and paradoxical." To a significant extent this study reinforces Arnold's findings. Arnold is bemused at the way the cellphone can be designed for particular purposes and then surprise us with how it can move in opposite directions along the same axis for each of those purposes.[460] Very often the "side effects" are the *main* effects, as Scott Eastham observes, and "we tend to neglect the *context,* the psychological, social and cultural setting which each medium inflects and influences in certain ways."[461] The cellphone is supposed to be an instrument of our control, yet its outcomes are at times very unpredictable. The cellphone possesses its own agency, a degree of determinism that is consistent with Langdon

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[459] See Appendix E, "A Cellphone Tetrad."

[460] M. Arnold, "On the Phenomenology of Technology: The 'Janus-faces' of Mobile Phones," in *Science Direct* 13, no.4 (October 2003), 231-232.
Michael Arnold specialises in educational technology in the Department of History and Philosophy of Science at the University of Melbourne.

[461] Scott Eastham, *Biotech Time-Bomb*, 14.

Winner's "technological drift," where so-called users of technology are cast "adrift in a vast sea of 'unintended consequences.'" [462]

For example, the cellphone may both obsolesce geographical place as a barrier to communication, but also retrieve it as a coordinate. It can enhance our ability to be placed, but it may obsolesce place in less tangible, more metaphysical ways, which in turn may alter deeply-held perceptions of place and human identity. The cellphone may obsolesce wilderness and reverse into a loss of the human self-actualizing potential of the wilderness.

The cellphone may not obsolesce face-to-face contact altogether, but it can make it seem less important – one alternative among many. The cellphone also alters considerably the dynamics of face-to-face communication so that it is no longer a co-present encounter in the traditional sense. By enabling people to maintain indirect continuous contact with others, the cellphone can enhance the ability to involve those friends who are geographically peripheral, but relegate to the periphery those who are geographically close. Via its video facility, cellphones may retrieve the body, but reverse us deeper into a culture of ersatz communication.

The cellphone may enhance certain abstract types of nonverbal intelligence while obsolescing verbal skills associated with reading and comprehension. As an appendage to the human brain, the cellphone would seem to enhance our knowledge, intelligence and memory, but in certain aspects may do the opposite. The cellphone retrieves a variety of multimedia and enhances access to information, but this can reverse into a distracted way of thinking and may affect the brain at a physiological level.

The cellphone can both enhance and obsolesce the individual.

The cellphone appears to enhance intimacy via the Internet because of the protective element of anonymity. But ironically, this same element may reverse into damaging dishonesty and deviant behaviour. Texting may enhance intimacy via its asynchronous nature. Paradoxically, however, and

[462] Langdon Winner, *Autonomous Technology*, 89.

especially among teenagers, the continuous, rapid and unrefined nature of texting, along with its multi-sender environment, may cancel out the benefits of the communicative delay. The cellphone allows premeditation but it also accommodates destructive impulsiveness, partly because it enhances the ability to act in the present.

The cellphone retrieves a measure of control and security for parents, and enhances freedom for teenagers, but may reverse into complacency and recklessness and thus obsolesce safety. Furthermore, as a safety device the cellphone is equivocal because it can expose people to dangers arising from distraction, bullying, anonymous communication and impulsiveness.

The cellphone retrieves in certain ways the immediacy and simultaneity of oral cultures, but obsolesces their important organic context.

The cellphone may obsolesce our awareness of death and reverse us into an inauthentic way of living.

It seems that relationships initiated online are just as robust as those formed offline; however, there may be more chances of meeting a long-term partner offline. Moreover, there is a danger of online relationships reversing into an escapist pattern of behaviour. As an Internet device, the cellphone may enhance global awareness, but this does not necessarily equate to global empathy or consciousness. The cellphone and other new media may enhance empathy, to a limited extent, for certain causes, but also perversely flip into information overload, detached manipulative behaviour, and disunity, and therefore may undermine the possibility of global consciousness. The cellphone enhances both informational transparency and opacity.

