Robert Hassan
Senior Lecturer, Media and Communications Program
University of Melbourne
Email: hassanr@unimelb.edu.au

Abstract:

This essay argues that through a new and radical relationship with digital technologies that are oriented toward networking and automaticity, humans have become estranged from what philosopher Arnold Gehlen termed the 'circle of action' (*handlungskreis*) that expressed our ancient adaptation to tool-use and constituted the basis for our capacity for reflective consciousness. The objectification of the material and analogue relationship that enabled humans to 'act' upon the world and to construct the basis for our collective endeavors, this paper shows, is beginning to redirect the social orientation that tool-use enabled, back to a form of individualism I term a 'post-modern vanity'. Computer-driven automation on a networked and global scale is engendering a new illusion regarding our relationship with technology. Greek philosophy, later religion, and then the Enlightenment all saw our relation to technology as evidence of either our 'specialness' or our inherent 'mastery over nature'. These perspectives resulted in our acquiring a 'reasoned self-delusion' wherein for the individual life had meaning and was ontologically tolerable—we thought ourselves to be of a realm beyond raw nature. Automation, however, to an unprecedented degree, objectifies and exteriorizes the processes of technology use, alienating the individual (and society) from the 'circle of action'. This process is throwing us back to another form of what this essay terms a 'reasoned self-delusion' where we increasingly believe that we no longer need each other so much. The cult of computer efficiency and the virtual sphere of the network that it has spawned, I argue, is a largely barren sphere of radical individualism, a *post-modern vanity*, where we exist at a borderland closer to nature and to the animals than we have been for thousands of years.

Introduction

Our provisional escape from the realm of animals

Amid the mini-furore that occurred in 2013 regarding the tax affairs of the Google Corporation, a whistleblower employee based in the UK said that in speaking out publically about what he saw as Google's 'immorality' he was speaking not on behalf of cheated taxpayers or for some conception of an outraged citizenry, but as an 'individual' who was 'answerable only to God' (Sayal, 2013). Here was another example where people identified as explicitly speaking for themselves, either in cosmological dialogue with their own gods, or as mortal individuals. Such incidences and patterns of behaviour may also be seen as part of a growing trend towards 'aloneness' that is a feature of our contemporary social existence. In one sense this is a simple demographic fact. There is a tendency toward aloneness across the world that is mirrored in the growing numbers that now live on their own. We see this too in the more reflective social sciences; in the works of influential research such as Robert Putnam's *Bowling Alone* (2000), or more recently, in Sherry Turkle's *Alone Together* (2010). These authors, and others (at different historical periods) such as David Riesman (1961) or Zygmunt Bauman (1998) try to go beyond the statistics, and search towards the ontological core of the problem of aloneness. For all these social science writers the problem is typically framed through sociology, or social theory, or psychology; and the answers (or further questions) are articulated similarly, using the same modern and disciplinary frames.

Aloneness, or (for reasons to be outlined shortly) what I will call *vanity*, is indeed an emergent and growing phenomenon in our postmodern and networked society. However, the heart of the issue lies deeper than at the levels explored in the social sciences. It concerns our relationship with technology on the plane of philosophy. Marx, when he argued in *A Contribution to the Critique of Hegel's Philosophy of Right* that religion is 'the sigh of the oppressed creature, the heart of a heartless world, and the soul of soulless conditions', was only half-way to understanding the problem. Religious belief for Marx was a comforting investment in the illusory. But was an impression that would gradually fade, he believed, as capitalist modernity and the technological innovation that is its motive force would create both the consciousness for freedom through the process of work, and the realization of

self-consciousness through the creation of 'true' freedom in the communist society (Marx, 1968: 32). However, I will argue in this essay that technology—in the form of growingly autonomous information networks—has become a problem in a way that Marx could never have dreamed.

But the idea goes even deeper than Marx and his proto-modernist interpretations of Hegel regarding consciousness, work and freedom. We can see the idea of aloneness or vanity in Greek philosophy in the myth of Narcissus. The story of the hunter, Narcissus, the son of a God, has been read through the centuries as a cautionary tale that supports the Delphic aphorism to truly 'know thyself' through a more perfect harmony with the Gods. However, in mistaking his own reflection in a pool for another with whom he falls in love, the story of Narcissus may also be read as an aberrant effect of self-consciousness and reason that suggest that the Gods do not exist. In this reading, the terror-filled psyche will grasp hold of anything, even an unattainable self-reflection, as the basis with which to avoid the inescapable conclusion of cold reason that would tell us that we are alone.

Greek philosophy thus gave human thought the seeds of a dilemma: on one hand, the cultivation of reason that builds upon our deeper sense of self-awareness will, if followed to its inexorable end-point, reveal that to really 'know thyself' is to know that as a species of animal we are only a short step beyond the barbarism of nature—and the (still) little understood void of existential meaningless that all other species probably inhabit. On the other hand—and unlike other animals—these same faculties of reason and self-awareness reveal also that we will die. The story of Narcissus may be seen, then, as a tale of choices to be made if we reject a harmony with the Gods. David Lomas, in his *The Haunted Self*, a Freudian reading of Salvador Dali's 1937 painting *The Metamorphosis of Narcissus* gives us a version of these choices: one is to 'fall in love with an easeful death…[and be] ready to follow its siren call'. The other is where 'Narcissus yearns to recreate the blissful solitude of life in utero' (2000: 180). An 'easeful death' may be said to be one of *reasoned self-delusion* where cold reason does not necessarily lead the way and where life may be lived in a way that is ontologically tolerable. A life may be projected as 'blissful' only when life in the real world of perpetual struggle is avoided. Here death can never come because one is never born, and the step back to the eternal safety of the womb would be to inhabit a kind of heaven. The latter is impossible, but a narcissistic vanity *is* possible through the orientation towards the self through the illusion of the self as having meaning through reasoned self-delusion. However, civilization and order, the basis that enabled ancient societies to have some kind of stability and projectable future, cannot be based upon the individualised illusion of the human being as the true realm of the self—the illusion has to be general and/or metaphysical and therefore beyond the grip of cold reason.

Freud argued in *The Future of an Illusion* that the function of religion as an illusion is 'perhaps the most important item in the psychical inventory of a civilization' (1961: 17). Civilization, with its inevitable discontents, is a 'defence against nature' (Freud, 1961: 19) he maintained, and something that is not possible without some deep and powerful metaphysical reckoning that took ancient people away from the disinterested realm of nature where we existed simply as just another species. Belief in some kind of religion is where the thought becomes the basis for the fulfillment of the wish (that we will never die) and is therefore an inevitable outcome as a resolution to the dilemma of self-consciousness and the need to nullify the stark ontological consequences of an instrumental application of reason. Importantly, though, as Freud also argues, religion has its own ineradicable vanity element in that it provides the 'narcissistic satisfaction' of having achieved victory over the logical idea of raw nature as our only realm, and over inevitable death as the point of inevitable nothingness (1961: 16). Vanity, as it is framed in this argument, then, is the *properly recognized* reflection of Narcissus. It is a way to live tolerably and to create a form of recombining with the self that acts as a *permanent preoccupation* for the consciousness of the self. But as we will see, a permanent preoccupation for the self can also engender the cognitive ability to reject religion from the perspective of a secular reason, and therefore requires the placing of other psychological 'defences against nature'—other preoccupations across the path to oblivion—that *reason itself* unencumbered would take us to.

