

INVESTIGATING EMERGING
DELEUZOGUATTARIAN CONNECTIONS
TO THE ENVIRONMENT VIA
INFORMATION TECHNOLOGY

J. SIWAK

2016

INVESTIGATING EMERGING DELEUZOGUATTARIAN
CONNECTIONS TO THE ENVIRONMENT VIA
INFORMATION TECHNOLOGY

By

Jakub Siwak

Submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy: Media Studies (Research) in the
Faculty of Arts at the Nelson Mandela Metropolitan
University

2016

Supervisor: Prof A Konik

Declaration

I, Jakub Siwak, hereby declare that *Investigating Emerging Deleuzoguattarian Connections to the Environment via Information Technology* is my own work, and has not previously been submitted for assessment to another University or for another qualification. Further, all the sources that I have used and/or quoted within this work have been clearly indicated and acknowledged by complete references.

29 June 2016

Jakub Siwak



Table of contents

Summary	i
Acknowledgments	iii
Introduction	1
Chapter One: The environmental crisis through the lens of legacy mass media within the context of economic globalization	12
The mass media and growing popular awareness of the environmental crisis	13
Institutional responses to the environmental crisis	19
The parameters of environmental degradation today	28
The Dominant Social Paradigm	35
Conclusion	41
Chapter Two: Rethinking the technological dimension of the DSP: Information technology and the environment	43
Information technology and neoliberalism: Connectivity and commerce	44
The material infrastructure underpinning our digital world	51
Questioning the relationship between technology and nature	59
Conclusion	68
Chapter Three: Deleuze and Guattari, becoming-animal, and the digital wall	70
Deleuze's historical context: The 1960s as a decade of change	71
Deleuze's academic context: Nietzsche, Hegelianism and micro-narratives	78
Deleuze, difference, and desire	81
Deleuze and Guattari on desubjectivation through becoming-animal	93
The digital challenge to difference: Deleuze's "Postscript on Control Societies"	100
Conclusion	104
Chapter Four: Contemporary reflections on Deleuze's concern over digitality, and resonances between Deleuze's 'counter-information' and Guattari's 'post-media'	105
Reflections of Deleuze's pessimism over digitality in contemporary theory	106
Deleuze and counter-information	117

Deleuze's counter-information in contemporary digital theorization	118
Guattari and post-media	123
Guattari's post-media in contemporary digital theorization	130
Conclusion	137
Chapter Five: Deleuze, durationality, difference, and digitality	139
Nietzsche, duration and Deleuze	140
Proust, duration and Deleuze	150
Bergson, duration and Deleuze	156
Deleuze and duration in <i>Cinema 1</i> and <i>Cinema 2</i>	164
Analog duration versus digital information	177
Digitality and difference	181
Conclusion	186
Chapter Six: Emerging connections to the environment: Hybrid digital durationalities	188
First-order hybrid durationality: The Tamagotchi	189
Second-order hybrid durationality: Botanicula	198
Third-order hybrid durationality: Shark Net and Oearch	206
Conclusion	224
Conclusion	229
Bibliography	238

Summary

This thesis explores whether or not it is possible to positively inflect – via digital means – people’s orientations toward nature through connecting their duration to the time of animals. The thesis opens with an overview of the contemporary environmental crisis, mapping related significant discourses, events and responses from the early 1960s onward. In this regard, after thematizing the relatively ineffective global institutional response to the environmental crisis to date – in spite of both consistent criticisms proffered by a range of stakeholders and widely available information on the scope of current environmental degradation – the lack of any concerted effort to deal with this issue is accounted for in terms of the dimensions of what Kilbourne, Beckmann and Thelen refer to as the ‘Dominant Social Paradigm’ (DSP). However, it is argued that of these dimensions, the technological dimension is most amenable to pro-environmental inflection, particularly through recent developments within information technology. That is, despite the latter being the privileged technology of neoliberalism, and despite the environmental cost of its current material infrastructure, it is also highly unlikely that societies will abandon their dependence on information technology in the near future. Given this, the importance of considering how such technology can be harnessed to positively re-orientate users’ perceptions of the natural world, in a way that also avoids the pitfall of technophilia, is advanced. In terms of this, both positive and negative appraisals of information technology by prominent new media theorists are discussed, and information technology is put forward as a tool that remains indeterminate in terms of its use. After this, and with a view to exploring how the technological dimension of the DSP might possibly be inflected in a pro-environmental manner, the thesis draws on the works of Gilles Deleuze and Félix Guattari who promote desire and difference outside the ambit of capitalism, particularly through desubjectivation in relation to their concept of ‘becoming-animal.’ Finally, after dealing in addition with some potential theoretical challenges to the application of Deleuze’s ideas within the digital realm, focus shifts to three contemporary digital artefacts which have the capacity, albeit to varying degrees, to facilitate a becoming-animal. In this regard, a distinction is made between those artefacts that precipitate first-, second- and third-order hybrid durationality, and it is argued that the latter category presents the greatest promise of interfacing the time of humans with the time of animals.

Key words: environmental crisis, neoliberalism, paradigm, information technology, counter-information, post-media, duration, hybridity

Acknowledgments

I am very grateful to my supervisor Prof. Adrian Konik for his excellent supervision, and his many insights into the work of Deleuze, whom I found a very challenging theorist to contend with. It was wonderful to work with such a dedicated supervisor, who pushed me hard, but was always very fair and incredibly supportive.

I would also like to thank my fellow doctoral student, Corne du Plessis, for the many helpful discussions we had on our respective topics, as well as my family, colleagues, and friends who supported me over the last three and a half years.

Mostly, I would like to thank my wife, Katerina Siwak, because it is no exaggeration that I simply would not have been able to make it to the point of submission without her. Thank you.

In addition, I would like to acknowledge the financial support provided for this doctoral study by the Department of Research Capacity Development of the Nelson Mandela Metropolitan University.

The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the NRF.

Introduction

Just over four years ago, my wife showed me a curious application on her smartphone. I was admittedly only vaguely interested at the time, and watched somewhat impatiently as the phone struggled to load the new app. What appeared once it had loaded was a confusing set of points mapped out along the southern coastline of South Africa. We zoomed in toward the digitally-represented shores of the Eastern Cape, and zeroed in on the waters of Port Elizabeth. And as we did so, the points – or rather, dots – appeared less frequently along the map. This did not trouble me at first, and I remained only marginally focused on the visuals in front of us, and asked the question I should perhaps have asked up front: “So, what are these dots?” My wife grinned in anticipation of delivering a surprising revelation, and then replied: “Sharks active, right now, right here in PE.” We zoomed in as close as we could, and sure enough, there was one coasting along in Algoa Bay, but none lurking around Pollock Beach and Sardinia Bay. Another, though, seemed to be getting really close to the shore at Jeffrey’s Bay. The tagged sharks had names, and you could track them exclusively – if an individual shark passed a receptor beacon, a signal would be sent to the user’s phone. We picked one whose name I don’t remember, and waited for a ping from the netherworld; it did not come, and after a few minutes it struck me as incredibly strange that we had been sitting at a phone, waiting for a message from a shark. But late that night, as I was reading, her phone pinged, and I experienced a strange sense of wonder at the thought that out there in the cold darkness of the ocean, slowly and silently, a great white leviathan was moving forward through space and time – and into my time and space through the message it had just sent to us. Probably on account of the many uncomplimentary images of sharks spread through popular culture and the mass media, I had up until that point regarded them as rather loathsome creatures, who chiefly comprised a threat to the health and wellbeing of humans. But in that moment I encountered one differently, as a creature in its own world, quietly pursuing its own ends, without compassion, without remorse, without hatred; a perfect predator who beneath the bioluminescent surface of the water appeared to me for the first time *beautiful*.

At the time I was preparing for doctoral study, and reading up on environmentalism and the current ecological crisis, and I was profoundly dismayed by the many shocking statistics and descriptions of the immense degradation around us. But I was also struck by the fact that, despite all the information available and easily disseminated via the internet, environmental degradation continues to increase exponentially. Moreover, despite new media

being heralded by so many as the medium that could precipitate the requisite change, and correlatively – on a more immediate level – despite the plethora of ‘likes’ generated whenever someone posted an environmentally-themed message or picture on Facebook, no significant positive re-orientation toward nature seemed to be underway. It was as if a disjuncture prevailed between how we virtually live today, through our information technology, and the actual world around us. But remembering my poignant late night encounter with a shark, my thoughts turned to the possibility that certain digital artefacts might possibly have the potential to more powerfully inflect attitudes toward environmental care, not simply through providing information on nature, but through connecting human and animal time, in a way that renders conspicuous how our lives are inextricably intertwined within the same great duration. However, this begged a number of theoretical questions and posed a number of correlative problems, and in the following thesis I have sought to answer and address them, respectively.

Firstly, the question of what force or dynamic was so powerfully inflecting attitudes against nature, emerged. And with a view to answering this, in Chapter One, the environmental crisis is discussed at length. The idea of the environmental crisis first found articulation in the Western world in the 1960s, and its entry into the realm of public concern can arguably be tied to Rachel Carson’s evocative text *Silent Spring*, which reported on the destructive effects of the pesticide DDT on the natural environment, and relatedly, on human beings. In addition, a number of environmental disasters in the latter part of this decade, in conjunction with the emergence of the first photos of the earth from space – all of which were chronicled extensively by the mass media of the time – saw pro-environmental discourse become a major talking point across society. In turn, this expansion of environmental awareness prompted the demand for institutional responses, and from the 1970s onward, national and international policy-makers began to explicitly acknowledge the severity of the environmental degradation around them, and to thematize the need to address the matter through institutional change. However, despite at least one major multi-national conference per decade from the 1970s onward, such efforts were severely undermined each time; initially, by era-specific geopolitical quandaries related to the Cold War, and later, by the emergence and rise to dominance of the economic discourse of neoliberalism, the principles of which remain largely incongruent with concerns over environmental degradation. And current statistics continue to saliently demonstrate the disastrous effects of this incongruence; indeed, the degradation of nature today is both greater than ever before, and rapidly

increasing in its parameters. Thus, ironically, despite the publicity and legitimacy afforded to the environmental crisis by the mass media, both then and today, the situation is now worse than ever. And even though we are all aware of it, simultaneously, most continue to act as if it does not exist. As will be advanced toward the end of the chapter, this problematic partial amnesia can be accounted for in terms of Kilbourne, Beckmann and Thelen's idea of the Dominant Social Paradigm or DSP, which discursively informs contemporary subjectivity in a way that prejudices it against the natural environment. Furthermore, due to the rise to hegemonic status of neoliberalism since the 1990s, this paradigm is now effectively ubiquitous; a fact which has rendered everyone – from those in unequivocal support of free-market economics to the most vehement social greens and bioenvironmentalists – complicit in at least some or other way with the DSP, not least because of the latter's technological dimension which all rely on for communication.

Secondly, in relation to the above, the question emerged of whether or not one can make use of such technological means – in particular, information technology – to engage with and alter destructive orientations toward the environment. And Chapter Two is a reflection on some of the more immediate challenges to heralding information technology as an agent of remedial change within the context of the environmental crisis. In this regard, as will be discussed, firstly, information technology is inextricably linked with the spread of neoliberal economic discourse and practice, and secondly, it is intertwined with both environmental and social degradation on account of the resources and infrastructure required to keep it operative. However, while the above two issues remain problematic, it is also highly unlikely that contemporary society will abandon its reliance on information technology in the near future. As such, it will be argued that rather than trying to operate against or without reliance on information technology, we should instead attempt to find ways to employ it in a more environmentally benign or positive way. Admittedly, immense caution must be taken here, because as Kilbourne, Beckmann and Thelen rightfully warn in relation to their conception of the DSP, the technological dimension that exists within it is both predicated upon and promotes the idea of, a *technofix*. In short, a belief that technology can always be relied on to save us – albeit from ourselves – at some point, even as we continue to destroy the planet. Accordingly, to avoid falling into the trap of the technofix, it will be argued that a serious philosophical meditation on information technology is crucial. As a first step in this reflection, the chapter will turn to writers such as Dave Toke, Manuel Poitras, Frederick Buell and Vincent Mosco, who place into critical question some of the

more entrenched ideas concerning information technology. Following on from this, the focus will shift to, among others, Martin Lister et al., who problematize the standard Western conception of technology as being separate from, and in opposition to, both culture and nature. And in terms of their argument, the location of human agency as operating within a spectrum that includes technology, nature and culture – which are in themselves in constant interplay with one another – will be thematized. Accordingly, the adoption of a related circumspect approach which acknowledges the complexities involved in any such exchange, and which simultaneously avoids being either too pessimistic, or conversely, too optimistic over technological development, will inform the exploration of the succeeding chapters.

Thirdly, if nature and a concern for it do not automatically exclude technology, and if technology can be considered an indeterminate tool that may be employed either to endorse the status quo or to transform it, then the next question that emerges concerns the direction in which to inflect the technological dimension of the DSP, so that it might precipitate a more positive orientation toward nature. To respond to this a philosophical framework is required, both to guide any new interventions and to recognize resonant existing interventions, and in this regard Chapter Three turns to the writings of the post-structural philosopher Gilles Deleuze and to his collaborative work with the radical psychoanalyst, Félix Guattari, for two reasons. Firstly, Deleuze was a philosopher of difference and desire outside of the ambit of capitalism, which remains a cornerstone of the DSP, and his ideas accordingly allow for a consideration of options beyond the entrenched interests which the DSP endorses. Secondly, Deleuze and Guattari, in their concept of desubjectivation via ‘becoming-animal,’ provide an alternative perspective on the anthropocentrism propagated by the cosmological dimension of the DSP *as* something limited and limiting, but by no means cast in stone. And it is in the interests of elaborating on the potential of their work in the above two respects that key features and concepts of their philosophy will be elaborated upon at this stage.