It is very much an open question as to whether the cellphone can enhance political or social revolution. That it plays a part is undeniable, but the importance of its role is ambiguous. In conjunction with the Internet, the cellphone can enhance the momentum of revolutionary fervour and action, but it does not obsolesce the root causes of revolution. Nor does it obsolesce the high degree of commitment required: there is no revolution by remote.

The cellphone and Internet do in some cases hinder the effectiveness of political activists.

As part of a digital renaissance, the cellphone retrieves only superficially the flowering of knowledge identified with the European Renaissance. It does, however, retrieve some of the Renaissance tension between the natural and the artificial.[463] At the same time it may also obsolesce some of the humanistic values most closely associated with the period, and possibly obsolesce our humanity altogether as we reverse into the cybernetic.

It has been argued that the cellphone is just a handy instrument of communication, part of a natural progression from the landline telephone, with the addition of some other functions to increase its versatility. It is said to be another tool that people can use in a positive or negative way, but the technology itself is largely benign and neutral. In other words, the cellphone cannot be viewed as good or bad: such labels can be applied only to the user. This view of technology was espoused by philosopher Emmanuel Mesthene:

> Technology... creates new possibilities for human choice and action, but leaves their disposition uncertain. What its effects will be and what ends it will serve are not inherent in the technology but depend on what man will do with the technology.[464]

Along similar lines, Janey Gordon, senior teaching fellow in radio at the University of Luton, sees the cellphone as a mainly neutral device:

> It is a communications tool with various additions, which users may decide to employ or ignore, purchase or not.[465]

In contrast, Kaplan argues against this instrumentalist approach:

> Technology can't be value neutral because people aren't value neutral. All of our goals and purposes and actions are subject to social interpretation and moral judgement. Making and using technology is no exception. Human ends and

[463] See the introduction to "Retrieving the Renaissance."
[464] Emmanuel Mesthene, *Technological Change: Its Impact on Man and Society* (Cambridge, Massachusetts: Harvard University Press, 1970), 60.
[465] Janey Gordon, "The Cell Phone: An Artifact of Popular Culture and a Tool of the Public Sphere," in Kavoori and Arceneaux, *The Cell Phone Reader,* 47.

> values direct technological processes, making them an entirely human affair. These human concerns are designed into things; our technologies embody our humanity.[466]

Does the cellphone best fit an instrumentalist or non-instrumentalist appraisal of technology? The answer is surely the latter. With its focus on human identity and relationships, the tetrad demonstrates that the cellphone alters our way of being in the world. It is not so easy for us to separate ourselves from the cellphone, to remain unaffected by it, when it is an extension of ourselves physically and culturally. It is imbued with human values and fears as well as a Western legacy of technological utopianism. To say the cellphone is a tool that one can use or not use is tantamount to saying oxygen is an element that one can breathe or not breathe. For Langdon Winner, we do not use technology; we *live* it.[467] Moreover, as more people come to own new generation smartphones, the massive convergence of media and media applications will render non-users not only isolated but completely non-functional. Norman Balabanian has made a similar point about the automobile: "To set up the social system so that individuals are compelled to buy cars just in order to be active members of society, and then to sneer at them because they are unwilling to give up their cars, is to add insult to injury."[468]

Whether the benefits of the cellphone outweigh the harm is still an open question, but it is a question that we need to keep asking. Aloofness is not an option.

The cellphone brilliantly enhances our powers of information-gathering and communication. Yet this same power can turn against us like an auto-immune deficiency disease, devastating the healthy cells along with the defective. As we overcome our perceived limitations, we create new obstacles. Surely it has always been thus for humankind. Progress presents challenges. Can we fully

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[466] David M. Kaplan, ed., Introduction to *Readings in the Philosophy of Technology* (Lanham, Maryland: Rowman and Littlefield, 2004), xv.
[467] Langdon Winner, *Autonomous Technology*, 202.
[468] Norman Balabanian, "Presumed Neutrality of Technology," in *Controlling Technology*, 2nd ed., Eric Katz et al., eds. (New York: Prometheus Books, 2003), 325.