The realization of civilization—either the semi- metaphysical and semi- reason-centred one of Classical Greek thought, or the material and psychical one that Freud constructed—is not possible without the fundamental component of *technology*. Analysis of the nature of the prehistoric symbiosis between the human animal and technology (or technique) takes us to an explanation for the emergence of consciousness in our species, and gives valuable insight into how our current computer-based technological revolution is transforming the fundamental logic of this relationship. It is my argument that technology that is digital and networked and increasingly pervasive and dominant is becoming

autonomous from its ancient symbiotic origins. This development, as I will show, constitutes a *regression* from our evolution as social-technological creatures that are able to construct civilizations and cultures and religions and self-identities in order to protect us from the ontological realities of nature. The networked society context, in other words, is a move back towards a more deeply individualistic and narcissistic ontology—one that is itself only a step beyond the nihilistic barbarianism of nature that technology first enabled us to escape from.

Born unfinished: the necessity for technology

The precise origins of consciousness remain open to speculation. Like the origins of language, there is no consensus or settled theory that satisfies all the evidence or makes the ultimately persuasive argument. And like theories of language, how we became conscious and self-conscious seems permanently beset by problems of the prioritizing of which elements are most important, of inevitably competing research disciplines, and especially of the splits between the natural and social sciences. Can for example, the recent quantum leaps made in neuroscience reveal all that is important about the location of consciousness? How would we finally know? More pertinently, what can this computer-based science tell us about *emotion*, the acquisition of *empathy* and the development of *reason*—all highly significant elements of any holistic conception of consciousness?

It is of course important that we continue to develop more robust frameworks for research and analysis. So here I want to suggest a wide-angled frame that encompasses *philosophy* as an element that may provide the necessary spark of imagination that can give science (social and natural) a useful new point of perspective. Moreover, the perspective places *technology* at the centre of the explanatory frame in order to illuminate the immense technological changes that humanity has undergone, especially since the industrial revolution—and especially so again, in the wake of the intense and unprecedentedly rapid social, economic, and cultural transformation that *digital* technology has brought over the last generation. The technology connection has had relatively little attention in theories of consciousness. However, Walter Ong and Julian Jaynes are two thinkers who make fascinating links between the technology of *writing* and the evolution of consciousness. For Ong, famously, 'writing is a technology that restructures thought' and for three thousand years it has actively shaped and reshaped our cognitive apparatus (1992:14-31). For Jaynes, more controversially, writing created consciousness itself by fusing together what he termed the 'bi-cameral mind'. This was a kind of schizophrenic state, where ancient humans had 'hallucinated voices' ringing in their heads: one a supervening God, and the other that of the obedient individual. Writing brought these into a singular, interior voice—that of the whole individual—which became the basis for human self-consciousness (1976: 163).

Rather less well known, though certainly influential in smaller circles is the work of Arnold Gehlen, specifically, his *Man: His Nature and Place in the World*, and, *Man in the Age of Technology* first published in German in 1940 and 1957 and in English in 1988 and 1980, respectively. The present essay is developed out of a reading of his latter work, primarily due to the virtual unobtainability of his 1988 English translation, except through secondary sources, such as Axel Honneth (1988), Joachim Fischer (2009) and Bernhard Adamec (2010) that I will draw a little from; and to the strong emphasis in *Man in the Age of Technology* on a key concern of this essay—automation. Two more basic things are important about his work for the purposes of this essay. First is his combining of the natural science elements of human anthropology with philosophy to contribute to the field of 'philosophical anthropology'. Through it he attempts to connect the science of the emergence of the modern human with a speculative philosophy to account for what Honneth describes as the 'special position of the human being' in the natural world (1988:48). Second is that Gehlen uses his synthesis to help us think about how humans attained this special position through a unique relationship with technology. His thesis therefore allows us to make some progress in our understanding of two difficult realms where empirical data are scarce: the origins of consciousness, and our *radical* relationship with technology and information.

A central point that Gehlen makes is that the human, unlike most other species, is born helpless, or 'unfinished' as Peter Berger terms it in his foreword to the book (1980: ix). Rather more strongly, Gehlen himself termed the human a 'deficient being' (*ngelwesen*) in his 1940 book (cited Adamec, 2010: 14) who suffers from what he later calls a congenital 'instinctual deficiency' (Gehlen, 1980:2). The first few years of our lives are spent totally dependent upon a capable other, becaue the instinctual animal drive is underdeveloped for survival. Gehlen speculates that this helplessness constitutes a form of biological and cognitive *unpreparedness* for the natural world. Being unready

physically means that we cannot be autonomous in terms of the provisioning of food, finding shelter, being able to flee predators, and so on. We are also cognitively incomplete in that we lack the instinctual filters that other species have that allow them to ignore information that is not necessary for their survival. The sparrow in the park, for instance, does not notice the book I am reading as I throw it crumbs from my sandwich. The bird's in-built information filter screens out unnecessary data from its surroundings and allow it to form the 'stability in the environment' within which it may survive (Gehlen, 1980: 13). This stability in the animal world reflects a kind of natural synchrony with the natural world, a 'circle of life', as Fischer terms it, a 'phenomenon' that is absent in the 'less morphologically specialized…human living being' (2009:162). Moreover, Fischer continues, the lack of such perceptual filters left the earliest humans prone to sensory overload (2009: 167). And as Jonny Thakkar puts it, such humans were in danger of being 'at sea in a storm of information' (2010: 2). It is at this critical juncture for the human species that Gehlen locates the momentous adaptation, through a disordered evolutionary drift, with technology. The adaptation toward technological solutions enabled humans to both extend and substitute their organs, to facilitate and recreate their environments, and to transform the human being from the state of unpreparedness to one that is *equipped* (and therefore restructured) for action. Indeed, action is now the *only course* available to humans once the adaptation is made. As Gehlen puts it in *Man: His Nature and Place in the World*, we long ago made the transformation to:

> …a life form that is physically so constituted [that it] is viable only as an acting life form; and the structural law of all human effectuations, from the somatic to the mental, is thereby given (cited in Honneth 1988:51).