However, fourthly, the question that next emerges concerns the validity of using Deleuzoguattarian concepts in relation to information technology, to establish a conduit for transformative experience. This is because, while Deleuze promoted heterogeneity against ossified, dogmatic modes of thought, at the end of his career in his “Postscript on Control Societies,” he also advanced digitality as synonymous with and indissociable from new societies of control – which he saw as far more constraining than the disciplinary societies identified earlier by Michel Foucault. Chapter Four accordingly thinks through this obstacle. Firstly, the contemporary theorists who lend support to Deleuze’s relatively pessimistic

assessment of the capacity of the digital to negate the generation of difference, will be considered. Secondly, two valid counterweights – one from Deleuze himself, and one from his long-time collaborator Guattari – will be thematized. That is, although Deleuze never developed the idea significantly, when asked about how the hegemony of a digital society of control could be resisted, he responded by advancing the idea of counter-information. And he furthermore suggested that viral contamination and piracy constituted two forms of such counter-information. With a view to exploring this, the ideas of a number of contemporary theorists who make use of Deleuze's idea of viral contamination to argue that digital control is not all-encompassing, will be thematized, along with their elaboration on the counter-information of error within digital code and in institutional response to new digital practices. After this, and because of Deleuze's admittedly laconic discussion of counter-information, the individual works of Deleuze's long-time co-author, Guattari, will be turned to for further elaboration on the concept, particularly via his concept of post-media, which moreover entails a more optimistic elaboration on the capacity of digital artefacts and practices to precipitate difference. That is, drawing on their extensive co-authored body of work, Guattari provides a careful and compelling case as to why we should not dismiss the potential of the digital to produce *new* connections, and both his related ideas, and how they have been supported – both explicitly and implicitly – by a number of contemporary theorists, will be discussed at this point.

Yet, fifthly, a further and deeper question that emerges concerns the capacity of counter-information to generate difference in the absence of the durationality so important for Deleuze in this regard. That is, despite elaboration within the writings of contemporary theorists, and through the insights of Guattari, on what Deleuze meant when he spoke of counter-information, to ignore Deleuze's insistence that *duration* is inextricably linked with *difference*, is a problematic oversight. This is because it displaces a key point of his reflection on digital technology, namely that counter-information can be identified by its efficacy, but that this efficacy is relative to its advancement of a different time; the reflective time of duration incompatible with the hyper-rapid time of information. And in the absence of such durationality only a superficial – and ineffective – application of Deleuzoguattarian concepts to the realm of the digital is possible. In the interest of responding to this issue, in Chapter Five, the initial focus falls on the durational component of Deleuze's idea of difference. And it will be argued that this component is built up by Deleuze through his writings on Nietzsche, Bergson and Proust, and furthermore, explicitly dealt with in his own *Difference*

and Repetition in relation to Nietzsche. Thereafter, the focus shifts to two instances where Deleuze applied his consideration of durational difference to the technological phylum of analog cinema, namely *Cinema 1: The Movement-Image* and *Cinema 2: The Time-Image*. In this regard, how Deleuze sees in the movement- and time-images of cinema an ability to engender difference via technology, through related reflection of and upon duration, will be discussed. Next, the argument thematized by the prominent Deleuzian scholar, David Rodowick, that because the digital involves a different informational ontology, digital cinema – and by extension, other digital artefacts from games to mobile applications – cannot communicate duration, will be engaged with. And after this, the counter arguments of the equally prominent Deleuzian thinkers, Brian Massumi and Ronald Bogue, will be discussed. That is, while Massumi argues that the digital cannot be extricated from its analog context, Bogue points out that the production of non-dogmatic thought and *new* connections is dependent on aesthetic dynamics, before any dependency on technological means through which the aesthetic is produced.

In light of all the previous discussions and arguments, the final questions that emerge concern whether any digital artefacts currently exist that do indeed engender durational intuition, or whether they still only exemplify the limiting machinations of control society. And, if any such artefacts exist, how do they engender durational intuition, and is there conceivable room for improvement in this regard, given the pressing needs of the environmental crisis to which such improvements might constitute a partial response. In the interest of responding to these issues, in Chapter Six, three such digital artefacts will be examined. In order, these are the iconic device of the 1990s, the Tamagotchi, the free-to-play multi-platform adventure game *Botanicula*, and the shark tracking applications *Shark Net*, in conjunction with the more recently launched *Ocearch*. As will be argued, each of these represent a different type of encounter with duration on the part of the user. To begin with, the Tamagotchi effectively wastes its young users' time, using their sincere and innocent affections for their virtual pets as a means by which to coerce them – by threat of its 'death' (or permanent shut down) – to continuously take care of it. To be sure, in this regard the Tamagotchi comprised a seminal moment in terms of digital durational exchange, insofar as its young users saw it as being 'alive.' And it is moreover precisely the generation who grew up with the Tamagotchi who were quick, as adults, to adapt to the various information technology-based phenomena of the twenty-first century – the social media networks, the smart phones, etc. – many of which exemplify and, indeed, make possible and extend, the

dynamics of control society. It is accordingly possible that the little device functioned as a means of facilitating an *intuitive* encounter with the digital on the part of this (and subsequent) generations. But while the Tamagotchi served as a testament to the validity of Deleuze's fears over the capacity of the digital to infiltrate our desires and sensibilities, under the auspices of control society, digital technologies also became far more sophisticated a decade after the birth of this device. And with this, the developers of digital artefacts were increasingly able to express their concerns through this medium – including environmentally-orientated concerns. In this regard, the second digital artefact that will be examined is the 2012-released point-and-click adventure game, *Botanicula*. The most crucial aspect of the game that distinguishes it markedly from the Tamagotchi, with its relentless drive toward keeping itself alive through its demands for attention, is that *Botanicula* is a slow, exploratory progression through a baffling and staggeringly vague natural environment. A world within which the user not only encounters even smaller worlds and creatures, all of whom exist within the main represented natural environment – namely a tree – but also shifts in-between these inter-connected animal life-worlds. Indeed, in many ways, the game resembles a 2012 version of one of the works of a key influence on Deleuze, namely, the biological picture book of the Estonian biosemiotician, Jakob von Uexküll, through which he similarly promoted a proto-becoming-animal, as it were, via his evocative invitation to readers to enter the imaginary *Umwelt* of the myriad creatures who surround them daily, particularly in terms of the experience of difference this entailed. However, while a beautiful – and as will be discussed, a hauntingly nomadic – representation of the complexity of nature, and while also crucially very popular with children as noted in the mass media, the game remains an enclosed system. And this too has a number of limiting ramifications that will be explored. Accordingly, the third digital artefact that will be examined is *Shark Net*, in conjunction with the more recently launched *Ocearch*, and the extent to which they exceed the parameters of *Botanicula* in their generation of durational intuition will be explored. And it will be argued that, through the combined power of a range of technologies, including the digital which serves as the main conduit, digital artefacts no longer need to remain enclosed systems. Rather, individual animals can become an open variable within a digitized schema, in a way that can precipitate the kind of strange durational exchange alluded to in the opening paragraph of this Introduction. But as always, there is conceivable room for improvement in this regard, and after engaging with both the successes and deficits of *Shark Net* and *Ocearch*, related recommendations will be advanced in the Conclusion of this thesis.

In terms of methodology, generally-speaking, a qualitative approach will be employed in this study. The qualitative approach is defined by Creswell as “an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem” (Creswell 1998: 01). Thus, in-depth analysis of data is preferred over the collection of data through quantifiable means (interviews, surveys, etc.). As Trappes-Lomax writes, “qualitative research methods...,designed as they are to deal with the complexities of meaning in social context, are naturalistic (not controlled), observational (not experimental), and more focused on problems of validity than on those of reliability and generalizability.” Accordingly, the data produced tends to be “‘rich [and] deep’ rather than ‘hard and replicable’” (cited in Davies and Elder 2008:141). That is, this study will involve a critical reading of various texts with a view to reflecting upon the discourses operative within them; as such, the method employed in this study will be discourse analysis. This type of approach seeks to “show systematic links between texts, discourse practices, and socio-cultural practices” (cited in Deacon et al. 2008:152). In this regard, “the analysis of discourse is, necessarily, the analysis of language in use. As such, it cannot be restricted to the description of linguistic forms independent of the purposes or functions which these forms are designed to serve in human affairs” (Brown and Yule, 1983: 01). In relation to this, Alba-Juez explains that, “when analysing discourse, researchers are not only concerned with ‘purely’ linguistic facts; they pay equal or more attention to language use in relation to social, political and cultural aspects.” And it is for this reason that “discourse is not only within the interests of linguists,” but also “a field that is...studied by communication scientists, literary critics, philosophers, sociologists, [etc.] and many others” (2009:10). Understandably, because of the qualitative nature of the study, no use will be made of any questionnaires, surveys, focus groups, etc. in terms of data collection, and because no interviews were held, no ethics clearance was necessary for the study.

More specifically, the methodology employed in this study falls under the auspices of “critical hermeneutics.” As Hurst explains when discussing this methodological approach, such research “is committed to identifying the biases, prejudices and distortions which prevent healthy personal and social growth.” Accordingly, this will involve “the use of specific strategies such as ‘discourse analysis’ and ‘critical ethnography’ in an effort to unmask ideologies at work,” and in relation to these findings, to adopt an open-ended and flexible attitude, “which is directed by new developments arising out of the research process itself” (2004:53). In this regard, in particular, the work of Gilles Deleuze and Félix Guattari

will inform this study. That is, through employing Deleuze and Guattari as the major theorists in this project, to a large extent, the trajectory of the study became influenced by the method they used in their own works, which is known as nomadology. Albert Refiti in “A Psychedelic Method: Spatial Exposition, Perspectivism and Bricklaying” – in Engels-Schwarzpaul and Peters’s *Of Other Thoughts: Non-Traditional Ways to the Doctorate* – maintains that, in terms of their nomadological approach, Deleuze and Guattari, “rather than bringing things together under an existing concept, were interested in relating variables according to new concepts to create productive connections” (2013: 30).

The above is of great importance to this study, due to the amorphous and changing nature of information technology. Accordingly, this study explores information technology not by strict delineation, but rather moves inter-changeably between terms such as the internet, network technologies, social media platforms, mobile devices/smartphones, and the digital, among others. This is because, on the one hand, one can try to provide a strict definition for the term ‘information technology,’ as Pelin Aksoy and Laura DeNardis in *Information Technology in Theory* do when they describe “information technologies [as] systems of hardware and/or software that capture, process, exchange, store, and/or present information, using electric, magnetic, and/or electromagnetic energy.” However, on the other hand, as they immediately point out, such a “restrictive definition of IT” already “cuts a wide swath across technical topics ranging from digital cameras to internet radio to corporate computer networks” (2008: 8). Accordingly, in the study of new media, many theorists do not operate in terms of strict delineation in this regard, and a similar flexibility informs this study. However, for the sake of clarity, the most crucial terms will nonetheless be briefly defined. To begin with, digital communication is understood in terms of Robert Heath and Atul Salvekar’s definition in *The Internet Encyclopaedia Volume 1 A-F*, as “the process of conveying digital information from a transmitter to a receiver across an analog channel,” and they furthermore advance that “all aspects of the internet are enabled by digital communication technology” (in Bigdoli 2004: 457). In effect, for the purposes of this study, then, information technology and the digital are construed as inextricably intertwined, because while they may be separated by technical definition, for all practical purposes, they form part of the same development. As such, all related terms, such as those listed above, will fall under the umbrella term information technology, because their existence is only possible through digital communication technology. And related to this are network technologies, which connect the many devices (computers, smartphones, etc.) to IT/digital developments,

such as the internet and the many social media platforms which have become a feature of cyber-space in recent years.

To return specifically to nomadology as a method through which to engage with information technology, as David Cole notes in his “Lost in Data Space: Using Nomadic Analysis to Perform Social Science,” in *Deleuze and Research Methodologies*, nomadology rejects “stable identities, fixed categories and divisions” (in Coleman and Ringrose 2013: 224). And this rejection of the fixity of anything means, as Griet Roets and Rosa Braidotti write in “Nomadology and Subjectivity,” that “nomadology is a political project in which a new subjectivity is created which blurs boundaries and consists in erasing and recomposing the former boundaries between self and others” (in Goodley et al. 2012: 168). This is especially important for this study on account of its exploration of how humans can connect with nature via technology. Indeed, as Craig Lundy writes in *History and Becoming: Deleuze's Philosophy of Creativity*, nomadology, instead of insisting on separation, is about “the following of flows,” or alternatively, “placing oneself within various lines of movement” (2012: n.p.). And through the employment of such a method, two dispositifs, namely neoliberalism and information technology, will be critically engaged with. Andreas Fickers and Catherine Johnson in *Transnational Television History: A Comparative Approach*, provide an excellent example both of what the term dispositif means, and of how it can be challenged. They write – citing Michel Foucault as a major influence in popularizing the term – that it “has its roots in the French language, where it means a ‘system’ or ‘device,’” and that any such system or device can be approached in one of two ways. That is, and in relation to media studies, “generally speaking, two main lines of interpretation can be seen.” On the one hand, one can “emphasiz[e] the normative power of media systems,” or, on the other hand, one can have recourse to “interpretation inspired more by film theory, analysing the triangular communicative relationship between the television set, the channel...and the recipient...against a background of media-specific perception horizons” (2012: 15). In effect, though, it is the latter option which allows for an interpretation that is far more open-ended and resonant with Deleuze’s description of a dispositif, which he calls – as noted by Maria Tamboukou in “Ordinary/Extraordinary: narratives, politics, history” – “a tangle, a multilinear ensemble” (2016: 192). Accordingly, in the following study, the above two dispositifs will be engaged with in the interests of finding within them assemblages not yet enunciated. That is, instead of taking on an oppositional stance to the deeply problematic but also highly productive dispositif of neoliberalism, and rather than veering toward either

technophobia or technophilia in relation to the environmental crisis, the following study will approach both dispositifs as complex phenomena, and in a way that is sensitive to their respective perils and merits.

The study is potentially relevant at both local and global levels, not only because in an increasingly globalized society, information technology has become the primary means through which we access and distribute information of any kind, but also because the environmental crisis is a global phenomenon.

Chapter One – The environmental crisis through the lens of legacy mass media within the context of economic globalization

Introduction

This chapter deals with how the environmental crisis – despite being an issue still disputed by some fringe interest groups – is now ubiquitous in public discourse, where it is ironically advanced as the most pressing and defining issue of the twenty-first century, while at the same time being met with ineffective international responses that often amount to mere symbolic gestures. And such lack of efficacy will, in turn, be accounted for with reference to what Kilbourne, Beckmann and Thelen call the Dominant Social Paradigm, or DSP. In this regard, the paradoxical status of legacy mass media,¹ as a technology that both facilitated popular awareness of environmental problems, while at the same time remaining an indissociable part of the nexus of economic globalization and development that exacerbated such environmental degradation in the first place, will also be thematized.