control everything we create? Can we stand apart from it and make the necessary adjustments? When we invent something that inadvertently causes harm, such as the fireproof building material asbestos, we do not give up on the dream: we excise all the offending asbestos and invent something equally as effective in its place. Similarly, if the cellphone is causing us harm we do not throw our hands in the air and reject the visions encapsulated therein. We forge ahead; we adjust it; we "perfect" it. And what exactly is "it"? What is a cellphone, when it changes so much it defies definition? The word *define* is from the Latin *de–finare* or de-limit. Yet the cellphone does not (yet?) know its limits.

It is hard not to think of the cellphone, along with its entire infrastructure, as a river in flood – moving faster and faster, growing deeper and wider, creating new contours in the landscape and gorging itself on everything in its path. In this torrent, caught up in its rapids, bobs the cellphone user (who probably fell in while sending a text). Someone on the shore, about to be pulled into the raging current, calls out to the cellphone user, "Are you okay?" to which the user responds naively, "Yes, I'm fine. I can get out any time I choose." This analogy is uncomfortably close to the truth. If the cellphone is changing us as much as we are changing the cellphone, then we have a stark choice. Do we dispense with the cellphone and try to revert to what we were, or do we accept with equanimity what we are becoming?

The word "cell" in cellphone neatly encapsulates an intriguing ontological conundrum that gets to the essence of the device. A "cell" is at once a fundamental building block of life, full of possibilities, and a prison of confounded freedom and vanishing options. This conflict of enormous existential implications plays out in the cellphone, and in us. And as if to force our attention to the unresolved conflict, the cellphone sends out a digital clarion call. But who is really listening? Do not ask for whom the bell tolls; it tolls for thee.

Appendix A

A Brief History of the Cellphone

The cellphone is a type of mobile phone that operates by relaying signals wirelessly via cellphone towers to other cellphones and various other cellphone receptors, such as landlines and computers. The area of coverage provided by the cellphone tower is known as the "cell." Nowadays it is common for people to talk about mobile phones and cellphones and mean the same thing, when strictly speaking – as with walkie talkies and portable landlines, for example – not all mobile phones are cellphones.

Electronic precursors to the cellphone go back to radio and Morse code, with the radio originally designed to send telegraphic messages to locations beyond the reach of wires, or to mobile objects such as ships. Radio was also the foundation for other mobile technologies such as one-way radio paging involving text sent to moving cars, first used by the police in 1921. This was followed by the first voice-based paging system in 1928 and then a two-way paging system in 1931. Alfred J. Gross invented the first telephone pager-like device in 1949. The pager came of age in the 80s and early 90s with millions of people taking up the gadget. As a precursor to the cellphone, the pager modelled some of the salient features of the modern cellphone such as its portability and text capability. [469]

Electrical engineer Lars Ericsson was the founder of the eponymous Swedish-based manufacturer of telecommunications equipment and is now a household name in cellphones. [470] In 1911 he and his wife Hilda developed one of the earliest car-based mobile systems using telephone lines, instead of radio waves, involving a rather cumbersome method of stopping the car to connect the car phone to telephone wires before making a call.[471] Ericsson's company would go on to manufacture much of the apparatus for cellular infrastructure in the late twentieth century.[472]

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[469]Gerard Goggin, *Cellphone Culture*, 28.
[470] Ibid., 24.
[471] Nicola Green and Leslie Haddon, *Mobile Communications*, 19.
[472] Jon Agar, *Constant Touch: A Global History of the Mobile Phone* (Cambridge: Icon Books, 2003), 9.