And so through what Fischer describes as 'the ordering influence of "action"' humans began to compensate for their lack. Technology thus allowed humans to create what Gehlen viewed as a 'circle of action' (*handlungskreis*) where the body (hand, eye, etc.) and the object (tool) work with and through the external world (p.15). But this is not the end of the story. As Gehlen argues, ancient humans found themselves vulnerable to the 'irrational impulses at work within technique', namely: 'the need of man to read himself into nature and then interpret himself in terms of nature' (p.17). I interpret this as a fundamental human misidentification with nature that elides the mediating role and function of technology, and by extension elides the *objectification* of the works of technique through it. Technology is not 'nature', but the basis for culture, and it is here that we find, as I will argue in some detail below, the basis for our deeply problematic relationship with computers. I want to preface that however, with some remarks on a Gehlen's work on *automation* (borrowed from Hermann Schmidt) that is a constitutive element of his 'circle of action' thesis. This will provide us with an invaluable insight into our present condition where the once relatively modest objectification of labor through the original technology-enabled 'circle of action' is taken to unprecedented levels, and with unprecedented effects, through networked computers that pervade almost every aspect of culture and society. Gehlen argues that our 'fascination with automatisms is a prerational and transpractical impulse, which previously, for millennia, found expression in magic' (p.14). In other words the orientation toward automation is a basic human trait and is enacted through our 'tendency toward facilitation'—or the augmentation of human power through technique, and the subsequent relief from demanding physical and cognitive effort that technique enables (p.18). And as Gehlen notes, this dovetails with our ancient (and not yet moribund) fascination with magic. Through magic, ancient humans imagined that they could wield effortless and unlimited power. In industrial society, as we will see, early machine automation (work that was conducted 'without the intervention of hands') was reckoned by some to give to us almost God-like magical powers; and today our *consumer* relationship with computers—encapsulated in Arthur C. Clarke's nostrum that 'Any sufficiently advanced technology is indistinguishable from magic' (1973: 21)—is often one of childlike wonder and awe; reactions that are not too far removed from the witnessing of a miracle.

To end this section I return to my earlier narrative that is pre-machine and pre-computing. Here the 'viable' life form of the ancient human depended upon the radical and ultimately fortuitous (for us) relationship with technology that occurred when modern humans began to emerge some 50,000 years ago. What this pre-modern 'circle of action' instituted was the basis for consciousness and the cognitive capacity to see oneself as both part of and yet distinct from one's environment through the capacity for reflection. And it was this, as Gehlen puts it, which formed the 'ultimate dynamic of human impulses' (1980: 30). Technique evolving as an inherent element of this dynamic allows humans not only to screen extraneous information artificially, but to also create meaning through both created and acquired information. The technology relationship meant that humans as dynamic actors

within nature were able to produce meaning from augmented actions, and therefore 'create stable structures [through] his own activity' (1980: ix). And it was this immanent need for regularity, predictability and stability that provided the basis for the rise of cultures, of civilizations, institutions, belief systems and increasingly complex socio-cultural processes. These specifically human-technological dynamics have been the very basis of the social world throughout history, with the diversity of contexts that emerged and evolved and transformed human cultures and societies for millennia (Wolf 1982).

In the European context that we must deal with here, the particularities of technological development and its social and economic interactions led eventually to the period of 17th century modernity (modern society). This was a hinge-point for world history from which many still-active consequences would flow. A key one was a *new* and more powerful relationship with technology—machine technology. At this time the 'defence against nature' through a vastly more complex relationship with technology seemed to be secure, and humanity seemed likewise set upon an unprecedented phase of technological and ontological mastery over nature—and over its sense of self.

Modernity and the quest for mastery over technology

Beginning in Europe during the early 16th century the human relationship with technology, prior to the full-blown emergence of the modern period, might well be described as both localized and pragmatic. Innovation, such as it existed, stemmed from narrowly focused problems that engendered practical solutions. There was no overarching logic that drove technological development along a particular trajectory. And 'individual initiatives', although often part of wider social processes, were only loosely connected through rudimentary communication systems (Gies 1995: 2). However at this time these wider social processes, through a growing literacy, a deepening culture of print, and the revolutions in science that this brought, enabled the emergence of the Renaissance period that began more systematically to give a powerful motive force and organizational logic to technological development. As Frances and Joseph Gies (1995:2) argue, the technological context of the Renaissance can be seen as a period of:

> …gradual, imperceptible revolutions—in agriculture, in water and in wind power, in building construction, in textile manufacture, in communication, in metallurgy, in weaponry—taking place through incremental improvements, large or small, in tools, techniques and the organization of work.

The coalescing and sharpening focus of forms of technological development oriented toward the problems of growing industry and widening trade created (in contrast to local problems and local solutions) a much more distinct trajectory that brought Europe to the forefront of *global* economic power during the 17th and 18th centuries. This dynamic also brought a symbiotic revolution in human thought. The already influential human-technology relationship that Gottfried Leibniz had described in his concept of binary numbers and his concomitant goal of the automation of reason (Bell 1953:123) were finding a flowering in the mutually influencing dynamics of Enlightenment thought and the industrial revolution. The Greek imprecation to 'know thyself' was, famously for Immanuel Kant, able to be expressed through the release of the power of individual reason. It was through this growing systematization of the intellectual-technological relationship that the stage was prepared for the emergence of a modern form of vanity with its attendant belief in human-technological progress. Indeed, the essential myth of human superiority over the natural world became the basis for the *collective narcissism* or vanity that would be a sustaining illusion of modernity. This modern illusion would be the secular heir to Freud's 'narcissistic satisfaction' that was derived from religion and would prove to be no less powerful in its grip over the human imagination (Gray 2013: 72-82).

The emergent basis for a more contained selfhood had to be tempered to enable the modern era to function. And so whilst the ideas of equality and democracy were important for spreading the belief that individual was a key ontological category, the individual was viewed as having social and collective rights and responsibilities as well. Accordingly, through a collective narcissism that eventually was theorised in the 19th century as Humanism, the individual in modern society therefore had society itself, both as a concept and as a reality, with which to moderate any propensity toward the narcissistic error of an exclusively individualised form of reasoned self-delusion. Then as now, vanity or selfishness attracted social opprobrium. Moreover, a collective narcissism served to blunt the

inexorable logic of cold reason, and enable the secular equivalent of a harmony with the Gods through the belief in human-technological progress.

The enormous revolutionary power of Enlightenment thought and industrially oriented technology was of course the basis for the pivotal transformation of human affairs. It is here that we find the basis of our *technological* modernity—and of our fuller identification with (and vulnerability to) the culture of 'mechanistic materialism' that began with Plato (Gare 1996: ch.6). The particularities of the capitalist labour process, which are unnecessary to relate here, engendered the powerful motive force that would allow for the ideas of *automation* to become a material reality (Marx 1982: 340-411). It is clear that the *extension* of human physical capacity was inscribed in our earliest relationship with technology (Gehlen 1980:16-20). However, successful automation—the quest to both *replace and improve* human effort—was to take the human-technology relationship to a new level, one beyond a basic extension and interaction, and one that would eventually have far-reaching consequences for our ancient sense of selfhood that derived from tool use.