To begin with, the focus of the chapter will fall on the the work of Rachel Carson, who through her 1962 book, *Silent Spring*, arguably brought environmental concern into the public limelight. But as will be discussed, the success of the book in this regard was because it was coterminous with major instances of environmental degradation that threatened human security; concern over which grew rapidly because of their coverage in the mass media of the time. That is, following Carson’s seminal work, a number of large-scale and visceral environmental disasters received widespread media coverage. Moreover, these were increasingly considered in conjunction with a new perspective of the earth as finite and fragile, facilitated by the famous *Earthrise* photograph taken by the Apollo space mission, and also made available through the mass media. And the related sympathetic public orientation toward the environment, in turn, culminated not only in the best-seller status of a host of books expressing concern over the environment, but also in the creation and celebration of the first Earth Day in 1970.

¹ Legacy mass media, or legacy media, refers to the *old* media before the advent of the internet. This would include traditional mediums such as print, radio, and television (Biagi 2012: 266). It is important to note that new media, or the various digital distribution networks associated with the internet, have not replaced the older mediums, but have rather problematized them. As Andrea Castellet notes in *Emerging Perspectives on the Mobile Content Evolution*, “most of legacy media have regarded [the] internet...with a mixed-feelings approach,” ranging from seeing these “new habits of media consumption” as “new, abundant sources of wealth,” through to “mistrust[ing] the way the full digitalization of content leads to a loss of their former control on distribution via copyright regulations” (2016: 66).

After this, focus will shift to how, on the one hand, this concern continued to gain momentum in the early 1970s, when a broader institutional global response was demanded. And the related efforts of global policymakers to address issues of significant environmental degradation will be thematized. However, on the other hand, although this discussion will cover the major institutional efforts spanning the 1970s, 1980s and 1990s, as well as institutional responses in the new millennium, what clearly emerges is the failure of such responses to effect meaningful change. That is, during each of these time periods, the response by those with institutional power was consistently undermined both by specific problems, and by a common malaise. A malaise that can be significantly attributed to the rise of a neoliberal economic discourse, which began to be established in the early 1970s, and which by the late 1980s had gained such status that it proved impermeable to even the strongest criticism in the mass media.

Next, and against the backdrop of the above tepid institutional response, the continued availability of overwhelming statistical and qualitative evidence that the degradation of the environment has sped up at a dizzying rate, will be thematized. In the interest of exploring this, the chapter will turn to research conducted by a number of well-established and credible international bodies, undertaken in relation to those categories employed by the Environment Statistics Section of the United Nations Statistics Division (UNSD).

Finally, the chapter will conclude by accounting for the failure of such information to catalyse society into a paradigm shift, with reference to Kilbourne, Beckmann and Thelen's concept of the Dominant Social Paradigm or DSP. That is, despite the continuation of overwhelmingly massive environmental degradation, for the most part a distinct lack of urgency – both at global institutional levels and for much of the public at large – continues to characterize responses to the environmental crisis. Indeed, despite becoming a fixture in terms of media coverage, a concerted effort at change has yet to emerge. And this tepid response is arguably best understood in relation to the various aspects of the DSP which have become internalized and ubiquitous.

The mass media and growing popular awareness of the environmental crisis

A term often associated with hyperbole by its critics, and one that correlatively generates fierce passions among its supporters, the 'environmental crisis,' is perhaps better understood as a constellation of potentially serious problems facing the environment as a result of human activity. Although the spectrum of arguments involves a range of often opposing positions

taken in relation to the environment, it is clear today that the crisis has become a mainstream issue, insofar as it is well represented in public discourse – at international institutional levels, in national and local policy, and in the pledges made by various businesses. It is also both extensively covered in the mass media, and reflected in the anxieties put forward by ordinary people across a multiplicity of platforms. However, with a view to understanding the dynamics at play, it is helpful to consider at what point the idea of an environmental crisis entered into mainstream discussion and consideration.

The beginning of the modern environmental movement has been traced back to Rachel Carson's 1962 work, *Silent Spring* (Garrard 2004: 1).² In short, "this book focused international attention on the deadly effects of DDT and other chemical pesticides" and "had a profound influence on the public's attitude toward chemical pollution and environmental protection" (Des Jardins 2006: 3). However, despite the specific focus of Carson's work, it seemed that a more general nerve had been touched by the evocative case made by the impassioned author. As Frederick Buell explains in *From Apocalypse to Way of Life: Environmental Crisis in the American Century*, although Carson's work was "not the first to raise the spectre of imminent human-made environmental crisis," it "had a decisive effect" on account of its evocative articulation of the problem (2003: viii). Similarly, in his account of why *Silent Spring* garnered such immediate and wide-spread response – as opposed to other texts that pursued similar concerns – Greg Garrard in *Ecocriticism* points to Carson's use of "poetic parable" and her reliance "on the literary genres of pastoral and apocalypse, pre-existing ways of imaging the place of humans in nature that may be traced back to sources such as Genesis and Revelations" (2004: 2). Thus, in its recourse to pre-industrial and Christian tropes, Carson's book struck an intuitive and emotive chord among many of its American readers, and the success of the book led to it "making concern about [the] environmental crisis a national issue" with strong spiritual undertones (Buell 2003: viii).³ To

² This consensus is reflected in, among others texts, William Reiner and Jeffrey Lockwood's *Philosophical Foundations for the Practices of Ecology* (2010: 111), Nicholas Hildyard's "Foxes in Charge of the Chickens" in Wolfgang Sachs's *Global Ecology: A New Arena of Political Conflict* (1993: 25), and Jennifer Clapp and Peter Dauvergne's *Paths to a Green World: The Political Economy of the Global Environment* (2005: 48-49).

³ Admittedly, while Carson's book certainly generated wide public interest, theorists such as Roger Scruton take a longer view of the environmental movement. In *How to Think Seriously About the Planet: The Case for an Environmental Conservatism*, Scruton argues that such concern has been long expressed, regardless of political affiliation. He writes that in Britain, "the environmental movement has its roots in the Enlightenment cult of natural beauty and in the nineteenth-century reaction to the Industrial Revolution." He also suggests that across the Atlantic, "American environmentalism incorporates the nature worship of John Muir, the radical individualism of Thoreau, the transcendentalism of Emerson, the 'ecocentrism' of Aldo Leopold and the social conservatism of the Southern Agrarians." Scruton moreover identifies the writings of Allen Tate as an example from the past, and the work of Wendell Berry as a present example (2012: 5-6). Yet, while Scruton's argument

be sure, despite the public interest and support generated by her book, “the scientific community lost no time in attacking Carson in the media, accusing her...of overstating the case against DDT (dichlorodiphenyl-trichloroethane) and other chemicals” (Clapp and Dauvergne 2005: 49). Yet this criticism notwithstanding, Carson’s argument maintained its public legitimacy, and as Des Jardins argues, “after Carson’s work, the long-term consequences to both humans and the natural world, as well as the political and ethical implications of pesticide use, came to the forefront” of popular awareness where they have remained ever since (2006: 4). As such, although addressing a very specific environmental issue, Carson’s work served to catalyse public sentiment, and it is from this point on that a multitude of specific but related environmental issues began to find articulation within the public domain.

To contextualize this achievement further, one needs to bear in mind that the global – and specifically the American – economy following the Second World War experienced a significant boom. That is, fuelled by rapid industrialization coupled with technological advance (particularly in communication and transportation technologies), it grew exponentially, and accordingly, in the global North at least, people’s standard of living measured in consumer terms improved significantly. In relation to such prosperity, at first glance it seems strange that the public took such attention of Carson’s text, which poetically spoke of “a future spring without the songs of birds” (Clapp and Dauvergne 2005: 49). However, this makes sense when one remembers that, as market liberals point out,⁴ when “wealth brings education,” it is often accompanied by “higher expectations” and growing “societal concern over environmental issues” for aesthetic reasons (Clapp and Dauvergne 2006: 93). Moreover, elaborating on the context of the 1960s, Robert Gottlieb recalls how a number of environmental disasters in the United States readily affirmed the warning bells rung by Carson. According to Gottlieb,

environmental crisis seemed to be written for all to see in such disparate events of the late 1960s as the burning of the Cuyahoga River in the center of Cleveland, the

has merit, Carson’s text nevertheless remains exemplary on account of its focused blend of poetics and techno-scientific acumen.

⁴ Denise DeGarmo in *International Environmental Treaties and State Behaviour: Factors Influencing Co-operation*, sums up the market-liberal perspective as relying “heavily on the idea that the best way to protect the global commons is to privatize it.” In this regard, market “liberalism believes there must be an effective equilibrium between the demand of economic development and environmental protection by bringing market forces to bear upon both interests.” As such, market “liberals are wary of environmental regulations that curb market forces or stress the role of the state” (2005:114).

eutrophication of Lake Erie, and the dying birds washed up on the oil-slicked shores of Santa Barbara. (in Buell 2003: viii)

In this regard, Alan Dutka in *Cleveland Calamities: A History of Storm, Fire and Pestilence*, explains that the Cuyahoga River had long been a source of great industrialization and subsequent pollution, because its natural bends and curves provided ideal spots for industry to set up. Furthermore, it had caught fire on a number of occasions due to the high levels of toxic waste it contained (2014: 65-68). Specifically “on June 22, 1969, a patch of the Cuyahoga River below a railroad bridge burst into flames,” dramatically “reaching a height of five stories” and lasting “twenty-six minutes” (2014: 64). Dutka writes that although the story attracted little initial interest in Cleveland, a *Time* magazine story published two months later and accompanied by sensational pictures of a blaze (ironically, not the actual blaze, but one from the same river in 1952), sparked the attention of the nation (2014: 64). In terms of the eutrophication of Lake Erie, the release of pollutants – primarily phosphorous – by industry and mechanized agricultural practice into this relatively shallow lake promoted the rapid proliferation of algae, which subsequently sucked up the available oxygen, killing off other existing life in the water. As a consequence, the stagnant water gave off a putrid smell, which repelled tourists and affected residents, not least because the lake was an important source of water to households in the region and beyond. As such, its “rapid eutrophication” (*Sea Wind* 1991: 8) was cause for serious and immediate concern, and by the late 1960s, the phrase “Lake Erie is dead” started to appear frequently “in national publications” (Rotman 2016: 1). Finally, the case of the dying birds washing up on the beaches of Santa Barbara refers to the 1969 oil spill off that coast, which killed off a significant amount of birdlife there – all of which was captured by television stations and broadcast to shocked viewers (Farmer 2006: 108). Erik Loomis, in *Out of Sight: The Long and Disturbing Story of Corporations Outsourcing Catastrophe*, further notes that this particular incident was met with a massive grassroots fury, and “united citizens of all political persuasions in a truly non-partisan cause” (2015: 30). What is also important to note in relation to these disasters is the role of the communication technologies of the day in spreading the imagery of the impact of environmental negligence. Indeed, as Gary Haq and Alistair Paul point out in their *Environmentalism Since 1945*, “coverage of the 1969 oil slick fire on the Cuyahoga River and the Santa Barbara Channel oil spill were key moments in the growing media coverage of the human impact on the environment” (2012: 77).

Clapp and Dauvergne similarly argue that in conjunction with this growing media focus on the environment, it was only in the 1960s that people began to see “the planet as fragile and interconnected;” a perception “reinforced as pictures of earth from space became more common” (2005: 49). Specifically, the photograph they refer to is the famous *Earthrise* photo taken from lunar orbit by Apollo 8 mission astronaut William Anders on 24 December 1968, which depicts a shot of the earth rising – the first high quality, colour photograph of its kind (Ignatow 2007: 26).⁵ Haq and Paul explain that, “in particular, the view of the Earth for the very first time from space transformed people’s understanding of our place in the universe.” Indeed, “the images of a desolate and lifeless moon contrasted with the blue and white, fertile Earth,” and served as “a stark reminder of humankind’s fragility” that galvanized the nascent environmental movement (2012: 77-78). Robert Poole in *Earthrise: How Man First Saw the Earth* concurs with the above, arguing that the Apollo years, between 1968 and 1972, were responsible for an “eco-renaissance” (2008: 13).

While the above global environmental consciousness was emerging, a number of other developments also had a significant influence on the range of responses to environmental issues. That is, “the early 1960s saw rapid economic growth and greater global integration of trade and investment,” and in this period, global growth rates rose “as high as 5-6 percent” – although this growth was certainly not equally distributed across all regions. Nevertheless, the related emerging global economic infrastructure, “codified by the International Monetary Fund (IMF), the World Bank, and the General Agreement on Tariffs and Trade (GATT),” was seen as the key to growth and success for countries the world over. And it was at this time too that “the wave of decolonization in Asia and Africa” reached its height, with the newly independent countries born of this process entering this codified global arena. But after initial optimism, their belief in the potential benefits of this global system of exchange progressively diminished, not only because their participation did not yield the enormous success that was promised, but also because in many cases it led to a new type of imperialism or colonialism.⁶ In terms of this, the developing countries of the global South became increasingly mired in a cycle in which they served as cheap suppliers of raw material,

⁵ The other equally famous photograph of the earth was taken on 7 December 1972, by members of the Apollo 17 mission and is entitled *The Blue Marble* (Ignatow 2007: 27).

⁶ As Anthony Payne and Paul Sutton in *Dependency Under Challenge: The Political Economy of the Commonwealth Caribbean* argue, “dependency thinking has come to dominate the study of society, politics, and economics in the modern Third World.” Furthermore, they describe dependency theory as “an eclectic body of thought” produced by a “theoretical mingling” of “the structuralist approach developed most prominently by Latin American scholars,” and “the neo-Marxist view of under-development popularised most successfully by Andre Gunder Frank” (1984: 1). Dependency theory has as its core idea the argument that, after independence, the countries of the so-called Third World continue to be exploited by wealthy First World countries.

dictated to by governments and corporate interests housed in the developed countries of the global North (Clapp and Dauvergne 2005: 49).⁷ Although the situation of the countries of the global South undoubtedly allowed the economic interests of the global North to flourish, critical voices capitalizing on an emerging global consciousness – enabled in part by the aforementioned advances in communication and transportation – also pointed out that such an unequal system of exchange could lead to catastrophic environmental consequences. Paul Ehrlich’s bestseller *The Population Bomb* (1968) is an example of one such critical voice. Ehrlich pointed out that it was rapid population growth in “underdeveloped countries (UDCs)” that would begin to affect countries that were far more developed, as the world’s resource base struggled to cater for an exponentially increasing human population (1975: 7-8). And as “40% of the population of the underdeveloped world” was made up of “people under fifteen years” and, as such, not yet in their “reproductive years” (1975: 12), Ehrlich predicted a “population explosion” by the year 2000 – the effects which could not be confined to the underdeveloped countries in question. Clapp and Dauvergne, in their assessment of this iconic work focus on its likening of the Earth to a ship; accordingly, once more utilizing the idea of global inter-connectedness that had gained traction in the 1960s, it was suggested that if one end of the ship were to sink, all on board would be affected to some degree (2005: 49-52). Judging by its bestseller status, environmental concern was at this point not confined to the academy or to fringe interest groups. Rather, the educated middle classes in the global North were making the connections between social injustice and environmental degradation. Indeed, in this regard, Clapp and Dauvergne cite a 1969 *New York Times* article, in which the author discusses how “concern with the environmental crisis [was] sweeping the nation’s campuses, with an intensity that [almost eclipsed] student discontent over the war in Vietnam” (2005: 52).