During World War II the United States military used enhanced versions of the first two-way radio phone in a backpack, one version being the walkie-talkie. These early experiments in mobile communications utilized radio waves and were collectively assigned the rubric "radiotelephony."[473] In the 1930s, two-way radios for commercial use were becoming more common with emergency services, government agencies and essential services. After the war, civilian organizations, especially taxi drivers, took up the technology, and, by 1952, 350, 000 mobile two-way radios were in private use.[474]

In the United States the development of a landline-to-mobile communications system did not occur until 1946, following a liberalization of the communications regulations that kept radio and telephone communications systems separate for many years.[475] In the same year, AT&T and Southwestern Bell provided the first fixed-line to mobile communications system in St Louis, Missouri.[476] However, users were still connected by an operator and needed to push a button to speak and release it to listen. Audibility was often challenging, and users had to wait for a channel to become free because of the narrow bandwidth and because they were competing with amateur radio enthusiasts (or radio "hams" as is the popular appellation), so delays were inevitable. It was not until the 1960s that the technology was sufficiently developed to allow a simultaneous two-way conversation.[477]

In 1947, Bell Laboratories devised the first cellular system of telecommunications whereby phone signals were sent and received through a transmitter tower. Each area of coverage, or cell, interlocked like hexagons in a honeycomb. As the cellphone user moved out of one cell and into the next, transmissions would shift accordingly from the transmitter responsible for the first cell to the one responsible for the next.[478] Bell did much of the background work to make cellular telephony a reality, such as the programming of computers to enable them to switch telephone calls automatically, to turn radios on and off, to change radio frequencies and to

[473] Nicola Green and Leslie Haddon, *Mobile Communications*, 19.
[474] Gerard Goggin, *Cellphone Culture*, 25.
[475] Nicola Green and Leslie Haddon, *Mobile Communications*, 20.
[476] Gerard Goggin, *Cellphone Culture*, 25.
[477] Nicola Green and Leslie Haddon, *Mobile Communications*, 20.
[478] Gerard Goggin, *Cellphone Culture*, 26.

automatically link radios to the telephone system. Through the 1970s Bell were busy replacing bulky, unwieldy vacuum tubes with the transistor, an important step on the road towards portability in cellphones.[479]

The first call on a portable hand-held cellphone was made in 1973 by Martin Cooper, chief executive of Motorola. This was the DynaTAC, the chunky cellphone that spawned the affectionate epithet, the "brick";[480] Agar explains why: "…since it weighed only slightly less than a pack of sugar, this black brick-sized device was not easy on the elbow."[481]

The world's first cellular radio-telephone service was launched in Japan in 1979. The US followed by offering a similar commercial cellular service to consumers in Chicago,[482] and a major step forward in cellular telephony was taken by the Scandinavians, with the creation of a cellular system that was trans-national in application. The cellular systems in the US were not conducive to roaming, so cellphone use was limited to a particular network in a particular area. In 1969 the Nordic Mobile Telephone Group (NMT) was established, comprising Finland, Norway, Sweden and Denmark. Engineers from all four countries had worked together to design a cellular system (still vehicle-based) and paging network that was connected to the telephone land-line network and that allowed for continuous communication on a cellphone across national boundaries. It was launched in 1981.[483]

Inspired by the Scandinavians, the dream of a pan-European cellular telephone system became a reality in the early 90s with the Groupe Spécial Mobile, later known as the Global System for Mobile Communications (GSM). GSM services began in 1992 with eight countries – Germany, Denmark, Finland, Sweden, Italy, Portugal, France, and the United Kingdom. By 1995, GSM covered most of Europe. Very soon after, it went global; in 1996 GSM phones were in 103 countries around the world including South Africa, Australia, Russia and the USA.[484]

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[479] Ibid, 26.
[480] Ibid., 29-30.
[481] Jon Agar, *Constant Touch*, 42-43.
[482] Gerard Goggin, *Cellphone Culture*, 29.
[483] Jon Agar, *Constant Touch*, 48-50.
[484] Ibid., 62-63.