Without the intervention of hands

The Jacquard Loom is a definitive development in this context. Built in France in 1801 it drastically simplified (through a partial automation) the production of the complex patterning of textiles, the fundamental capitalist commodity of the time. Evolving directly out of Leibniz's work on binary numbers, Jacquard's invention comprised the earliest form of the stored program where a 'tape' of punch cards automated the weaving process, enabling the unlimited replication of the pre-programmed pattern. The most important effect is that the process was *embedded* in the machine by stored and not action-activated means, which meant in turn that the process became *abstracted* from human control in a fundamental way. A programmable machine thus for the first time signaled two diametrically opposing tendencies in our long relationship with technology: it further inscribed the logic of control over machinic processes in that they could be 'directed' to function autonomously; but this autonomy, albeit rudimentary in the case of the Jacquard Loom, gave to the machine, through its automaticity, an agency that tools or machines never previously had inscribed within their operational logic.

The ancient quest for technogical mastery and control had reached a critical (though not yet decisive) juncture. For some of Jacquard's more philosophically disposed contemporaries, such as John Herschel, a founder of the Analytical Society in England in 1812 and which sought to promote Leibniz's theories on calculus, the programmable machine was a wonderfully efficient development for humankind. As John Ashworth shows, Herschel's early work (undertaken with Charles Babbage, the originator of the first programmable computer) aimed to theorise (and improve upon) the operations of the *human intellect* by linking it to the operational logic of the factory (with which he and Babbage were obsessed). For Herschel, the Jacquard Loom, through its connecting of automation with factory production, was material evidence of the 'efficient and correct mental operations' on the part of the inventor (Ashworth 1996: 636). The ultimate goal for Herschel, and for Babbage too, as Ashworth compellingly argues, was to 'industrialize' (make efficient and automatic) the faculty of reason, and therefore to generalize this capacity for 'correct mental operations' throughout society (ibid). The proof of concept that Jacquard's programmed machine articulated, was therefore evidence for Herschel and Babbage that the human-technology relationship could be (and should be) taken to a much higher mechanical-rational level where 'the mind should ideally function with the reliability and productivity of a well-ordered factory' (Ashworth, 1996: 636).

The proof of concept of the automation of machine processes, which provided the means for the beginning of what Ashworth terms the 'industrialization of the human mind' (1996: 653), was more particularly a watershed for the human-technology relationship that Gehlen had theorized. Through the effective automation of the 'circle of action' the human-technology relationship 'becomes objectified…[in respect of both] its control and development' (1980:20). This radical externalization of the processes of technological use and development is therefore to diminish the control of the individual, and by extension, reduce the social element of the relationship. But it did not seem so to these Enlightenment inventors and philosophers. Nascent automation, together with Babbage's later work on the Analytical Engine, which explicitly sought to automate the processes of the thinking mind through computation, was seen by many, then and now, to take the mastery of technology by humanity into hitherto undreamed of realms of power, and to become almost magical. Pascal's earlier 17th century defence of Christianity against what he called the 'vanity of sciences' was becoming lost in a new and highly dynamic age that also signaled a new and 'automatic' direction for Enlightenment

thought. Contemporaneous political economists such as Edward Stillingfleet Cayley, who observing these developments first-hand, could write in 1830 that:

> It is, indeed, a curious reflection, what the powers of natural agents, directed by mind, may accomplish, without the intervention of
> …the tendency of knowledge must be, though at an immeasurable distance, in the result, the same in man as in the Deity…to give power (1830: 19).

New-fangled automated machine technology 'without the intervention of hands' was thus reckoned by some to be taking human ingenuity onto a par with the Gods. However, this symptom of growing human-centred arrogance was in fact taking the human-technology relationship to a fork in the Enlightenment path. It was, as Ashworth (646) argued, the beginning of the rise to domination of 'an industrialized version of the Enlightenment' where the critical reason of dialogue and dialectic were being eclipsed by the instrumental reason of programmable machines whose innovatory logic was now driven by competitive forces, and whose trajectory was narrowing inexorably towards 'efficient' and labour-saving ends. The path taken did of course require many generations to have the effects that we now presently experience, and I will discuss some of the most salient of these in the next section. Nevertheless, the industrial path was not without its obstacles in the shape of perceptive critical thinkers. From its inception the Enlightenment-industrial road had its persistent contraflow of disenchantment—one that is still travelled today. As Leszek Kołakowski noted, gradually, and paralleling the rise of the industrial way of life, the modern and progressive and open European spirit that was encapsulated in Diderot, Helvetius and Feuerbach gave way under the force of instrumental reason and the industrialization of the Enlightenment, to the post-modern and more interiorized and subjective-existential worlds of Kafka, Camus and Sartre (Kołakowski 2012:185).

Automation objectifies and exteriorizes the processes of tool use and therefore stress-tests the illusions of technology because its work estranges us from its dynamic and from the 'circle of action'. And so when the 'motive mechanism', as Marx terms it, 'acquires an independent form' (2004: 285) a gap opens up in our relationship with technology as the primary transformative interaction with the world. This is not a positive step in terms of the maintenance of the reasoned self-delusion that technological mastery bestowed to the modern human. It is a regressive one that forces the human psyche back onto the solitary self, to where it is only the narcissistic impulse, at a deeper level of self-delusion, that can act as Freud's last 'defence against nature' when the technological one has been breached by automation.

In retrospect we may see that early modernity did not place us on a par with the Gods. Nor did it make us necessarily any happier, nor a species that has in any way 'progressed'; it just made us more efficient at producing things. For Marx this capacity was only a happiness delayed, and he believed and argued that modernity was positive for the human equipped with industrial tools. More broadly, for the individual, the ancient 'circle of action' still had plenty of work to sustain it, and to sustain Marx's ideas, because industrial technology was in its relative infancy, and the illusion of human progress and mastery over technology had a long way still to 'unfold'. The 18th and 19th centuries (and our own time, too) still required the hands and minds of workers with their 'action' oriented toward manual or mental labour. And so for example pride and tradition in craft labour furnished its own form of tempering the illusions of selfhood, and served to project the individual into a Tonniesian *gemeinschaft* world of meaning and social solidarity through shared technological interaction. Similarly, early capitalism, as Marx accurately showed in his analysis of the brutalities of the labour process, drove men and women into what were then termed 'combinations' where the senses of meaning and purpose in work and in social life tended to be collectivized and therefore also served to militate against the logic of reason leading us to its inevitable conclusion of aloneness. Indeed, until very recently—prior to our age of the network society, globalization and neoliberalist individualism—the idealist could still plausibly claim that there was still a world to build and a sense of modernity and progress and even forms of organic sociality and democracy to promote and defend (Gray, 2003: 3-34).