Accordingly, by the 1970s, and through other popular texts such as *The Limits of Growth* by Meadows et al. in 1972, and E.F. Schumacher’s 1973 work *Small is Beautiful: Economics as if People Mattered*, the environmental question had become firmly established as a key issue that could no longer be marginalized. Buell concurs with this assessment, and

⁷ The terms “developed” and “developing” form part of a highly problematic framework in themselves, and are rooted in the modernization theory contested vigorously by the aforementioned dependency theorists. Very briefly, modernization theory held that, if Third World countries received technological assistance from the West, they would then be able to mimic the successes of these more advanced societies. Besides this already dubious idea, one must also consider that the theory was produced within the shadow of the Cold War, and thus was as much an attempt at legitimating Western involvement in Third World spaces as it was a theoretical position (Berberoglu 1992: 7-9).

advances moreover “that by the 1970s...the...environmental crisis seemed more and more overwhelming.” In this regard, he cites Senator Gaylord Nelson – the originator of the “first Earth Day (1970)” – who claimed that “the environmental crisis ‘was the most critical issue facing mankind,’ making ‘Vietnam, nuclear war, hunger, decaying cities, and all the other major problems one could name...relatively insignificant by comparison.’” However, such explicit concern, although widespread during this period, did not result in co-ordinated pro-environmental strategies and remedial actions. Rather, Buell describes the concern over the environmental crisis exhibited by the likes of Nelson, as simply “part of the post-war environmental movement that Carson helped inaugurate and [which] the 1970 Earth Day helped celebrate and consolidate.” And he lists a number of analogous examples of “utopian enthusiasm and optimistic reformism [that] overshadowed [the] environmental apocalypticism” exhibited above. In terms of this, “people committed themselves to a wide variety of causes, such as ‘ecology,’ green lifestyles, back-to-the-land movements, and wilderness appreciation and protection” initiatives. To be sure, these practices did not “nullify concern about [the] crisis; in fact, the two motives intensified each other” in that “new perceptions of nature’s potentially irreversible deformation intensified people’s impulses to experience, protect, and cherish nature and work to ensure a viable future for human society” (2003: viii). But, as will be discussed next, the scale of the problem required a global response in the form of a paradigm shift which was simply not forthcoming, despite consistent criticism of the related malaise in the mass media.

Institutional responses to the environmental crisis

After it became an issue of popular debate, the problem of environmental degradation began to gain significant attention within the ambit of domestic and international governance, particularly in the 1970s. This was not least because, from the 1970s onward, the modern environmental movement – having brought attention to various environmental crises – began to operate in relation to decisions taken by national and/or international leaders which affected the environment. Correlatively, from the 1970s onward, global policy-makers began to meet on various occasions in an attempt to tackle matters of environmental concern. In many respects, the main periods of institutional response can be identified as corresponding to the Stockholm Conference of the 1970s, the Brundtland Report of the 1980s, the Earth Summit of the 1990s, the Johannesburg Summit of 2002, the UNCSD conference of 2012, and the related global meetings held recently in Paris in 2015.

However, the first global-level conference on the environment, namely the United Nations Conference on the Human Environment held in Stockholm in 1972, set the sombre tone for future institutional attempts to address, in a meaningful manner, issues relating to the environment. This was because the incremental improvements penned were offset by conflicting politico-economic contextual factors. That is, while economic reform as a crucial aspect of addressing environmental degradation became part of the debate, commitment to such change was in short supply (Carroll: 1988: 4), and thus this global-level discussion – like many others in the decades to come – became little more than an exercise in artifice and superficial commitment (Varfis 2009: 110). Indeed, even at this stage it was apparent that the underlying principles of neoliberal capitalism clearly clashed with responsible earth stewardship, specifically because of this economic paradigm’s demand for constant growth. This particular form of capitalism, which began to gain momentum in the late 1970s and 1980s (Klein 2007: 253), differed from applications of capitalist economic thought in previous decades. In this regard, according to Campbell and Pederson, neoliberalism can be defined as a

heterogeneous set of institutions consisting of various ideas, social and economic policies, and ways of organizing political and economic activity. Ideally, it includes formal institutions, such as minimalist welfare state, taxation and business regulation programs; flexible labour markets and decentralized capital-labour relations unencumbered by strong unions and collective bargaining...[and characterized by] international capital mobility. It includes institutionalized normative principles favouring free-market solutions to economic problems, rather than bargaining or indicative planning, and [entails] a dedication to controlling inflation even at the expense of full employment. (2001: 5)⁸

David Harvey, in his 2004 Hettner-Lecture entitled “Spaces of neoliberalization: towards a theory of uneven geographical development,” provides a succinct historical account of its emergence. He writes that in the 1950s and 1960s, “the social democratic state in Europe and the Keynesian compromise that grounded the social contract between capital and labour in

⁸ For their part, Clapp and Dauvergne define neoliberal economic policy during the 1970s and beyond as one which “called for deregulation, stressing the need for free and open markets as the best way to organize an economy.” It moreover “advocated liberalization of trade, investment, and financial policies as a way of integrating the global economy,” in the interest of “stimulating economic growth” (2005: 59).

the US,”⁹ continued to work well and resulted in decades of growth. However, by the end of the 1960s, this situation “began to break down, both internationally and within domestic economies.” Indeed, Harvey argues that by 1973, “even before events such as the “OPEC oil embargo[,] signs of a serious crisis of capital accumulation were everywhere apparent, ushering in a global phase of stagflation, [and the] fiscal crises of various states” (2004: 10). And while the left sought to deepen state control in order to combat such crises, the right argued for better and more open conditions for active capital accumulation. Harvey argues that it was the inefficiency of the left’s proposals, as well as the near-simultaneous awarding of Nobel prizes for two proponents of neoliberal economics – namely Friedrich Hayek (1974) and Milton Friedman (1976) – which led to neoliberal economic thought being turned to as a potential saviour (2004: 11). In addition, the 1980s also saw the beginning of the collapse of the Soviet Union, along with its economic system of organization. Accordingly, after “the end of the Cold War” in 1991, “free-market capitalism as an economic ideology triumphed in much of the world, including China, Russia, and the less-developed regions.” And this triumph saw the “expansion of TNCs,¹⁰ the rapid movement of investments, the shifting of jobs and industries ‘off shore,’ the proliferation of global networks of production and distribution,” and “the emergence of ‘world cities,’ all underpinned by subscription to the ‘mass consumerism’ required to power constant trade and consumption” (Mansbach and Rafferty 2008: 744-745).

The conference in Stockholm took place in the early years of the above historical sequence, and a first point of concern was its lack of inclusiveness, as Russia and its Eastern Bloc satellite states boycotted the discussions because East Germany – at that point not a UN member – was not allowed to participate. Consequently, the nascent neoliberal stance detailed above wielded immense influence. Admittedly, 113 countries sent delegates to the conference, with developing countries calling for “economic reforms as part of efforts to solve global environmental problems.” In fact, the organizers of the conference were at pains to present at least a veneer of inclusiveness in relation to the developing countries, with the conference being preceded by a 1971 meeting in Founex, Switzerland, in which development

⁹ Based on the 1930’s ideas of British economist John Maynard Keynes (Mansbach and Rafferty 2008: 519), Keynesianism, in principle, advocates a mixed economy in which the private sector is promoted, but with the State having a key role to play, particularly in times of economic difficulty (Clarke 1988: 151, Togati 2006: 85). In the 1950s and 1960s, both the US economy and the social democratic states of Europe, operated under principles that, to different degrees, could be considered Keynesian. Of course, as Togati points out, Keynesian principles greatly complexified and became issues of fierce debate after 1960 (2006: 202).

¹⁰ In *Introduction to Global Politics*, Mansbach and Rafferty define TNCs (or transnational corporations) as “economic enterprises with operations in two or more countries” (2008: 499). Significantly, they are often named as key agents in the degradation of the environment.

experts and scientists from the developing world met to discuss links between environmental degradation and development. Yet, despite these gestures, “no real remedies were offered” beyond the creation of “soft international law” that did not “legally bind the signatory states” (Clapp and Dauvergne 2005: 55-56). While the conference did signal major concern over the global environment, the lack of adequate response, and furthermore, the economic turmoil generated by the Organization of the Petroleum Exporting Countries (OPEC) crisis in 1973-4,¹¹ meant that such turbulence relegated the environmental crisis to a secondary issue. For example, Roy Nersesian in *Energy for the 21st Century: A Comprehensive Guide to Conventional and Alternative Sources*, writes that in the United States, “congress set an interesting precedent by overriding environmental concerns in the wake of the 1973 oil crisis,” when they “authorized the construction of a 800-miles long pipeline,” from “Alaska to Valdez,” with the result that “Alaskan oil began flowing in 1977” (2010: 161).

In turn, this turmoil was exacerbated in the 1980s when a number of developing countries, beginning with Mexico, began to default on their international debts – a knock-on effect of rising interest rates stemming from the above mentioned OPEC oil crisis. This also coincided with relatively strong economic performance by the countries of the global North, whose recovery was accounted for in terms of their adoption of neoliberal economic practices; an idea which further endorsed the legitimacy of related economic policy. The 1980s thus became, as Ulrike Schuerkens notes in *Globalization and Transformations of Social Inequality*, the decade when “market accomplishment came to dominate socio-economic thought” (2010: 11). Thus, the acceptance of neoliberal economic principles formed the context within which the 1984 Brundtland Commission took place. In relation to this, Wolfgang Sachs in his “Global Ecology and the Shadow of Development,” argues that the commission changed the discourse surrounding global environmentalism significantly. Referencing Rachel Carson’s *Silent Spring* as a starting point, Sachs points out that at the time of Carson’s writing, “development was understood to inflict injuries on people and nature.” In contrast, and as evinced by the Brundtland Report’s ironic theme of sustainable development, by the 1980s “development [had] come to be seen as a therapy for the injuries caused by development” (1993: 9). Clapp and Dauvergne reiterate this point, arguing that the

¹¹ The OPEC crisis began when the members of the Organization of Arab Petroleum Exporting Countries, as well as Egypt and Syria, declared an embargo on the export of oil to the West as a protest against American support of Israel in the Yom Kippur War (Yergin 2008: 597; Lenczowski 1990: 130). The result of this was that “oil prices rocketed,” leading to “long lines at US gas pumps and economic downturn.” On a more implicit level, the OPEC oil embargo “underscore[d] US and western European oil dependence” (Hixson 2016: 322), which led to the search for alternative sources of oil in Alaska and in the increased extraction of “North Sea crude” (Skeet 1988: 140).

Brundtland definition of sustainable development effectively saw the creation of “a concept that secure[d] the hegemony of a coalition of the moderate market liberal and institutionalists’ views of environmental management within the global community” (2005: 61).¹² Thus, while commitment to a globally acknowledged environmental crisis may have been weakened by economic instability in the 1970s, by the 1980s a concerted effort to subordinate environmental concerns to neoliberal economic dictates was evident.

The next major event to be held concerning the environment was the UN Conference on the Environment and Development (UNCED), held in Rio de Janeiro in 1992, and popularly known as the Earth Summit. But again, by the early 1990s, a series of political and economic developments had occurred which scuppered the chance of a wide-ranging and effective outcome of the conference. Firstly, it must be noted that the Eastern Bloc had by then collapsed so that it no longer comprised a powerful alternative voice to neoliberalism. Accordingly, the North-South divide became further entrenched because the East-West axis ceased to function as a politico-economic reality that determined how global politics was understood (Bowker and Brown 1993:76). Secondly, economic globalization was accelerating rapidly due to technological advances (particularly in information technologies), and thirdly, despite the ensuing greater economic inter-connectedness, the Third World countries of the global South remained in the throes of a debt crisis – unable to repay loans taken from Northern institutions partly on account of fast-increasing interest (Jackson 1990:124). Understandably, within such a turbulent climate, the Earth Summit failed to yield any significant consensus on tackling issues of global environmental concern. Yet the above notwithstanding, several encouraging trends did emerge during the Rio de Janeiro proceedings (Cass 2006:93), and Carolyn Merchant in *Radical Ecology: The Search for a Liveable World*, discusses some of these more positive developments – which happened in spite of, rather than as a result of, the conference. Merchant writes that “a major effort to coordinate Greens worldwide began...at the Earth Summit” (2005: 180), enabling the movement to grow and thus provide – despite theoretical divisions – a counter-weight to the neoliberal view represented by the major institutional players involved. A crucial part of this effort, and one of the more encouraging developments in relation to the conference, was the

¹² Unlike the market liberal perspective on the environment, the institutionalists argue for, as Richard Scott explains in “Organizations and the Natural Environment: Evolving Models,” inter-governmental organizations to be involved in regulating destructive environmental practices through a “broad array of control mechanisms.” Importantly, though, these “regulators do not enjoy a monopoly over influence and control” (Scott 2002: 457) and as will be further demonstrated, their reliance on co-operation, as well as their balancing of competing interests, often renders them incapable of producing meaningful change.

emergence of a strong women's movement in support of the environment. In this regard, Merchant explains that "the...Earth Summit" comprised "a watershed in which women's roles in environment and development moved from peripheral add-ins to centre stage" (2005: 219). Nicholas Hildyard in "Foxes in Charge of Chickens," articulates these successes in analogous terms, when he writes that

for many environmental groups...the Summit was a success: careers [had] been made, credibility achieved (some even having seats on government delegations) and their concerns [were] no longer marginalized. They [were] now regarded as major players themselves. (1993: 22)

But this success did not significantly undermine the neoliberal discourse espoused by corporate and governmental representatives. As Hildyard advances, "for the major players, the Earth Summit was a phenomenal success;" for instance, "the World Bank [not only] emerged with its development policies intact but [also] with control of an expanded Global Environmental Facility (GEF)," while "the corporate sector, which throughout the UNCED process enjoyed special access to the Secretariat, also got what it wanted: the final documents not only treated TNCs with kid gloves but extolled them as key actors in the 'battle to save the planet'" (1993: 22).¹³ Clapp and Dauvergne confirm Hildyard's viewpoint, arguing that, like in previous conferences, very few pro-environment assertions were legally binding, such that many pledges to reform remained disingenuous. Moreover, in relation to the adoption of soft law, they also explain that although "Agenda 21, a 300-page action program to promote sustainable development, was...adopted," the financial commitment to facilitate its implementation was less forthcoming. That is, the implementation of the program was estimated to cost US\$ 625 billion, and besides a very small percentage of this total being pledged at the Rio de Janeiro conference itself, "developed countries were asked to cover just US\$ 125 billion" (2005: 65), or 20 percent of the total cost of implementation. Thus, the conference's commitment to "Brundtland-style solutions," as well as its half-hearted application of even these solutions, suggest that the pattern of environmental concern being subordinate to economic interest remained, despite a more cogent and better co-ordinated

¹³ Ironically, as Saidul Islam in *Development, Power, and The Environment: Neoliberal Paradox in the Age of Vulnerability* notes, "TNCs are driven by profit motives, and their growth imperative results in increased demands on the extraction of resources, often contributing directly or indirectly to environmental degradation" (2013: 15).

pro-environmental opposition having formed. Indeed, while “UNCED did achieve some notable successes, especially in terms of raising environmental awareness among the general public in both the North and South” (Clapp and Dauvergne 2005:66), this success could also be considered negligible in relation to the lack of sincere financial commitment involved.