Unlike the NMT with its "first generation" analogue cellphones, GSM was digital, which meant it could handle data transmission and not just voice.[485] This was something of a revolution in the history of the cellphone because digitization opened the door, or the floodgates, to a raft of functions made possible by the new digital format which was highly compatible with computer-based information storage and processing. "Intelligent" network software, for example, enabled features such as caller identity (ID). Other features we now take for granted on these "second generation" "2G" cell phones, such as the address book and the subscriber identity module or SIM card, the clock, the alarm, the calendar, games, voice mail, text messaging, and so on, all underscore the depth and multiplicity of applications in the wake of digitization.[486] The short message service (SMS), or texting, is a particularly popular digital function of the cellphone. The first official text was sent from computer to cellphone in 1992; the message was "Merry Christmas." Less than ten years later, texting had become an integral part of communications traffic within cellular networks.[487]

In 2002, cellphones exceeded landlines for the first time. New "generations" of cellphones, 2.5 (second and a half) and 3G – incorporating multimedia capabilities such as music downloads, camera, and interactive video – appeared on the market from the late 20th century.[488] The first 3G Internet-enabled phones became commercially available in 2001 in Japan and South Korea.[489] These cellphones incorporated more sophisticated integrated circuits (IC) and possessed the capabilities of devices such as the Personal Digital Assistant (PDA); at the same time, the PDA added a wireless chipset so it could imitate the cellphone. Digitization combined with advanced ICs to usher in the convergence of telephony and computing in a very profound way, transforming the cellphone into something of a miniature computer.[490] For example, Apple's iPhone (introduced in 2007), despite its name, is more like a portable computer with cellphone functions than vice versa. Other digital

[485] Ibid., 56-57.
[486] Gerard Goggin, *Cellphone Culture*, 31-32.
[487] Collette Snowden, "Cstng A pwr4l spLL: D evOLshn f SMS (Casting a Powerful Spell: The Evolution of SMS)" in Kavoori and Arceneaux, *The Cell Phone Reader*, 107.
[488] Gerard Goggin, *Cellphone Culture*, 33.
[489] Nicola Green and Leslie Haddon, *Mobile Communications*, 23.
[490] Guy Klemens, *The Cellphone: The History and Technology of the Gadget that Changed the World* (Jefferson, North Carolina: McFarland & Company, 2010), 200-201.

devices, such as the BlackBerry, Palm Treo, HP IPAQ Mobile Messenger and Motorola Q, highlight the accelerated blurring of boundaries between the cellphone and computer, and underline the difficulty, functionally speaking, in ascribing anything other than a very broad meaning to the word "cellphone" when it has become such a powerful locus of computer hardware and software. The new incarnations may deservedly be called "cellphones beyond phones."[491]

[491] Ibid., 189.

Appendix B

Speech and Writing

Discussing the primacy of speech over writing always carries the risk of an accusation of logocentrism. Jacques Derrida believed that it is "only a discourse or rather a writing that can make up for the incapacity of the word to be equal to a "thought.'"[492] But humans have always, in a very unequivocal way, produced sounds that equal thoughts. Language springs from sounds that express emotions, and emotions are thoughts: yelling, with its various intonations, for joy, pain, or fright; singing; laughing – these are all sounds that are almost a universal language expressing human thought. Onomatopoeic words are effective oral representations of natural world phenomena. Do words not equal thoughts in oral cultures? Are the oral epics *Odyssey* and *Iliad* not two of the profoundest expressions of thought in history? The oral was favoured over the written as the medium of choice among the greatest of the literati of Greek and Roman antiquity. Cicero did not base his brilliant orations on written texts except to a limited degree; rather, he built his eloquent rhetoric on a mental catalogue of themes related to human character and virtue. Indeed, it was only after he had performed his orations that Cicero committed them to writing. It is difficult for people from today's overwhelmingly text culture to appreciate the extent to which throughout antiquity and the Middle Ages written texts were associated with the oral.[493] As Ong asserted, "Thought is nested in speech, not in texts, all of which have their meanings through reference of the visible symbol to the world of sound…It is impossible for script to be more than marks on a surface unless it is used by a conscious human being as a cue to sounded words, real or imagined, directly or indirectly."[494]

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[492] Jacques Derrida, "Letter to a Japanese Friend" July 10, 1983, trans. David Wood and Andrew Benjamin, in Albert B. Hakim, *Historical Introduction to Philosophy*, 649.
[493] Walter J. Ong, *The Presence of the Word*, 56-58.
[494] Walter J. Ong, *Orality and Literacy*, 75.