The gradual spread of modernity and its displacing of millennia of the delusionary comforts of God-worship allowed the equally delusionary vistas of civilization and progress to fill the void that cold reason by itself would make apparent. The 'disenchantment of the world' (*entzauberung der welt*) that Max Weber (1946:155) had identified as the effect of the supposed authenticity of science and rationality could still, right up until the late 20th century, have the sterility of its *zweckrationalität* offset

by what he termed the 'brotherliness of direct and personal human relations' (ibid). However it is only with the emergence of something unprecedented—the 'new social morphology' (Castells 1996: 469) of the network society—that we see the effects of our primordial unwillingness to look squarely at the existential abyss. Today, a post-modern vanity now begins to grow inexorably and systematically as a consequence of widespread automaticity. This is being expressed, as we shall see, in our adaptationary drift *back* to the Narcissistic and solitary self as a defence against both the loss of the myth of technological mastery and the terror of the barbarism of nature that this would necessarily expose. And it is to the genesis and context of these post-modern dynamics that we now turn.

Post-modernity, the growing autonomy of technology, and the emergence of our post-modern vanity

There is an identifiable connection between the sense that modernity has within the last generation entered upon a new 'high' or 'late' or 'post' phase—and the sense of the rise and spread of automation on a serious (computer-driven and networked) scale. Fredric Jameson expressed this convergence quite early. In his *Postmodernism, or, the cultural logic of late capitalism*, he argued that the post-modern in the technological and economic sense signals a new phase of capitalism, one that goes beyond the relative stability of Fordist 'intervention of the machine, [and] the mechanization of culture' (1996:68), toward a disaggregated form that is continually being shaped and reshaped uncontrollably by the 'free play of automation' (p.367). Writing when he did, Jameson could only express this tentatively as the emergent processes of a 'new globality of the system' (p.364). The 'new globality' is the economic processes we commonly and banally refer to today as globalization. Thinking more reflexively about this globalization, however, reveals that the processes of post-modernity—along with the mutually constitutive processes of the information technology revolution—has over the last generation directed the economic and social realms the world over *decisively* towards unremitting 'efficiency' and automaticity. Furthermore, these interconnected objectives are having far-reaching effects upon our relationship with technology and our sense of self in our networked post-modernity.

The double revolution of economic globalization and information technologies was a political response to the late- 20th century 'crises of capitalism' that had built up gradually from the maturing machine age doctrines of Fordism (Harvey 1989: 121-189). Fordism, defined as the broad application of principles of socio-economic planning, state-engendered forms of rational organization and control, and the philosophical and cultural sense of *modernity as progress* had, as Harvey argues, reached its zenith as the expression of a 'whole way of life' by the middle of the century (1989:241). By the 1970s, this essentially Victorian industrial model had run its course and was mired in a global 'crisis of accumulation' (Harvey, 1989:311). Fordism had been exposed as rigid and inflexible in the context of growing competition within an increasingly sclerotic mode of production. For the emergent cadre of militant neoliberal—in the form of politician as well as industrialist and economist—the need for the adoption of 'flexibility' or what was termed 'flexible accumulation', was considered vital to meet the challenge of economic crisis (see Jessop 2006: 288; Mirowski 2013).

It was at this juncture that computing and its automation-promoting capacities really came into its own, and where the technological and ideological bases of our networked post-modernity were first laid down (Schiller 2000). During the 1980s, and under the compulsion of rising neoliberal political and economic power, global capitalism began to depart from its predictable and organized mid- century stability mode. The processes that led to what Scott Lash and John Urry termed the 'end of organised capitalism' were to become both necessary cause and subsequent effect of a widespread restructuring process. They show that the instilling of 'flexibility' in the pursuit of 'efficiency' was, across all the leading economies, a 'unilateral' move by the owners and controllers of capital (1987: 282). Pressed into service wherever possible in the objective of achieving automation and flexibilization, computers had the inevitable (and intended) effect of cutting the expensive and error-prone human out of Gehlen's 'circle of action'. Moreover, automation served also to *atomize* people in respect of the 'combinatory' role that had collectivized the 'circle of action' in the workplace since the beginnings of the industrial revolution. Shortly I shall say more about this atomizing effect, and how the concomitant rise of individualism has been too often misconstrued as something very different.

What Theodor Roszak (1987) defined as 'the cult of information' wherein computers were increasingly viewed as the 'solution in search of a problem', was also a *cult of efficiency* in a context where a perceived lack of 'efficiency' in all things was the overriding problem for capitalism. Industrialists, economists, politicians and computer scientists were, through their advocation of the computerization

of just about everything, drawing upon a history and a set of theories that goes back at least to Leibniz. More recently, Claude Shannon and Warren Weaver in their *Mathematical Theory of Communication* powerfully restated the cult of efficiency where they argued that the vagaries of *human meaning* in communication needed to be diminished or expunged in the relentless mathematical quest for technological efficiency (1949: 33). Friedrich Kittler has attacked the widespread adoption of this approach in computer science—and far beyond—as the development of a new and more powerful logic for a computer technology that is breaking free from human control. Kittler writes that: 'the dominant information technologies of the day control all understanding and its illusions' and what remains of humans in such a hyper-mediated world 'is what media can store and communicate' (1996: xi). People are thus exposed as the weakest link in the functioning of the 'circle of action' when control passes to the pre-programmed processes of ubiquitous computing and objectified automaticity on a global and networked scale. The relentless power-drain away from the lives of individuals and collectives, long a sociological feature in studies of neoliberal globalization, takes on a decidedly digital media aspect in this reading. It is one emphasized recently by Mark Deuze, Peter Blank and Laura Speers who argue in their essay 'A Life Lived in Media' that 'media…make us lose ourselves… *in our technology* to the extent that it generates our lives on the basis of a specific set of rules, codes and protocols' (2012:2) (my emphasis). What this suggests is that not only are we *cast out* of the 'circle of action' through the objectification process of pre-programmed automaticity, but we are also *subsumed* into its logic of efficiency as it acts upon time and space to compress them; as well as upon culture, economy and society to commodify and digitize them. I shall say more on this subsumption presently.

The trope of the rise of individuality, as just noted, is common in analyses of globalization, neoliberalism and post-modernity. Sociology and social theory in particular has much to say about this process, and is usually theorized as a socially negative effect of the post-industrial era. For example, Ulrich Beck and Elizabeth Beck-Gernsheim, in their book *Individualization*, argue powerfully that neoliberal globalization is principally to blame for the atomization and 'isolation of individuals within homogenized social groups' (2002:33). They go on to state that the effect of this process, where people feel alone and powerless, is that '*social problems* are increasingly perceived in terms of psychological dispositions: as personal inadequacies, guilt feelings, anxieties, conflicts and neuroses' (ibid). Zygmunt Bauman, another influential theorist of neoliberalism and globalization writes in similarly inauspicious tones:

> On the receiving end of the individualizing pressures, individuals are being gradually, but consistently, stripped of the protective armour of citizenship and expropriated of their citizen skills and interests. Under the circumstances, the prospect of the individual *de jure* ever turning into the individual *de facto* (that is one which commands the resources indispensable for genuine self-determination) seems ever more remote (1998:40).