Considering the results of the above three global conferences on the environment, little more was expected from the first major conference in the new millennium, namely the 2002 World Summit on Sustainable Development held in Johannesburg, and accordingly little more was delivered. As with previous global meetings, official documents were created, and in particular a far less ambitious environmental program called “The Plan of Action, a sixty-five page document,” was adopted. Yet, with the focus remaining on sustainable development, at the same time new instruments were developed through which this concept could be better implemented. These instruments – referred to as “Type II – Type I” agreements – proposed more co-operation between the public and private sectors, or in other words, between “governments, NGOs, and business.” As “voluntary agreements,” commitment to such co-operation was not enforced, but the aim was “to encourage the transfer of funds and technology to areas of critical need” (Clapp and Dauvergne 2005: 69). In her explanation of the Johannesburg summit, Karin Mickelson in “The Stockholm Conference and the Creation of the South-North Divide in International Environmental Law and Policy,” demonstrates that the pragmatic (and correspondingly less ambitious) focus of the conference came under fierce criticism from various environmental and social groups. And she writes that many “lamented the missed opportunity to strengthen or deepen existing [environmental] commitments.” As an example, she cites the reaction of Friends of the Earth International, who reacted by proclaiming that the Johannesburg Summit “barely begins to deal with the scale of the problems the worlds faces,” and accusing the delegates of the “betrayal of hundreds of millions” of people. Indeed, they damningly concluded that “governments [had] failed to set the necessary social and ecological limits to economic globalisation” (2015: 65). However, although opposition voices were able to present effective cases against the manner in which the environmental crisis was being tackled, “the overall dominance of the views of market liberals and institutionalists in the official proceedings” ensured that such arguments became marginalized as “talk,” which was not allowed to percolate into the official resolutions taken (Clapp and Dauvergne 2005: 69).¹⁴ Des Jardins,

¹⁴ Gill Seyfang in *Citizenship, Environment, Economy*, further adds that “this perspective on sustainable consumption has become widely adopted by governments” the world over (in Dobson and Saiz 2005:140). In many respects, the institutionalist perspective does not radically differ from that of the market liberals, apart

writing on Mark Sagoff's *The Economy of the Earth*,¹⁵ argues that, for Sagoff, such marginalization is the result of a fundamental error in thinking, whereby “economic analysis [is used as] the dominant tool of environmental policymakers” (2006: 62). He sums up Sagoff's position as follows:

Sagoff reminds us that when environmentalists argue that we ought to preserve a national forest for its aesthetic or symbolic meaning, they are not merely expressing a personal want. They are stating a conviction about a public good that should be accepted or rejected by others on the basis of reasons, not on the basis of who is willing to pay for that public good. Because economics has no way to factor them into its analysis, beliefs and convictions are either ignored or treated as though they were mere wants. (Des Jardins 2006: 63)

Clapp and Dauvergne report that because the summit in “Johannesburg disappointed so many,” the UN subsequently proposed to focus more on “implementation and yearly reviews of progress” instead of large environmental summits (2005: 70). But, despite this proposal, in 2009 the UN General Assembly adopted a resolution “to hold the United Nations Conference on Sustainable Development (UNCSD) in 2012.” This mega-conference, held again in Brazil and more commonly referred to as Rio+20 or Rio 20 (UNCSD, 2011), was preceded by meetings such as the Copenhagen climate change conference in 2009, the Cancun climate change conference in 2010, and the Durban climate change conference of 2011 (COP 15 to COP 17). Yet, notwithstanding the allusion to climate change and the environment in the names of the conferences, an analogous pattern of weak environmental resolutions continued, perpetuating the institutional failure of earlier conferences to contend seriously with the environmental crisis. That is, on the one hand, Ong Suan Ee in *The Diplomat* describes this meeting as “world leaders, government officials, and civil society and private sector representatives seeking the best ways of working toward achieving a global green economy, poverty eradication, and sustainable development.” However, on the other hand, she both notes the initial “considerable pessimism that Rio+20 would amount to anything other than

from its allowance for governmental – but more often global institutional – interference when necessary. In this regard, Martin-Schramm, Spencer and Stivers in *Earth Ethics: A Case Method Approach*, write that “institutionalist...positions share with the free market positions confidence in capitalism,” but “their emphasis on conserving and using resources for the common good tempers a focus solely on individual property rights and freedom from government constraints” (2015: 33).

¹⁵ Sagoff's *Economy of the Earth* was originally published in 1988, and “is a book about social regulation” in relation to the environment. The specific focus for Sagoff is U.S. environmental policy from the 1960s onward (1990: 1-2).

another elite talking shop,” and concludes that “the outcome of this massive multilateral effort appears to have vindicated these gloomy forecasts” (*The Diplomat*, 2012). Similarly, Jonathan Watts in *The Guardian* neatly sums up the now familiar list of criticisms against the summit. Firstly, he observes that while “50 000 participants from civil society and business groups” were expected to attend, certain economically influential countries such as the US, the UK, and Germany did not send their national leaders to the event – which indicated their limited commitment to addressing the crisis. Secondly, he points out that while “Rio+20 [was] much bigger than its predecessor,...it [was] also... criticised for being vaguer and less ambitious,” opting for “shared principles” as opposed to “any legally binding treaties.” Thirdly, as with previous conferences, Watts suggests that a number of deep political divisions, “particularly between developed and developing countries,” scuppered any major chance of a concerted universal response to the severe environmental problems facing us all. And he specifically emphasizes that, despite the same pattern playing itself out – namely that of a non-committal and non-universal response to the crisis – the world’s environment has not held constant, but has rather “continued to deteriorate.” Some of his citations in this regard include the Living Planet report of the time, which indicates that global demand for natural resources had doubled from the period 1996 to 2012, and that in relation to this, such demand was 50% higher than the regenerative capacity of the planet. Beyond this, Watts also points to a 40% increase in carbon emissions over a twenty year period (1992-2012), as well as rapid biodiversity loss and undernourishment for one in six people on the planet (*The Guardian*, 2012).

Subsequent institutional response to the crisis, however, remained limited, as evinced by the UN climate change conference in Paris, which commenced on 30 November 2015. Once more, despite the exponential degradation of the natural world underway, the theme of these multi-lateral meetings was consistent with its predecessors. Although it is not within the ambit of this chapter to chronicle it exhaustively, the sentiments of French President Francois Hollande perhaps best sum up the under-whelming response to the environmental crisis, which has moreover been recognised since the 1960s. In short, Hollande “ruefully acknowledged the difficulty of coming up with...an agreement...on limiting greenhouse gases that would involve both developed and developing countries,” pointing out that “a miracle” would be needed in order to achieve consensus among the 196 countries represented at the conference (*The Guardian*, 2015). It should also be noted that the 13 November 2015 terror attacks on Paris by Islamic State of Iraq and Syria (ISIS) militants, which killed 130

people, shifted the focus of the meeting from the chronic issue of climate change to immediate security concerns. And this despite the appeals of world leaders, most notably U.S. president Barack Obama, not to lose sight of the importance of climate-related discussions in the wake of the horrific terrorist attack (*The Telegraph* 2015, *France 24* 2015). Consequently, the media continued to question the ability of global leaders to come up with a legally binding solution, as the Paris conference effectively continued the trend of weak resolutions passed in previous conferences. For instance, Ivo Vegter, writing for South Africa's *Daily Maverick*, contends that what the Paris talk participants "have in mind this time is a non-binding agreement among member countries to try to meet a set of self-established emissions targets," and that "if that sounds like weak tea, it is" (*Daily Maverick*, 2015).¹⁶ While such criticism is validated by a history of ineffective and muddled responses, continued inertia with regard to combatting environmental degradation is not an option as Naomi Klein reminds us in *This Changes Everything*. She writes, "We know that if we continue on our current path...climate change will change everything about our world." And part of this change, in her view, includes "a very high chance that our children will spend a great deal of their lives fleeing and recovering from vicious storms and extreme droughts" (2014: 4).

The parameters of environmental degradation today

Although calculations vary according to the source consulted, there appears to be a broad agreement in terms of data sets published that the degradation of the environment is a consistent, significant and irrefutable occurrence. The Environment Statistics Section of the United Nations Statistics Division (UNSD) defines its work as disseminating "global environment statistics on ten indicator themes compiled from a wide range of data sources." And the ten themes it advances are, in order: (1) air and climate, (2) biodiversity, (3) energy and minerals, (4) forests, (5) governance, (6) inland water resources, (7) land and agriculture, (8) marine and coastal areas, (9) natural disasters, and (10) waste. According to the UNSD, the various "indicator tables, charts, and maps" are of "relatively good quality and coverage across countries," and furthermore, the information they provide is linked to "other international sources." Admittedly, it is acknowledged by the UN that because "environmental statistics is still at an early stage of development in many countries," the data

¹⁶ Although Vegter is well known for his contrarian style of writing and often provocative claims (such as his acute scepticism regarding climate change), he was certainly correct in this instance when he tapped into the general feeling that the Paris talks, like all those that came before it, comprised an exercise in preening and, ultimately, futility.

may at times be “sparse,” and that accordingly, the “UNSD is not responsible for the quality, completeness/availability, and validity of the data” (UNSD, 2015). Consequently, while the discussion that follows draws on the ten categories through which this particular set of information is presented, it also makes use of, among others, data published by the Intergovernmental Panel on Climate Change (IPCC), which was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 (IPCC, 2015). Additionally it makes use of information sourced from the International Environmental Data Rescue Organization (IEDRO), Greenpeace International, and the WWF (IEDRO, 2015; Greenpeace, 2015; WWF, 2015).¹⁷ Also, for the purpose of narrowing down a vast set of numbers, the following discussion includes recourse to *The World Counts*,¹⁸ which sources its information from the organizations listed above – as well as others – and compiles visual algorithmic representations of the issues at hand. Additionally, information presented by The World Resources Institute (WRI) website,¹⁹ which sources its information from similar data sources, will also be referred to.

¹⁷ Dave Toke in *Green Politics and Neo-Liberalism*, makes an important point that should be strongly emphasized when considering the data from organizations such as the UNSD and the IPCC. He argues that often the collection of scientific information on matters of the environment has problematic dynamics attached to it. This is because, “even within the scientific community itself there are examples of how centralised expert, ‘hi-tech’ knowledge is given widespread credence over that derived by scientists through their own experience.” And the example he provides in support of such an assertion relates to the time just before the 1997 Kyoto Conference, in which “international agreements to limit greenhouse gases” were being debated. In this particular instance, it was NASA who “announced that its satellites had detected no significant global warming since it started measuring at the end of the 1970s.” This was in direct contradiction to “ground and sea-based measurements garnered from instruments which had been used consistently for many years.” In the battle between the two conflicting sets of data, it was the latter which lost, after being derided “for their inferiority as low tech, and [construed as] unreliable...compared to the satellites.” However, due to “unforeseen orbital degradations and [other] inconsistencies,” the work of the satellites later became invalidated on scientific grounds. For policy-makers, especially those who opposed “international agreements to cut carbon dioxide emissions,” the satellite failure proved that no such cuts should be made based on the unreliability of the satellite data. Completely ignored in this decision was the very consistent and compelling information provided by the aforementioned ground and sea-based measurements. Toke explains this “over-reliance on ‘hi-tech’ methods as an example of “what Marglin...calls the deference (inherent in the practices of modernity) given to what is called ‘episteme’ – knowledge of the expert – over ‘techné,’ the technical knowledge of the labourer” (2000: 169-170). Indeed, first-hand knowledge and experience, backed up by proven scientific method, is often sacrificed on the altar of supposedly improved, yet distant or entirely removed, technology. Therefore, when looking at the various figures quoted in this section, we should consider that the details could easily fall into question. What is undisputable, however, regardless of method or technological orientation, is that a consistent message emerges from the data set accessed – and that is one of consistent environmental degradation.

¹⁸ *The World Counts* website source their data from “a large number of respected organisations, research institutions, news services, etc.” This information is then “made ‘live’ through different algorithms, depending on the type of counter and the projections made.” Their website further notes that they use data “selectively” instead of “exhaustively” and apply “the precautionary principle” in the creation of their constantly updated projections. In other words, their recourse to this principle implies that they take “a prudent stance” in their projection of numbers. They are not a research institute, but rather a collator of environmentally-orientated data, and are based in Copenhagen, Denmark (*The World Counts*, 2015).