Even for the hearing impaired, as Ong explained, "elaborated sign languages are substitutes for speech and dependent on oral speech systems, even when used by the congenitally deaf."[495]

Philosopher Albert Hakim explains that, according to Derrida, the drifting dimension of meaning – the "free play" of language – is unattainable in "authentic" speech,[496] and yet, strangely, meaning in language has always been speech driven, and always in a state of flux. The free play of speech is a hallmark of teen speech, for example, from one generation to the next, and very often their experimentation leads to changes in meaning and additional vocabulary for standard usage. Throughout history, the free play of speech has spawned numerous dialects.[497] The way the words are applied in speech continuously directs their meaning. Writing *augments* the oral. Of course, speech is not the *only* pre- (or post-) writing means of communication. Touch, facial expressions, gestures and silence (sound is only fathomable in relation to silence) work in unity with the oral to communicate at a primal level.[498] However, as Walter Ong made clear, "Man communicates with his whole body, and yet the word is his primary medium. Communication, like knowledge itself, flowers in speech."[499] Pictographic scripts, such as those of the Chinese and traditional Native Americans, are also anchored in speech. Pictures can be memory aids or they can be furnished with a code allowing them to quite accurately stand in for particular words in a variety of grammatical relationships.[500]

There are gaps between language and reality, some bigger than others. Noetic phenomena are usually harder to represent in words than corporeal phenomena. Derrida understood this, as we all do when we struggle to find the right word to express an idea or emotion. From his *Confessions* we know that Jean-Jacques Rousseau was deeply disconcerted by his failure to capture the metaphysical power of his love for Madame de Warens or "Maman." In her

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[495] Ibid., 7.
[496] Albert B. Hakim, *Historical Introduction to Philosophy*, 646.
[497] David Crystal has written extensively on this in his book *The Stories of English* (London: Penguin Books, 2004).
[498] Ong explains this as a "speaking silence," a concept which Heidegger explores in *Being and Time*, Pt. 1, sec. 34 [cited in *The Presence of the Word*, 2].
[499] Ibid., 1.
[500] Ibid., 86.

absence, Rousseau accumulated objects that would crudely substitute for her; though, much to his chagrin, even the power of her presence could not adequately represent what she really meant to him.[501] Hence, Rousseau resorted to extreme measures:

> … I committed extravagances that only the most violent love seemed capable of inspiring. One day at a table, just as she had put a piece of food into her mouth, I exclaimed that I saw a hair on it. She put the morsel back on her plate; I eagerly seized and swallowed it.[502]

Rousseau still needed supplements to Maman when she was there; his satisfaction was deferred (this partly motivated Derrida's coinage of the term *différance* – a combination of deferral and difference). The presence of "reality" is always a peculiar kind of absence because intermediaries prevent us from really capturing it. Thus the text is a supplement, outside of which there is a never-ending series of other supplements, or signs, to reality.[503] Taken to an extreme this could be construed as a denial of reality or truth altogether, though it is doubtful that Derrida intended this. (Exactly what he intended is still not entirely clear;[504] moreover, by his own philosophy, precise "clarity" is forever elusive. Perhaps the provoking of confusion was exactly his point!) Against those extremes that deny all reality, William James's pragmatism is an attractive approach: the measure of truth is how it operates in the real world of objects, processes and behaviours. A manual for the assembly of a table can be written in many languages, but somehow most people of different nationalities are able to follow the instructions and build the table. The meaning of love is really a range of meanings, yet the difference between what is loving or unloving can be discerned, without too much trouble, by how love is substantiated in action. Thus, in the real world, there are enough occasions when the meaning of language – that is, the thing to which it refers – is not so deferred that we cannot get by in a practical sense.