In a more mainstream treatment of the same problem, Robert Putnam's *Bowling Alone* argued that a diminishing fabric of collective society and the depletion of the 'social capital' that kept communities vibrant and able to form the basis of a democracy, was cause and effect of an new 'social isolation' that condemns the citizen to a negative post-modern individuality (2000: 340).

The process of 'individualization' that these sociologists portray, though undoubtedly real, is simply not sufficiently understandable through the standard atomizing analyses of post-industrialism that they posit. Indeed much of the socio-cultural and economic literature on the nature of individualism is in large part a *distraction* from what are much deeper currents of change. The objective condition of our post-modernity speaks clearly of something else, and is something we can test. We can begin by asking a fundamental question: the objective conditions emerging out of the transition from a Fordised national economy to a globalized post-Fordist economy that is 'flexible' and networked and driven by the need for instrumental 'efficiency' that ostensible competition brings, *should* be the forms of social upheaval that bring *people closer together*. Yet they do not. Why?

Some of the relevant realities of our post-modern age of individualism are not difficult to discern. The relative lack of collective political and industrial power that came from our relationship with technology and the machine culture it engendered is stark, compared with a generation ago. Much flows from this de-collectivization, and much of it seemingly well understood in the conventional analyses: For example, across the Western economies real wages have stagnated or declined since the 1980s, something only partially offset by the long boom in credit (now bust). As average wages stalled, the once very rich have become super-rich, opening a widening gap between themselves and the rest,

especially in the U.S.—to an extent said to be historically unprecedented (Yen 2010). Globalization, since the 1970s, has taken capitalism into every corner of the Earth, bringing with it a neoliberalised mode of production that has globalised *exploitation* and globalised automation as its preferred mode. Non-unionized labour across much of Asia, and with China at its heart encompasses hundreds of millions of toiling workers who are largely solitary at the very least in the sense of class identification. And the educated classes, populating a massively expanded social strata across the world since the 1970s in order to meet the needs of information-based globalization, has not proven to be the vanguard of revivified mass political activity, socialist or otherwise. They too are atomized and flexibilized. In the universities, the objective conditions of 'academic capitalism' (Slaughter and Leslie 1997) have turned academics and the institutions of the academy into just another branch of the knowledge industries. Moreover, diminishing prospects for tenure within a ballooning sector based upon intense competition for short term or contracted posts, has positioned most academic work within the ever-shifting sands of research and teaching priorities. Funding for research increasingly comes from commercial sources, with commercial 'outcomes' a strong expectation; and the teaching of students who pay more and more for their 'investment', is understandably drawn towards vocational forms of knowledge (Author 2003). As a result, academics as would-be public intellectuals and also promising students are conscripted into flexible modes of thinking and acting that enable them to compete (with each other) in the knowledge economy on the global neoliberal and networked planes. De-politicization—one that leaves the ideology of neoliberalism firmly in the saddle—has been a consequence of this process, one bewailed from a shrinking right in politics, as well as from a much-weakened left. Perry Anderson spotted this unprecedented political vacuum beginning to grow over a decade ago:

> Ideologically, the novelty of the present situation stands out in historical view. It can be put like this. For the first time since the Reformation, there are no longer any significant oppositions – that is, systematic rival outlooks within the thought-world of the West (2000: 17).

That the forces of economic and political depredation that traditionally brought people together into some kind of militant class identification have not occurred over the last generation should give us cause to ponder, using intellectual tools that go beyond conventional social science analysis. The 'novelty' that Anderson identifies, by itself compels us to meet it by thinking in a fresh way. We need to understand that the forced shift to a more solitary existence, where logically there should have been more effective counter-movements of solidarity to meet a transformed capitalism, as the thrust of this essay would suggest, is through our relationship with technology. This post-modern relationship has no parallel in history, and therefore is having effects that we are yet to fully appreciate. Gehlen argued that the 'circle of action' with technology is a dynamic wherein humans had an agentic role, where they are able change in relation to a changing socio-technical environment (1980: 135). There is also here what he terms a 'resonance phenomena' wherein the ancient human 'beset by the enigma of his own existence' was able to 'define himself by referring to what is other than himself [technology]' (p.14). What Gehlen had explicitly in mind was the idea, that Norbert Weiner called the 'feedback mechanism' in computing. Quoting from Weiner's 1950 paper 'The Human Use of Human Beings', Gehlen observes that 'in its simplest form the feedback principle means that behavior is scanned for its results, and that the success or failure of the result modifies future behaviors' (1980:18). Weiner envisaged a process of human-computer symbiosis, where the human would be in control and would benefit from the modification in an ongoing and increasingly dynamic and positive 'circle of action'. However the pursuit of widespread automation with the specific intent of eliminating the human element from the production process has, as Gehlen notes, and citing Schmidt, 'made dispensable the intellectual input of the subject' (1980: 19). As we move *en masse* to a networked society, we certainly are modifying our behavior, but do so in response to deeper currents of change than we realize.

The application of the 'free-play of automation' in search of economic efficiency in every register of life has affected the human-technological relationship in every register of life in its turn. And so in what has been a mere blip of anthropological time, the rise of the network society and the neoliberal political-economic forces that drive it, has undermined our pre-historic adaptation to technology that led to the forms of consciousness that allowed us to transcend our 'unfinished state' and step out from the realm of the animals. Through computerization, a widespread and continuing automation and objectification of the tool relationship is diminishing our consciousness-derived capacity for what I have termed a 'reasoned self delusion' wherein we were able to conceive of and exist within two poles of the psychic state at its fundamental level. One pole enabled us to lead an ontologically tolerable life, where the realization of inevitable death could be sublimated through religion (and repressed latterly

through the 'new God' of technological prosthesis, in Freud's reading). The other would be to follow the cold logic of unconstrained reason that self-consciousness gave us, and which tells us that there is, ultimately, only meaninglessness in our lived life, to be followed inexorably by the timeless void of non-afterlife. The latter 'choice' is one we have always avoided as a self-conscious species. Flight to an 'easeful death' by following the siren call that would take us to a Heaven or Nirvana or Elysium is psychically far more tenable than taking up the unwinnable fight against the terror of radical aloneness. The Greeks' tale of Narcissus is therefore ultimately a tale of existential pragmatism. Harmony with the Gods was always going to be more in the *general* interest than either self-misidentification or allowing the 'free-play' of cold reason to lead us to the existential abyss. To 'know thyself' in its pragmatic form is therefore to decide (and we decided this a long time ago) that we don't really want to know.