¹⁹ The World Resources Institute, or WRI, describes itself as “a global research organization that spans more than 50 countries, with offices in Brazil, China, Europe, India, Indonesia, and the United States” (WRI, 2015). It

In terms of the first UNSD category, namely air and climate information, the WRI states that “stabilizing the global climate is the greatest challenge of the 21st century,” but that this is difficult because due to our energy consumption, “temperatures have exceeded global annual averages for 38 consecutive years” (WRI, 2015). With regard to this, *The World Counts* calculates that the world uses “over 500 million terajoules of energy in one year,” with the current figure for 2015 standing at just over “481 million terajoules.” Problematically, “81%” of this energy comes from “the burning of fossil fuels (oil, coal, and gas),” with the demand for energy projected to rise by “35% between 2011 and 2035.” And as a result of the burning of these fuels for ever-increasing energy needs, harmful emissions have increased in volume. For instance, it is estimated that “the world emits 33 billion tons of CO₂ per year,” and that other, even more dangerous emissions are estimated to increase by up to 34% by 2030, which would “correspond to a total of 57 billion tons of CO₂” released per year. One of the effects of this high level of energy use and subsequent emission is the changing of climates, and this, as well as other factors such as over-consumption, deforestation, the destruction of coral reefs, etc., has led to a major loss in terms of species on the planet. Indeed, considered under the second UNSD category, *The World Counts* estimates that in 2015 alone, just under 121, 000 species became extinct – this translates to “1 [unique species] every 5 minutes.” While historically, species have always come and gone, “the current rate of extinction is up to 10,000 times higher than the average historical extinction rates.” In terms of the third UNSD category outlined, namely energy and minerals, *The World Counts* section on the environmental effects of mining calculates that, as of December 2015, almost 36.6 billion tons of resources were mined from the earth, and that apart from the vast energy consumption required to power this industry, a vast amount of waste has also been generated – 6.9 trillion tons of waste from gold mining alone, and 83.7 billion tons of waste water produced in the steel mining sector. Additionally, the “production of mined metal commodities is expected to increase by 250 percent by 2030.” Relatedly, the fourth UNSD category, forests, are also in jeopardy, with the WRI reporting that “despite decreased deforestation rates in some regions, forest ecosystems are still under great threat.” According to their research, “30 percent of global forest cover has been cleared, while another 20 percent has been degraded. Most of the rest has been fragmented, leaving only about 15 percent intact” (WRI, 2015). *The World Counts*, for its part, estimates that “130,000 square

was chosen specifically because of its corporate orientation, in order to ensure as broad a spectrum of voices as possible. In this regard, it is most telling that an institute such as the WRI identifies similar worries to those posed by, for instance, environmental thinkers such as Dave Toke, albeit with different interests at stake.

kilometres of forests are cut down or burned every year,” which is equivalent to 3 times the area of Denmark, a football field every 1.4 seconds, or 100 large harvesters working non-stop.” And in turn, this loss of forest – the 33% of global wild forest left – leads to “desertification, loss of species, and contributes to global warming.” In terms of the fifth UNSD category, governance, the WRI point out that the legal rights of people affected directly or indirectly by developments such as those discussed above, are often difficult to defend, especially when they entail conflict with governments and multinational corporations whose interests clash with those of the locals and their claims to self-determination. The WRI notes in particular that “fair and effective governance is critical to ensuring that development projects benefit people and the planet.” However, “in many regions around the world, communities are regularly subjected to environmental and social injustices,” and they attribute such injustice to “inadequate or non-existent Freedom of Information laws” in many countries, especially poorer ones. Accordingly, these “leave communities without a say in the development decisions that directly impact them – such as [the] approval of dams, highways, and oil and gas exploration.” Additionally, “weak property rights can result in impoverished people losing access to the land and natural resources they rely on for their livelihoods.” A situation which is compounded by the way in which “the impacts of climate change disproportionately affect the world’s impoverished communities” (WRI, 2015). The Global Policy Forum concurs with such appraisal of the situation,²⁰ noting that resources such as diamonds, oil and natural gas, water, timber, and other minerals such as cobalt, coltan, copper, and uranium, all tend to fuel the destabilization of local communities, particularly within less developed regions (GPF, 2015). With regard to the sixth UNSD category, inland water resources, *The World Counts* has a number of distressing statistics collated on the matter. They state that, as a first point, it should be considered that “freshwater on the planet amounts to only 3 percent of all water” available, and that of this, “less than 1 percent...is ready for human use.” Accordingly, water is becoming a scarce resource, and with an ever-growing population, its scarcity will become an even more problematic issue in the future – especially if one considers that “1.4 billion people already live in areas that are simply running out of water.” The World Resources Institute further estimates that by 2025, as many as 3.5 billion people could experience the impacts of water scarcity (WRI, 2015). The seventh UNSD category, land and agriculture, has already been discussed to some extent in terms of

²⁰ The Global Policy Forum describes itself as “an independent policy watchdog that monitors the work of the United Nations and scrutinizes global policymaking.” It was founded in 1993 “by a group of fourteen progressive scholars and activists” whose work is orientated around an “holistic approach, linking peace and security with economic justice and human development” (GPF, 2015).

forest loss, desertification, governance, and so on. Yet what must also be considered is the ethical use of land in response to a burgeoning world population, not least because, as The World Resources Institute estimates, the world “is projected to hold 9.6 billion people by 2050.” And on account of this, “the world will have to close a gap of nearly 70 percent between the amount of food available today and that required by 2050.” But to do so, “it must reduce agriculture’s impact on climate, ecosystems, and water. And it needs to ensure that agriculture supports inclusive economic and social development;” a trajectory which at present is far from being followed. In terms of the eighth UNSD category, marine and coastal areas, the statistics collected by *The World Counts* are grim. For instance, it is estimated that in approximately 32 years from December 2015, there may be no sea life left for us to fish due to current rates of massive over-consumption. That is, although “oceans cover 71% of the planet and are home to 80% of life on Earth...they are also fragile ecosystems threatened by massive overfishing and pollution.” And the most damning statistic in terms of the ecological destruction of marine areas points to the fact that “since the onset of industrial fishing in the 1960s, the total biomass of large commercially targeted marine fish species has declined by a staggering 90 percent.” Category nine of the UNSD’s environmental indicators relates to natural disasters, and this is divided into four further sub-categories, namely climatological, geophysical, hydrological, and meteorological disasters. Each of these is tracked in terms of the number of events recorded per country per decade (starting in the 1980s), and across each sub-category there appears to be an increase in such incidents from the 1980s onward. For example, in terms of climatological disasters, a significant number of countries have seen an increase in incidence rate. Indeed, South Africa itself experienced 4 such incidents in the 1980s, 6 in the following decade, and 8 between 2000 and 2009 (UNSTATS, 2010). The tenth and final UNSD category relates to waste. While this has already been covered above in relation to sections such as mining, a few other overall data sets are worth considering. *The World Counts* estimates that “we throw out 50 tons of household waste every second,” which amounts to 37 million tons of electronic waste discarded in 2015 alone. Furthermore, it is calculated that “by 2030 the amount of household waste will almost double to 3000 million tons annually.” Beyond this, “every bag of household waste has produced approximately 70 bags of waste upstream during extraction and production processes” (*The World Counts*, 2015).²¹

²¹ In terms of the information taken from *The World Counts* website, in each instance the following sources are cited. For ‘air and climate,’ the sources used were The European Commission’s EDGAR database, the Netherlands Environmental Assessment Agency, UNSD, the United Nations Framework Convention on Climate

According to Avner de Shalit, two problematic developments constitute important features of the current market-orientated discursive landscape which remains immune to such terrifying facts and figures, and correlatively dead set on pursuing business as usual. That is, in *Why Posterity Matters: Environmental Politics and Future Generations*, he describes the first as the tendency for “the environment” to be “treated by most people as a free commodity,” even though “it is becoming clear (even to politicians) that in the near future we will not be able to use the environment without incurring economic cost.” And secondly, de Shalit points out that “the demand for natural resources, clean air and clean water has been increasing, and will continue to do so,” and he cites a study by the Hudson Institute which estimates that “world energy consumption in 2025 will be 3.4 times greater than it was in the 1980s, and will double itself by 2075” (2005: 3). While the economic cost of using the environment is now acknowledged as a matter of serious concern, the environmental editor of *The Guardian*, George Monbiot, shows clearly how the constant economic growth encouraged by free-market capitalism simply cannot be reconciled with any notion of sustainability. And he thereby accounts for the lack of efficacy of global forums such as the COP 21 talks in Paris, mentioned in the previous section, in terms of the seemingly irreconcilable differences among countries with dissimilar positions and interests. In “Consume More, Conserve More: Sorry, but we can’t just do both,” Monbiot discusses the exalted yet flawed economic principle of decoupling, and subsequently shows that environmental cost is judged through faulty means. As he explains,

We can have it all: that is the promise of our age. We can own every gadget we are capable of imagining – and quite a few that we are not. We can live like monarchs without compromising Earth’s capacity to sustain us. That promise that makes all

Change (UNFCCC), World Energy Outlook, Greenpeace, IEA. For ‘biodiversity,’ the sources used were the World Wildlife Fund (WWF) and the Whole Systems Foundation. For ‘energy and minerals,’ the sources used were the OECD Environmental Outlook to 2030 Report (Page 240), the United States Geological Survey (USGS), and the US National Mining Association. For ‘forests,’ the sources used were the Food and Agriculture Organization of the United Nations’ ‘Deforestation and Net Forest Change Area Report,’ the CDP Forests Program, the FAO’s ‘State of the World’s Forests, 2009’ Report (Page 77), the UNEP Yearbook 2009 (Page 55) and the Forest Stewardship Council. For ‘inland water sources,’ the sources used were the World Water Council’s ‘Virtual Water Trade – Conscious Choices’ Report (Page 7), the IFPRI’s ‘World Water and Food to 2025’ Report (Page 62), the UN’s ‘Human Development Report 2006’ (Pages vi and 14), and the UNEP Yearbook 2009 (Page 50). For ‘marine and coastal areas,’ the sources used were The State of World Fisheries and Aquaculture 2012, the OECD’s ‘Environmental Outlook to 2030’ (Page 329), the UNEP Yearbook 2009 (Page 2), the UN’s ‘Millennium Assessment Report: Ecosystems and Human Well-Being: Biodiversity’ (Page 64) and the Marine Stewardship Council. And finally, for waste, the sources used were Greenpeace’s ‘Incineration Campaign,’ the MBDC (Cradle to cradle framework) and the OECD’s ‘Environmental Outlook to 2030’ report.

this possible is that as economies develop, they become more efficient in their use of resources. In other words, they decouple. (*The Guardian*, 2015)

In particular, he points to two types of decoupling, namely the relative and the absolute, tied to which is the notion of sustainable development that first gained currency as a principle *de jour* in the 1970s and 1980s. According to him, if “relative decoupling means using less stuff with every unit of economic growth,” then “absolute decoupling means a total reduction in the use of resources, even though the economy continues to grow.” Furthermore, Monbiot argues, “almost all economists see decoupling – relative or absolute – [as] an inexorable feature of economic growth.” Yet, while this notion, tied to sustainable development and sitting “at the heart of the climate talks in Paris...and of every other summit on environmental issues,” is dominant, for him it is a thoroughly unfounded one. And by way of substantiation he points to a paper published by the Proceedings of the National Academy of Sciences,²² which disputes the manner in which decoupling is accounted for. In fact, for the authors, “even the relative decoupling” – by far the more realistic and immediate type – “is an artefact of false accounting.” As Monbiot explains, “governments and economists have measured our impacts in a way that seems irrational,” because if one “takes the raw materials we extract in our own countries, adds them to our imports of stuff from other countries, then subtracts our exports,” one ends up with something called “domestic material consumption” (*The Guardian*, 2015). And such accounting practice is highly problematic because, “by measuring only the products shifted from one nation to another, rather than the raw materials needed to create those products, it greatly underestimates the total use of resources by the rich nations.” And he provides an example of this practice when he discusses the effects of the mining sector. He notes:

If ores are mined and processed at home, these raw materials, as well as the machinery and infrastructure used to make finished metal, are included in the domestic material consumption accounts. But if we buy a metal product from abroad, only the weight of the metal is counted. So as mining and manufacturing shift from countries such as the UK and the US to countries like China and India, the rich nations appear to be using fewer resources. (*The Guardian*, 2015)

²² The report cited by Monbiot is entitled “The material footprint of nations,” written by Thomas O. Wiedmann, Heinz Schandlb, Manfred Lenzen, Daniel Moranc, Sangwon Suhf, James West, and Keiichiro Kanemotoc. It is edited by Joan Martínez Alier, from the Autonomous University of Barcelona, Barcelona, Spain, and was accepted by the Editorial Board on August 1, 2013.

In contrast to this, he advances the need for “a more rational measure,” which he calls the “material footprint,” and which “includes all the raw materials an economy uses, wherever they happen to be extracted.” Not only is this a more transparent method of counting for resource use, insofar as it takes account of all raw materials used – both domestic and imported – so that “the apparent improvements in efficiency disappear” (*The Guardian*, 2015). In addition, it facilitates an approximation of the scope of the problem, as outlined by *The World Counts*, WRI, UNSD, and GPF, elaborated upon above. Yet, as much as the ensuing cognisance would be salutary, it remains questionable whether it would be sufficient to effect change, to the point of ushering in a paradigm shift. And more clarity concerning the obstacles emerges when what Kilbourne, Beckmann and Thelen call the Dominant Social Paradigm (DSP) is taken into account.

The Dominant Social Paradigm

While writers such as Sagoff and Monbiot all point to various aspects and practices of neoliberal economic rationality as the major contributors to ever-worsening environmental degradation, Kilbourne, Beckmann and Thelen in their “The Role of the Dominant Social Paradigm in Environmental Attitudes: A Multinational Examination,” offer an expanded view on the issue. And through their discussion what emerges is how Western industrial societies – as well as Westernized/Westernizing and rapidly industrializing societies – remain conceptually distant from the increasing environmental degradation occurring around them, because of how they are informed by the discursive dimensions of the DSP, to the point where their subjectivity is constituted around frames of reference inimical to paradigm change.²³ Tied to this is their assertion that the vast majority of people living within such societies thus continue to be complicit in the ruin of their natural surroundings. Accordingly, Kilbourne et al. argue that people living within the context of capitalist systems, and in relation to the governments and corporations that operate within that framework, remain generally unconcerned with environmental issues for reasons associated with the DSP’s three inter-linked discursive dimensions. These dimensions are the political, the economic, and the

²³ Kilbourne, Beckmann, and Thelen’s short text was originally published in 1997, but this chapter makes reference to the 2002 version. For the purposes of a more in-depth and updated discussion, reference is also made to Kilbourne, Beckmann, Dam and Pardo’s “Anthropocentrism, Value Systems and Environmental Attitudes: A Multi-National Comparison” (1997), and Kilbourne and Polonsky’s “Environmental Attitudes and their Relation to the Dominant Social Paradigm Among University Students in New Zealand and Australia” (2005).

technological, and together they constitute what is termed the Dominant Social Paradigm (DSP).