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[501] Jonathan Culler, *Literary Theory: A Very Short Introduction* (Oxford: Oxford University Press, 1997), 11.
[502] From Jean-Jacques Rousseau, C*onfessions*, Book 3, quoted in ibid., 11.
[503] Jonathan Culler, *Literary Theory*, 11-12.
[504] Among his chief critics, analytic philosophers have alleged Derrida, along with other post-structuralists, is often incorrect, unfocused and self-contradictory. Bryan Magee, *The Story of Philosophy* (London: DK, 2010), 219.
Philosopher Anthony Kenny contends that Derrida, "introduced new terms whose effect was to confuse ideas that are perfectly distinct" [Anthony Kenny, *A New History of Western Philosophy. Volume 4: Philosophy in the Modern World*, (Oxford: Oxford University Press, 2007), 93].

Derrida's revisitation of very old arguments about the nature of truth constitutes a bedrock philosophical inquiry. After all, the oeuvre of all philosophers can be summed up as what exists, ontology, and how we know what exists, epistemology. The pre-Socratic philosopher Cratylus was reduced to finger-waving instead of speaking words that could not possibly capture an unstable, ever-changing world: the chasm between language and referent is too great. But it is not so great that humankind cannot find enough meaning in order to function imperfectly but effectively in the world.

Appendix C

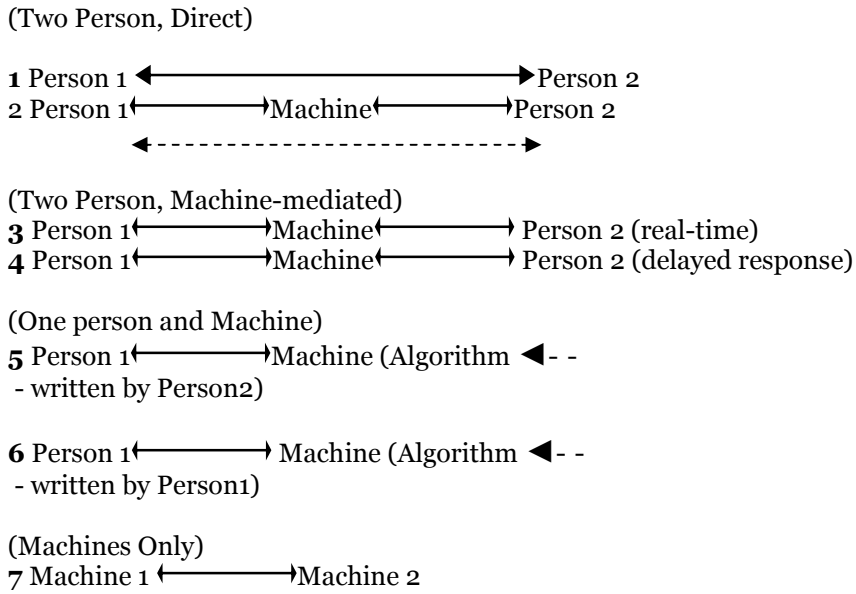
Dantzig explains how the length of an arc is measured:

> Our notion of the length of an arc of a curve may serve as an illustration. The physical concept rests on that of a bent wire. We imagine that we have *straightened* the wire without *stretching* it; then the segment of the straight line will serve as the measure of the length of the arc. Now what do we mean by 'without stretching'? We mean without a change in length. But this term implies that we already know something about the length of the arc. Such a formulation is obviously a *petitio principii* and could not serve as a mathematical definition.
>
> The alternative is to inscribe in the arc a sequence of rectilinear contours of an increasing number of sides. The sequence of these contours approaches a limit, and the length of the arc is defined as the limit of this sequence.
>
> And what is true of the notion of length is true of areas, volumes, masses, movements, pressures, forces, stresses and strains, velocities, accelerations, etc., etc. All these notions were born in a 'linear', 'rational' world where nothing takes place but what is straight, flat, and uniform. Either, then, we must abandon these elementary rational notions – and this would mean a veritable revolution, so deeply are these concepts rooted in our minds; or we must adapt those rational notions to a world which is neither flat, nor straight, nor uniform.