The automation and digitalization of the formerly analogue-dominated technology relationship that held the world in a certain place through a certain tension, is set to have increasingly far-reaching consequences for the technological self that Gehlen identified as the basis for self-consciousness, and for the modern self (and the modern world) that the 'circle of action' made possible. The 'resonance phenomena' that Gehlen viewed as the energy that drove the 'circle of action' and allowed our collective reasoned self-delusion to thrive, is no longer so vibrant, and is attenuating with every new computerized 'solution' to the never-ending quest for 'efficiency' in all things. The effect of the lack of resonance with widespread automation is that the subject is thrown back (or cast out) to the realm of the solitary self, where only the narcissistic impulse (one eagerly catered to and reflected back to us in the neoliberal consumer society and constituting a new narcissistic form of 'resonance') becomes the weak and always-fragile psychological redoubt of self-delusion that places us at the borderlands of a nature that we are ultimately defenseless against. This is at the root of our post-modern 'individualism'; and its correlatives of vanity or narcissism are not 'selfish' in the way that our parents and grandparents would have admonished as moderns, but instead express a post-modern existential marooning of the ancient technological self that emerged when we first fused our being with tools and began to act differently toward nature.

Conclusions

This essay began with an oblique reference to the Google Corporation. However Google, as with so many other information technology firms, is at the forefront of changing what it is to be human. Google matters more than many others, if only in the political economy scheme of things, because of its sheer size and influence. Its trajectory of development as a capitalist concern also gives us insight into the nature of the unfolding relationship with technology that we have been concerned with here. For example, the autonomous car project that Google made public in 2012 represents the leading edge of the logic of the objectification process of the human-technology relationship. The automobile was perhaps the technology that made the 20th century what it became, for good or ill. Individuals interact with automobiles, especially males, down to the level of the subconscious, in what was/is an emotional attachment for millions over many generations. This 'special' relationship was reflected in the transformation of capitalism into a much more 'efficient' mode, in the urban environments we built, in our transformed space-time perceptions, and even, as the Nazis demonstrated in 1940, how radically differently land wars would be conducted (Virilio, 1986: 23). How far away mass-produced autonomous cars actually are is a moot point, but that it *will* happen seems to be inevitable. Notwithstanding our 'special' relationship with the automobile, the driver is being viewed on the plane of computer logic as the inefficient weak link in this particular 'circle of action'. And so to 'containerize' people in autonomous car like the commodities that were organized and monitored and controlled through the containerization revolution of the 1960s, will cast the individual further out from the 'circle of action' and into a new level of technological subjectification through automation.

Google represents only the vanguard of what is an inexorable computer-driven logic. All around us the forces of subjectification press in on us through our computer use. Sherry Turkle has drawn our attention to something we ordinarily miss: that is we are 'connected' through a computer screen; but the more we 'connect' the more we are physically and psychologically 'alone' (2010). We now stare into the computer screen just as Narcissus gazed longingly into the pool of water. Like him we delude ourselves by wallowing in what is becoming a new 'permanent preoccupation for the consciousness of the self'—the post-modern vanity-state that is generated through intensive and extensive and networked automation. The objectification of the technology relationship approaches the drastic in the

new ‘black box’ context, wherein we know little if anything about the actual technical processes that we immerse ourselves within.

As I argued above, not only are we driven from the ancient ‘circle of action’ by automation, but are also subsumed by its networked processes. We find ourselves growingly dependent upon automation not only to sustain social, economic and cultural life, but also to act as the preoccupation needed to stop us taking the reasoned step toward the realization that we are becoming physically isolated and ontologically alone. This everyday psychological and social dependency—and its effects—is evident all around us to a degree that we view almost as normal. But there are leading elements to this dependency logic too, if we look for them in their strangeness. One is the so-called ‘quantified self’ movement, whose dedicated blog by guru Gary Wolf has the banner-slogan: ‘self-knowledge through numbers’. Here individuals are able to track and quantify and analyze increasing functions of their body and mind, from cycling and heartbeat to sleeping and breathing. Data can be downloaded and shared and compared and used (in competition with others) as the basis for constant ‘self improvement’ in body and mind (Wolf 2013). This is a post-modern vanity wherein the individual turns in on himself because of computing, yet uses computing to make sense of [and instrumentalise] his aloneness. In his networked context of isolation he is less open to the collective narcissism that would have moderated his vanity in the modern period by offering pragmatic ways that would have enabled him to see himself refracted through fleshly communities and societies. Automation is thus producing the peculiarly post-modern illusion that we no longer need society and other people. We look to the reflection in the screen and see ourselves; we calibrate and modify our behavior not according to social norms, but through what the data of our quantified self suggests. In that distracted and distorted reflection, we are unable or unwilling to realize (individually or *en masse*) that we are becoming radically alone in our radical vanity.

As with almost everything in human affairs, we have brought this on ourselves. In this case, we have done it through the quest for an all-enveloping ‘efficiency’ that is oriented toward the ultimately meagre ends of profit. Through late-capitalism’s search for control through computerization and automation, we have succeeded only in sowing a post-modern uncertainty in all things—uncertainty about the past, the present, the future and about ourselves. Ashworth perceptively critiqued the ideas of automation and efficiency that Herschel and Babbage pursued as a Utopian dream of ‘seeking to rearrange [a] social order [that would be] emancipated from the tradition and the continuity of history’ (1996: 637). Against their explicit denial of the importance of a diachronic perspective of history and society, Ashworth goes on to quote J.G.A. Pocock who, in support of the conservative ideas of Edmund Burke, argued that society is *organic* and has been shaped through countless generations of human experience. This process indelibly marks us. To change, therefore, the technological nature of society—from analogue to digital—would constitute such a profound rupture as to ‘destroy our own intelligence and our capacities to replace it, since we would be destroying the only reasons for acting, and even living’ (cited in Ashworth 1996: 637). Correspondingly, Gehlen was clear that the adaptation toward technological solutions allowed us (indeed compelled us) to be ‘action’ oriented in a specifically interactive and material way. And so to break this relationship through digital automation would be, perforce, to take humanity into the realms of the unknown.

A reasoned self-delusion that was tempered by the pragmatic ontology of the Greeks, and then modernity, gave us reasons to act and to live and to create the stable structures that our ‘unfinished state’ required. These structures gave meaning to the ‘enigma of existence’, be it through Enlightenment thought, or religion, or through historical admixtures of both. We equipped our helpless selves through adaption to tool use that enabled both self-delusion and pragmatism regarding the nature of our being. We allowed ourselves to be narcissistic creatures, and through a pragmatic move, collectivized and socialized the face we set towards nature. By utilizing technology in this way, we were able to place ourselves in the antechamber to the realm of the animals. And we deluded ourselves that if we were not in fact ‘special’, then we were at least free from raw nature forever.

In the network society, we have become dependent upon that environment in a way that is ironically akin to the natural environment that our ‘unfinished’ ancestors inhabited thousands of years ago. However, they were able to drift toward a technological adaptation that saved them from possible extinction. We on the other hand are losing that ancient analogue relationship and are becoming prisoners of digital automation. Their natural world was full of organic potential (human and material) that the relationship with technology would open up for *Homo sapiens.* Whereas our virtual world is

devoid of the organic potential that made us 'sapient' and are with each new automated solution destroying the basis we created for living.