That is, in “Anthropocentrism, Value Systems and Environmental Attitudes: A Multi-National Comparison,” Kilbourne et al. begin with a curious thought, noting that “while high levels of environmental concern appear to have developed over the past twenty years, environmental degradation advances at relatively high rates.” And they argue that this is “because individuals who express concern seldom engage in environmentally responsible behaviours.” Indeed, for them, one can identify an “alarming...gap” between “attitudes and behaviour in the environmental arena.” In effect, it is in the matter of trying to explain this gap that Kilbourne et al. turn to the idea of a Dominant Social Paradigm that is prejudiced against nature, and which underpins the activities of Western and Westernized/Westernizing societies; that is, a DSP which operates as “the cultural context within which society’s members construct their world view” (1997: 1-2). William Shafer in “Social Paradigms and Attitudes Toward Environmental Accountability” provides a brief historical backdrop for the development of this concept. He writes that “the concept of a DSP was developed by sociology researchers in the late 1970s,” and “although variously operationalized,” its “socioeconomic dimensions...in modern Western societies are generally theorized to include political, economic, and technological dimensions.” It has as its precursor, of course, Thomas Kuhn’s concept of “scientific paradigms” (2006: 121-122),²⁴ but has been expanded and developed upon by empirical research completed in the 1980s (Kilbourne et al. 2002: 195, Kilbourne and Polonsky 2005:37). For his part, Shafer defines the DSP as a combination of elements that “may be thought of as socially constructed traditions that legitimate prevailing social, economic, and political institutions, and express a common sense reality regarding the way society works” (2006: 122). In “The Role of the Dominant Social Paradigm in Environmental Attitudes: A Multinational Examination,” Kilbourne et al. provide more detail on each of the aforementioned dimensions.

With regard to the political dimension, they posit that “liberal democracy is the prevailing mode of political organization within the DSP.” This entails a “focus on the free individual, private property, and a limited government whose primary function is the

²⁴ It is important to note that this study— in the spirit of a Deleuzoguattarian approach — does not endorse the rigid conceptual structures upon which the theorization of the DSP is based. Rather, such structures are referenced here for the useful insights into dominant attitudes which they provide. However, the emphasis remains on the pursuit of change, something which the DSP, rooted as it is in the work of Thomas Kuhn, cannot readily account for; a deficit which has been remarked upon by a range of scholars (Restivo 2011: 30, Moorstein 2004: 31).

protection of property and enforcement of contracts.” As such, Kilbourne et al. point out that “in this Lockean framework,²⁵ possessive individualism...is the ontological supposition and characterizes each individual as in possession of her/himself.” Within this prevailing mode of political organization, the unlimited accumulation of property is validated and given legitimacy (at the expense of the environment), and the individual is only given the freedom to participate within the realm of the market. Indeed, there is no real freedom other than the freedom to be able to consume, and to attempt to consume exponentially at that, and this comes at the expense of the individual who seeks alternative forms of autonomy and a more profound experience of freedom. However, it is difficult to problematize this political mode as it simply uses market-related structures and reformist policies to endorse the current political mode and capital. In relation to this, to enact a “radical ‘green’ politics” would be to “call into question the very foundations of liberal democracies,” and, as such, related politics is almost always ultimately marginalized (2002: 197).

For its part, the economic dimension feeds neatly into a mode of thought that diffuses any legitimate concern regarding the environment and its destruction. According to Kilbourne et al., the “essential elements of the economic dimension are free markets, self-interest as the sole motivator of behaviour, prices as the mediator of exchange, and efficiency as the primary criterion for the effective functioning of markets.”²⁶ Accordingly, within this dimension, any environmental problems are simply dismissed as market failures, or even annotated as rare failures of the market. In such cases, markets are simply accused of not pricing resources appropriately, leading to inefficient allocations, and accordingly “economic policy instruments such as pollution taxes” are offered as a solution to any environmental problem that may occur. In short, everything tangible is related to an abstract notion of ‘the market,’ to the point where this virtual market becomes all encompassing. Through such means, an abstract, virtual formulation becomes a pseudo-religious conception that both accounts for

²⁵ The Lockean framework referred to by Kilbourne et al. relates to Locke’s thinking on property rights. John Simmons, in *The Lockean Theory of Rights*, explains these as a crucial part of “Lockean moral and political philosophy” (1992: 3). Richard Spinello and Herman Tavani provide further explanation in *Intellectual Property Rights in a Networked World* when they write that, “essentially, Locke’s property theory is based on the notion of ‘just desserts’ for one’s physical labour.” However, the most immediate criticisms that can be attached to Locke’s thinking is his “claim that a property right is a natural right” (2005: 188), and it is this claim that Kilbourne et al. see as permeating contemporary thought in relation to the environment.

²⁶ Thomas Princen in his *The Logic of Sufficiency*, neatly demonstrates how the term ‘efficiency’ came into being at a specific point in history and how it has since, due to a number of circumstances and developments, gained a fetishized and unwarrantedly hegemonic status. In sum, he argues that the construct of efficiency accompanies power and that it mutated from effectiveness and suitability to efficiency as a result of the new needs of industrial society. Within this industrial sphere, the ratio of a desired result was no longer assessed in qualitative terms, but in quantitative ones. Against this, he advances instead a logic of *sufficiency* (2005: 66 -71).

and regulates every activity. In effect, a faith in “free markets,” as well as a fundamental belief in the capacity of the market and its growth to solve both short-term inefficiencies and long-term problems, prevails. And this faith tends to reduce the discursive momentum built up by those protesting the degradation and the exploitation of the environment, and the potential disastrous implications of this – protestors whose everyday actions also often contradict their avowed aspirations for a different way of living, because of the influence of the DSP (2002: 197-198).

Finally, within the technological dimension, Kilbourne et al. argue that with the hugely successful development and application of Enlightenment science, the conditions under which human beings lived improved at an enormous rate. And the successful application of technology to industry and the exponential benefits which accompanied this, succeeded in silencing even the harshest of critics. In this regard, they cite Ehrenfeld (1978), who argues that this success brought about a profound arrogance within humanity, which he termed “humanism”. This refers to humanity being so impressed by its technological advances, that it no longer questions the implications of that technology. As Kilbourne et al. point out, “within the framework of technological optimism, it is assumed that technology can and will come to the aid of society whenever and wherever it is called upon” and they refer to this as the “technofix.” Besides this, Kilbourne et al. also point out that politics are immanent within technology itself. That is, while small-scale, decentralized technologies are conducive to democratic institution formation due to the individual control they afford, large-scale, centralized technology is inherently authoritarian insofar as it demands strict control of its use, ownership and deployment, in the interest of efficacy (2002: 196-197).

While the above three dimensions are the most commonly referred to components of the DSP, Kilbourne and Polonsky complicate the model by conceptualizing it, in addition, as a “two dimensional construct” with “three components in each dimension.” While the first, or the socio-economic dimension (with its political, economic and technological dimensional components) has received significant popular attention, their assertions concerning the cosmological dimension – containing the dimensional components of “structure (atomism-holism), function (cooperation-competition) [and] organization (human position in nature)” – have received less thematization. However, the latter is no less important because, to a great extent, it underpins much of the thinking housed in the socio-economic dimension.

With regard to its structural dimension, Kilbourne and Polonsky argue that this “refers to beliefs about the composition of the world in which we live,” and they specifically refer to our adoption of a mechanical view of nature at the expense of an organic view. In terms of this, “the prevailing belief is still that the universe can be benignly deconstructed in an effort to reduce it to [fundamental] building blocks so that it can be understood and manipulated in the service of humanity.” And although this type of thinking has been “subject to question in quantum mechanics for decades,”²⁷ it is still “the dominant view and pervades human thought and action.” Accordingly, for the authors, such thought thoroughly informs “political and economic liberalism,” within which not only nature but also people become reduced to atomized components, operating within “impersonal competitive relations” (2005:39). Moreover, the functional dimension in many respects reinforces the idea of such competitiveness, and thus ultimately endorses the quest for domination over others and nature. In this regard, Kilbourne and Polonsky trace the idea of competitiveness back to Charles Darwin’s *Origin of the Species*, in which they argue, “nature was reduced to the competitive struggle for existence.” In terms of human relations, they also argue that it was Herbert Spencer’s “concept, later known as Social Darwinism,” which “firmly established the role of interpersonal competition among independent individuals as the *sine qua non* of social progress.”²⁸ The clear difference between Darwin and Spencer, however, was that while the former established “no universally desirable goal and was therefore non-teleological,” the latter “clearly defined competition as the only means through which progress could be consistently insured.” And Kilbourne and Polonsky argue that this concept of “social competitiveness” passed from one established Western economic philosopher to the next, “from Hobbes to Adam Smith through Locke,”²⁹ and “has since become the standard in assessing the ability of markets to best serve the march of material progress.” Indeed, the

²⁷ Quantum mechanics, in its study of the very small, destabilizes and opens up further avenues of question (Vermaas 1999: 4) as opposed to the type of thinking discussed by Kilbourne and Polonsky.

²⁸ Here, Kilbourne and Polonsky make reference to the famous Darwinian notion of ‘natural selection,’ often mistakenly read as a ‘survival of the fittest.’ As James T. Costa, in his accompanying notes to *On The Organic Law of Change: A Facsimile Edition and Annotated Transcription of Alfred Russel Wallace’s Species Notebook of 1855-1859*, explains, it was actually Spencer’s idea of “survival of the fittest” which Darwin reluctantly – under the “exhortations” of Wallace – adopted, despite not being “much of a Spencer fan himself.” As such, the fifth edition of the *Origin of Species* included a definition of “natural selection” as equatable to “the expression often used by Mr. Herbert Spencer of the Survival of the Fittest” (2013: 385).

²⁹ In his discussion on the social contract between States and those who live within them, Thomas Hobbes, in *Leviathan*, first published in 1651, sees competition as unavoidable as people of “rough equality of strength and mental ability” are not ready “to acknowledge another’s superior right to [any] object” (in Hampton 1986: 59). Similarly, in his iconic text, *The Wealth of Nations*, first published in 1776, Adam Smith argues for competition as the key practice in securing a fairer life for all, insofar as it comprises a bastion against governmental interference and monopoly (Haakkonssen 2006: 3-4).

DSP today is intertwined with both the idea of “individual competitiveness” and “human competition with nature,” both of which serve as its “fundamental beliefs” (2005: 39-40).

In turn, human competition with nature is better understood with reference to the final component within the cosmological dimension, namely the human position in nature. In this regard, Kilbourne and Polonsky posit that “the essential feature...is the belief that humans are separate from and morally superior to the rest of nature.” And the result of this type of anthropocentric thinking is that “humans consider themselves to be the masters of nature[,] subduing it for their own instrumental purposes.” On the opposite end of what can be considered a continuum, is an ecocentric mode of thinking, which does not privilege humans as inherently superior to other life forms. And although this viewpoint has gained some traction – even being argued forcefully at times, such as by “Peter Singer (2004) in his extensive work on animal rights”³⁰ – the anthropocentric view, enforced by the structural and functional dimensions, as well as by the previously discussed socio-economic dimensions, remains dominant (2005: 40-41).

While the the two broad oppositional theoretical positions of the bioenvironmentalists and social greens perspectives on the matter are in no way invalid,³¹ because of the

³⁰ Singer is known particularly for his book *Animal Liberation* (1975), which is considered a canonical work in terms of animal rights discourse (Bekoff and Meaney 1998: 2).

³¹ The bioenvironmentalist perspective stresses “the biological limits of the earth to support life.” While there are a number of variations on this theme, the agreed upon idea is that “the planet is fragile” and “an ecosystem like any other,” and in relation to this, it is human activity that is considered to be the problematic factor that upsets the fragile balance of the earth. Indeed, “many bioenvironmentalists see humans as anthropocentric and selfish (or at least self-interested) animals,” while some – such as “the academic William Rees – even see humans as having “a genetic predisposition for unsustainability.” Accordingly, for the bioenvironmentalists, the key factors of concern with regard to our impact on the earth’s capacity to sustain us are rapid population growth, the neoclassical economic assumption of infinite growth and thus our associated consumption patterns, and the negative impacts of globalization, such as the spreading of Western patterns of consumption globally. The solutions proposed to these problems are relatively simple, in that, they advance that “we need to curb economic and population growth” (Clapp and Dauvergne 2005: 9-11). For its part, the various viewpoints that can be classified under the social green perspective, draw “primarily on radical social and economic theories, [and] see social and environmental problems as inseparable.” For them, “inequality and domination, exacerbated by economic globalization, are seen as leading to unequal access to resources as well as unequal exposure to environmental harms.” The term social green is a broad umbrella term, and includes contributions from a number of theoretical perspectives. For instance, “more academic social greens draw on Marxist thought, pointing specifically to capitalism as the primary driver of social and environmental injustice in a globalized world.” Equally inspired by Marxist thought, but taking on a specifically neo-Gramscian perspective, other academic social greens focus “on the way those in power frame and influence ecological problems,” and their targets in this regard are the “hegemonic blocs consisting of large corporations and industrial country governments.” A further related and influential strand of thought is the feminist theory of Vandana Shiva, who argues that “patriarchal relationships in the global economy are intricately tied to ecological destruction.” While the various theoretical contributions housed under the umbrella term ‘social green’ are sympathetic to the concerns put forward by the bioenvironmentalists (they match on criticizing the ills of economic globalization for instance), there is disagreement to be found on some key points. Specifically, “few social greens accept bioenvironmentalist arguments regarding population growth.” On this point of difference, they maintain that it is “overconsumption, particularly among the rich in the First World” that poses “a far greater problem.” In terms

dominance of the current political and economic schema under which we all operate, their endeavours to elicit change through their critique has to date been largely unsuccessful. Indeed, despite the best efforts of the modern environmental movement to contest the thinking behind our current predisposition to nature, the status quo remains. And this is because the DSP not only informs the subjectivity of the public at large, but also informs – to a greater or lesser extent – the subjectivity of even the strongest environmentalists. After all, we all operate within, and are informed by the DSP to some extent, even as we take on the challenge of communicating the need for environmental protection through the new media means at our disposal.