[Quoted in Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (London: Routledge & Kegan Paul, 1962), 177.]

Appendix D

Machine model of communication



In type 1, two people are physically present and communicating face to face without artificial mediation. In type 2, two or more people are physically present but are playing a computer or video game. This means some of their interaction is through the game, between their online characters, and some is directly to each other – though, typically, more interaction occurs through the game, owing to its demands on the players' concentration.

Type 3 communication takes place between people in different locations who are using the telephone, the cellphone, instant messaging, CB radios, closed-circuit television, Skype, and other modes of communication involving synchronous, or a close approximation of synchronous, communication. Type 4 communication involves media that have a more marked time delay, and are thus more asynchronous, such as email, answering machines, and voice mailboxes. Here social interaction loses its spontaneous "seat-of-the-pants" flavour and comes to rely on machines for not only the transmission but also the storage of messages. In this way, the machine begins to usurp the human role in the process of communication.

As machine involvement in communication increases, it reaches the point where human-machine interaction is the only kind of communication taking

place. In type 5 communication, person 1 communicates with an algorithm designed by person 2. The algorithm may be in the form of an opponent in a game, such as chess or checkers, or as a telephone answering system. The latter are becoming ever more sophisticated, with some organizations, such as Inland Revenue, adopting voice recognition software. In type 6 the algorithm has been designed by person one, which of course precludes the need for another person. An example of this is computer programming, which is primarily human-machine interaction.

Gradually, as layer upon layer of machine mediation takes effect, the only type of interaction occurring is between humans and machines. The final stage sees machines interacting with each other, as with data transfers, control commands and so on.[505]

[505] Mark J. P. Wolf, *Abstracting Reality*, 163-165.

Appendix E

A Cellphone Tetrad

• Accessibility • Multitasking • Communication reach • Intelligence (nonverbal) • The individual (separateness/self-sufficiency/projected away from local "tribe") • Cyber-presence • Freedom for teenagers • Mobility • Security • The present moment (the "now") • Vertical relationships (friends/family) • Intimacy • Speed • Global awareness • Unofficial voices • Democracy • Revolutionary momentum • Cybernetic convergence ENHANCE	• Wilderness • Privacy • Extensive relationships • Metaphysical significance of place • The voice (via SMS) • Distance • Intelligence (verbal) • The individual (personhood) • Humanist values (*humanitas*) • Local "tribe" • Aspects of oral cultures • Landline – fixed location • Safety (due to complacency, bullying, distraction) • Face-to-face contact (physical presence) • The reflective or "eternal" "now" • Empathy • Patience • Perception and perhaps reality of death • Linear reading OBSOLESCE
RETRIEVE • Multimedia (e.g. Internet, television, radio, camera) • Simultaneity/immediacy of oral cultures • Place (physical location) • Placelessness of hunter-gather societies • Person-to-person social systems • Individual : retribalized -Cyber-tribes • Chatting to strangers online • Parental control and security • The body (videophone) • The voice (voice calls) • Renaissance tension between artificial and natural. • Renaissance "man" as digital polymath • Reading (hypertextual)	REVERSE • Surveillance • Bullying • Distraction/confusion • Addiction • Impulsiveness • Dishonesty • Narcissism/self-centredness • Online escapist relationships • Disengagement from people and environment • Cyber-stalking • Risky teenage behaviour • Neurological changes • Information overload • Cellphone quantification • Robot • Disunity, polarization. • Outsourcing memory • Never forgetting

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Respondents

David. 31 December 2010

Emma. 16 December 2010

Miles. 13 December 2010

Eric. 16 March 2009

Kiri. 10 May 2009

Andrew. 4 June, 2009

Hadfield. 10 May, 2010

Maureen. 10 May, 2010

Michelle. 10 May, 2010

Anne. 14 August, 2010

Chris. 6 October 2010

Murray. 7 October 2010

Joni. 27 December 2010