What we have realized far too slowly in our fast-paced pursuit of 'efficiency' is that we are becoming prisoners of a new form of self-consciousness; a post-modern vanity created by an automation dynamic that is stranding us. This vanity is not a by-product of automation; it is its antithesis. Capitalism is at the heart of this post-modern ontology because it is capitalism that drives the mania for the automation of all things. The corresponding problem, however, is an immense one. Modernity gave us capitalism, but the Enlightenment thought that made capitalism possible also gave us the basis for either capitalism's moderation though democratic social control over it (the acceptable face of capitalism), or its replacement by another form of production and consumption altogether. But capitalism today stands alone, because we stand alone. Capitalism is beset by uncertainty and contradiction and untenability, but then so too are we. But we exist in this state as increasingly radical individuals, possessing fewer material or cultural or even pragmatic channels toward more collectivized sensibilities.

John Gray wrote that the 'era of solitude' would also be one that will swarm with mystics (2002: 150). The automated logic of the network society has created the basis for this new era, and its growing cadres of mystics (in all walks of life, from politics and economics, to religion and technological) and bring their magic to awe us, will appeal to our vanity because they will offer simple and direct channels to a 'truth' that will allow us to live tolerably when cold reason might cause us to doubt that we are anything other than that which the tale of Narcissus helped obscure. Today the primary technological and philosophical issue that we need to address is the loss of the reflective capacity to worry about the 'enigma of our existence' when automation is making it—like our ancient relationship with technology—redundant.

References

Adamec, B. (2010) 'Anthropology of the Entrepreneur' Unpublished Thesis, University of Vienna http://othes.univie.ac.at/9651/1/2010-05-11_0226108.pdf (Accessed 20th January, 2014)

Ashworth, W.J. (1996) 'Memory, efficiency and symbolic analysis: Charles Babbage, John Herschel, and the industrial mind', *Isis*, 87(4).

Anderson, P. (2000) 'Renewals.' *New left review* 1: 5–24.

Bauman, Z. (1998). *Globalization.* New York: Columbia University Press.

Beck, U. and Beck-Gernsheim, E. (2002) *Individualisation*. London: Sage Publications.

Bell, E.T. (1953) *Men of mathematics* New York: Simon & Schuster.

Castells, M. (1996) *The rise of the network society. Vol. 1 of The information age: economy, society and culture.* Oxford: Blackwell.

Cayley, E.S. (1830) *Commercial economy*. London: James Ridgeway (Google Books) Accessed 22nd July 2013.

Deuze, M., Blank, P., and Speers, L.) 2012) 'A life lived in media' *Digital humanities quarterly*. Volume 6 Number 1., pp.1-15.

Fischer, J (2009) 'Exploring the core identity of philosophical anthropology through the works of Max Scheler, Helmuth Plessner, and Arnold Gehlen'. *European Journal of Philosophy and Public Debate* **IRIS**, [S.l.], p. 153-170, May. Available at: <http://www.fupress.net/index.php/iris/article/view/2860>. (Accessed: 22nd January 2014).

Freud, S. (1961). *The future of an illusion*. New York: W.W. Norton & Company.

Gare, A. (1996) *Nihilism Inc*. Sydney: Eco-logical Press.

Gehlen, A. (1980). *Man in the age of technology* New York: Columbia University Press.

Gies, F. and Gies. J. (1995) *Cathedral, forge, and waterwheel: technology and invention in the middle ages*. New York: HarperCollins.

Gray, J. (2002) *Straw dogs*. London: Granta.

Gray, J. (2013) *The silence of animals*. London: Allen Lane.

Harvey, D. (1989) *The condition of postmodernity*. Cambridge: Blackwell.

Honneth, A. (1988). *Social action and human nature* New York: Cambridge University Press.

Jameson, F. (1996) *Postmodernism, or, the cultural logic of late capitalism*. London: Verso.

Jaynes, J. (1976). *The origin of consciousness in the breakdown of the bicameral mind.* Boston: Houghton Mifflin.

Jessop, B. (2006) *Beyond the regulation approach*. Edward Elgar Publishing.

Kittler, F. (1996) *Gramophone, film, typewriter*. Stanford: Stanford University Press.

Kołakowski, L. (2012) *Is god happy?* London: Penguin.

Lash, S. and Urry, J. (1987) *The end of organized capitalism*, London: Polity Press.

Lomas, D. (2000). *The haunted self* New York: Yale University Press.

Marx, K. (1968). *A contribution to the critique of Hegel's philosophy of right.* Moscow: Progress Publishers.

Marx, K. (1982) *Capital* Volume 1 London: Penguin.

Marx, K. & Engels, F. (2004) *Selected Writings* London: CRW Publishers.

Mirowski, P. (2013) *Never let a serious crisis go to waste*. London: Verso.

Ong, W.J. (1992). 'Writing is a technology that restructures thought.' *In the written word: Literacy in transition*, edited by Gerd Baumann. Oxford: Clarendon Press, pp.14–31.

Putnam, R. (2000). *Bowling alone: the collapse and revival of American community.* New York: Simon and Schuster.

Riesman, D. (1961). *The lonely crowd*. New Haven, CT: Yale University Press.

Roszak, T. (1986) *The cult of information.* Berkeley, CA: University of California Press.

Sayal, R. (2013). 'Google tax whistleblower says he was motivated by Christian beliefs' *Guardian Online* http://www.guardian.co.uk/technology/2013/jun/12/google-tax-whistleblower-christian-beliefs Accessed 15 September 2013.

Schiller, D. (2000) Digital capitalism: networking the global market system. Mass: MIT Press.

Shannon, C.E. and Weaver, W. (1963[1949]) *The mathematical theory of communication*. Urbana: University of Illinois Press.

Slaughter, S., and Leslie, L. (1997). *Academic capitalism*. Baltimore, MD: Johns Hopkins University Press.

Thakkar, J. (2010) 'Why conservatives should read Marx.' *The Point*, No. 3, Fall. http://www.thepointmag.com/2010/politics/why-conservatives-should-read-marx Accessed 12 August 2013.

Turkle, S. (2010). *Alone Together: why we expect more from technology and less from each other,* Basic Books, New York.

Virilio, P. (1986) *Speed and Politics* New York: Semiotext(e)

Weber, M. (1946). *From Max Weber: essays in sociology.* New York: Oxford University Press.

Wolf, E.R. (1982) *Europe and the people without history*. University of California Press.

Wolf, G. (2013) 'Quantified self' http://quantifiedself.com/author/gw/ Accessed 14 August 2013.

Yen, H. (2010) 'Income gap widens: census finds record gap between rich and poor' *Huffington Post*. http://www.huffingtonpost.com/2010/09/28/income-gap-widens-census-_n_741386.html Accessed 21 November 2013.