Conclusion

Having thus elaborated on the environmental crisis within the context of the DSP, it needs to be considered if there is room to manoeuvre, or if an inflection of attitudes is possible within this paradigm. In short, how does one begin to take on the various assumptions and well-entrenched beliefs within its cosmological dimension, that moreover spill over into the political and economic practices that we adopt in relation to nature? As a first tactic of contestation, one could adopt an oppositional stance to the thinking and practices that characterize the DSP. And this stance has been adopted by many academics, activists and citizens under the auspices of social green and the bioenvironmentalist critique.³² However, the key issues with such an oppositional approach are twofold: Firstly, although crucially important, such opposition has not (yet) succeeded in replacing the destructive thought and practices of a world operating in terms of the DSP. Secondly, the various critics of the DSP who employ such an oppositional approach do not always readily acknowledge that they are complicit with it, insofar as academics, activists and concerned citizens alike are all afforded the means of critique by the very system of relations they criticize. We write about environmental degradation on our laptops, and access related information through our smartphones, which are made ever-more powerful by the capacity and malleability of conflict minerals such as coltan, and connected to vast and immensely polluting telecommunications

of solutions proposed, the social greens advocate “a dismantling of current global economic structures and institutions,” and in terms of replacement, call for “a return to local community autonomy to rejuvenate social relations and restore the natural environment” (Clapp and Dauvergne 2005: 11-16).

³² With regard to a more radical bioenvironmentalist perspective, Norwegian philosopher Arne Naess introduced the term ‘deep ecology’ in 1972, in order to define a more extreme form of bioenvironmentalism that advocated an almost mystical union with nature; one that required significant personal transformation in the adoption of sustainable modes of being. As he writes in “The shallow and the deep, long-range ecology movement: A summary,” deep ecology constitutes a “rejection of the man-in-environment image in favour of the relational, total-field image” (Naess 2010: 95), in which humanity reassess its values by encountering nature through an alternative more egalitarian framework.

networks. Accordingly, unless one is willing to step outside of such a system of relations in some radical way – and most are certainly not – one must admit to at least partial complicity with the DSP. And this is the point of departure for the next chapter.

That is, rather than taking on such an oppositional stance, the following chapter will explore which dimension of the DSP is most susceptible to alteration in relation to the cosmological assumptions described above, and in this regard, focus will fall in particular on the technological dimension. That is, as evinced throughout this chapter, the weak political response to the environmental crisis over the previous decades, along with the rise to near-hegemonic status of the neoliberal economic discourse since the mid-1970s, all bear testimony to how difficult it is to effect change within the political and economic dimensions. Yet, it will be argued that the technological dimension, although also highly problematic, offers the possibility of incremental transformation – specifically the sphere of information technology. Of course, great care must be taken here to avoid the illusion of the ‘technofix’ identified by Kilbourne et al. As such, rather than simplistically exalting information technology as an innocent conduit through which we can dislodge destructive environmental attitudes and behaviours, in the following chapter – and after due consideration of both its link to neoliberalism and its material cost to the environment – information technology will carefully be examined for its potential to alter – albeit only incrementally – its users orientations toward nature, and with this the parameters of their cosmology.

Chapter Two – Rethinking the technological dimension of the DSP: Information technology and the environment

Introduction

As demonstrated in the first chapter, despite the proliferation of voices addressing the environmental crisis since 1962, significant remedial change has not been forthcoming. In this regard, legacy mass media, and for that matter, information technology which functions in an analogously top-down manner (such as the informational websites on various aspects of environmental degradation run by organizations such as Greenpeace), have failed to precipitate a transformation of the DSP. And it was argued that this is largely because of the competing discursive parameters of the DSP, which are far more powerful and pervasive. However, information technology in the wake of Web 2.0 that allows for interactivity and mutual/reciprocal exchanges has admittedly gone some way toward addressing this. Yet, before valorizing it for its pro-environmental achievements in this regard, firstly, its relationship to neoliberalism must be considered, and secondly, the material burden its infrastructure places on the environment must be appraised. Accordingly, in what follows, firstly, the link between information technology and the hegemonic economic discourse of neoliberalism will be discussed, because the intersection between the two has had a significant impact on promoting an economic ideology that focuses on growth, often at the expense of the environment. Secondly, the material cost of our digital infrastructure on the natural environment will be explored. This is an important related issue because the virtual worlds constructed by our information age are often mistakenly construed in only virtual terms. That is, in the excitement of exploring the possibilities offered by an ever more ubiquitous digital world, what is forgotten is that all our virtual interactions are only made possible through an actual, material network of infrastructure that stores, sends and receives our information exchanges. And when one closely examines these digital infrastructures, it becomes evident that the vast arrangement that makes our new virtual world possible comes at a major material cost to the environment.

Yet while the fact that digital infrastructure is not ‘clean’ technology is indisputable, what will be argued in this chapter is that an abandonment of a digitally-orientated society is also highly unlikely in the near future. As such, it is important to ask if the digital spaces and applications enabled by this digital infrastructure have any qualities to them that could offer a positive contribution to the reorientation of how we, as human beings, relate to nature. And this requires very careful consideration because, as will be discussed, too often work on

technology – and information technology in particular –is undertaken from an extreme position. That is, either techno-pessimism heralds technological advance as the enemy of nature, or technophilia ascribes immense remedial power to information technology. In what follows, though, a middle ground between the two extreme positions will be adopted, and in this regard, a number of theoretical contributions on the relationship between technology and nature will be considered. In particular, the respective works of Dave Toke, Manuel Poitras, Frederick Buell and Vincent Mosco, will be engaged with because of how they place into critical question some of our otherwise entrenched ideas concerning information technology. Following this, the focus will shift to the ideas of Martin Lister, Jon Dovey, Seth Giddings, Iain Grant and Kieran Kelly, which open up such discussion even further, specifically via “Cyberculture: Technology, Nature and Culture,” in which Lister et al. argue that when studying new media, we need to reconsider our tendency to place human agency in opposition to all sorts of determinisms – specifically in relation to our exchanges with emerging technologies. Instead, they locate human agency as operating within a spectrum that includes technology, nature and culture, which are in themselves in constant interplay with one another. And the importance of adopting such a route will be emphasized because of how it facilitates consideration of the complexities involved in any such exchange, but without falling prey either to technological pessimism, or conversely, to over-enthusiasm in this regard.³³

Information technology and neoliberalism: Connectivity and commerce

During the 1980s, and exponentially more so during the 1990s, there occurred “the proliferation of powerful computers and microelectronic technologies that [helped] individuals and groups to communicate virtually instantaneously,” and which allowed them “to move vast amounts of money and [related] information via these technologies” (Mansbach and Rafferty 2008: 745). In this regard, Lister et al. point out that it was “the displacement of the military ARPANET” – or the Advanced Research Projects Agency Network – “into the Internet” (2009: 95) that marked the genetic point of the development of this medium. In effect, as David Bell states in “On the Net: Navigating the World Wide Web,” ARPANET was “an initially small network established by the US Department of

³³As stated in the methodology section in the Introduction, due to the nebulous nature of information technology, this study explores information technology not by strict delineation, but rather moves interchangeably between terms such as the internet, network technologies, social media platforms, mobile devices/smartphones, and digitality, among others. This is in keeping with the approach of many theorists who adopt similar flexibility in their engagement with new media on account of its protean dimensions.

Defense, connecting a number of what were then considered supercomputers.” Accordingly, the initial purpose of establishing these connections was to build “a network of distributed nodes able to evade or withstand nuclear attack.” Thus, designed and built within the shadow of the perceived threats associated with the Cold War,³⁴ the origin of the Internet was to a certain extent bound to the specific interests of its developers. However, as Bell warns, “it is important not to overstate this part of the Internet’s origin,” because although the Internet’s development was initially linked to the American military complex, it was also “part of a number of other political, economic and technological projects, some more or less driven by the state, some by the computer industries,” and “some by countercultures emerging from hobbyist and hacker groups interested in computing as a tool for democracy or revolution.” Consequently, input into the development of this medium was highly varied, and informed by anything from cynical exploitation of emergent technologies for military or commercial advantage, to highly creative endeavours espousing an altogether different politico-discursive aim. But regardless of how the above strands were “often divergent in their aim,” they all appeared to “share at root a belief in networked computers as a tool for progress” (2009: 30-31).

While these sources offered unique contributions to the development of the Internet, the space that they collectively created remained for quite some time inaccessible to the public at large. That is, while personal computers (or microcomputers) first emerged in 1977/8 with the launch of the Apple II, and while the market for this technology expanded dramatically throughout the 1980s, the Internet in its initial phase almost exclusively remained the domain of more specialized users. As David Gauntlett in *Web. Studies* points out, it was only with the World Wide Web, “a user-friendly interface onto the Internet” (2004: 5), that the Internet was first able to reach a mass audience beyond its initial limited scope. And although Bell maintains that “the birth date of the World Wide Web is often cited as 6 August 1991,” in reality it really only gained momentum a couple of years later, when the World Wide Web programme “developed by Tim Berners-Lee...was joined to a widely and freely available browser called Mosaic” (2009: 31). In effect, the programme and browser – working in tandem – allowed for non-specialized users to access the network through a simple interface. Hassan and Thomas, in their introduction to the *New Media*

³⁴ The Cold War refers to the period of animosity and proxy conflict that characterized the years 1945 to 1991, as the two new superpowers of the post-World War Two era, namely the USA and the Soviet Union, vied for dominance over world affairs according to their individual ideological outlooks (Walker 1995: 1). Part of this conflict, as Aaron Friedberg notes in “The United States and the Cold War Arms Race,” was an arms race between the two which precipitated technological advance in order to try to establish an upper hand (2000: 220).

Theory Reader,³⁵ confirm this development as crucial to “the growth to behemoth status of corporations such as Microsoft, Intel and Apple,” which they attribute to “the growth of the NASDAQ bubble” in the “1990s” (2006: xxiii).³⁶ In many respects, with the launch of Microsoft’s *Windows 95* in August of 1995, the updated versions of which included the browser *Internet Explorer* – launched as a rival to *Netscape Navigator* and *NCSA Mosaic* (Gibbs, 2014) – the Internet became a public space that was thereafter constantly subject to enhancement through commercial competition.

Although networked computers started to become a norm around 1995, the capabilities of this early interface were limited. Web 1.0 is a retronym used to describe the early ‘web,’ or the Internet pre 2003/4, after which period Web 2.0 became a buzzword “commonly used to encompass various novel phenomena on the World Wide Web.” That is, although Web 2.0 was predominantly a marketing term, “some of the key attributes associated with Web 2.0 include[d] the growth of social networks, bi-directional communication, various ‘glue’ technologies, and significant diversity in content types” (Cormode and Krishnamurthy 2008: 1). In effect, the essential distinction between the two periods derives from the manner in which the user experienced the interface. Whereas in its previous form, or Web 1.0, “the vast majority of users simply [acted] as consumers of content,” the Web 2.0 interface “allow[ed] for any participant [to] be a content creator...and numerous technological aids” were subsequently “created to maximize the potential for content creation” (2008: 2). One of the major developments spurred on by this change in interface capability has been the rapid growth of social networking sites (SNSs), most notably *Facebook*.³⁷ Lister et al., quoting Boyd and Ellison, argue that these sites “are structured as

³⁵ For the most part, new media theory “only formalized itself since the 1990s” as a result of “the accelerated diffusion of digital media from [the] telecommunications and information technology sectors” in this period, which led to “media and communication studies [being] defined by new objects of investigation.” Indeed, “new forms of media demand exploration in their own right at the same time as the remediation of traditional media becomes open to investigation.” And accordingly, new media studies has earned a place as a branch of communication theory precisely because “traditional media environments” have not simply been altered by technological innovation – in particular the rapid emergence of the digital – but have also been significantly challenged (Holmes, 2012: 685-689).

³⁶ Larry Harris in *Trading and Exchanges: Market Microstructure for Practitioners*, explains the NASDAQ bubble as one in which “traders...excessively optimistic about prospects for new technology companies” convinced people to invest heavily in those companies operating in “the Internet, telecommunications, computer, and biotechnology sectors” (2003: 569). Donald Rapp in *Bubbles, Booms, and Busts: The Rise and Fall of Financial Assets*, relatedly indicates that this aforementioned boom in investment in technology companies, also known as the “dot.com stock market bubble,” occurred mainly “from about 1997 to early 2000” (2015: 305).

³⁷ Facebook, founded in 2004 by Mark Zuckerberg (Carlson 2010), is widely regarded as the world’s most popular social networking site, with Internetlivestats.com estimating that the site currently has approximately 1.32 billion users (Internetlivestats 2014). The site offers a number of features including the opportunity for users to post their personal thoughts on any matter whatsoever, upload pictures, ‘like’ (support) companies and

personal (or ‘egocentric’) networks, with the individual at the centre of their own community” (2009: 216), and ostensibly in full control of who they connect with, and what information they expose themselves to. But the debate over the extent of their agency in this regard notwithstanding, in effect Web 2.0 offers the user a far more dynamic experience of the Internet, in which content can be consumed through multimedia, rather than in a “primarily textual” form (Bell 2009: 31), and in which users can construct their own messages through a variety of forms (text, image, video, etc.).

In terms of worldwide access to the Internet, statistics are difficult to pin down precisely as a result of the rapid and constant growth of the medium. However, it is possible to offer a fairly accurate snapshot at a given point in time by taking into account a number of statistics relating to the number of ‘users’ in various geographical regions. According to the site Internetworldstats.com,³⁸ as of 31 December 2013, there were just over 2.8 billion Internet users. Of these people accessing the Internet, North America had the best penetration percentage, with 84.9% of the population classified as users, while Africa, with its approximately 240 million users, had a penetration percentage of only 21.3%. While this is certainly the lowest percentage compared to Asia, Europe, the Middle East, Latin America/Caribbean, Oceania/Australia, and indeed North America, it is worth noting that internet use has grown in Africa, from approximately 4.5 million users in 2000 to over 240 million in 2013. Statista.com estimates that 2.92 billion people accessed the Internet in 2014 (based on information collated by June 2014), and that the people of the Middle East and Africa (whom they categorize together) comprise 19% of that number. Internetlvestats.com, which collects information in *real time*, also estimates that there are – as of 6 October, 2014 – 2.98 billion internet users, with South Africa in particular registering 24.9 million users, indicating a penetration percentage of 46.88%.³⁹ Undoubtedly, one of the major contributors

ideas, chat in real time with other people they are connected to as ‘friends,’ and even update these connections on their whereabouts via geolocation services that are supported by Facebook’s digital infrastructure. The site has certainly reached a ubiquity of sorts, with its presence easily located in popular discourse.

³⁸ The compilers of the information at Internetworldstats.com are highly cognisant of the disputes over who precisely can be classified as an Internet user. In this regard, they state that “the ITU subscribes to the definition of an Internet user as someone aged 2 years old and above, who went online in the past 30 days. The US Department of Commerce, in contrast, defines Internet users as those 3 years or older who ‘currently use’ the Internet.” Against this, “the CNNIC” for instance “defines the Internet user as a Chinese citizen, aged 6 or above, who uses the Internet at least one hour per week” ([Internetworldstats](http://Internetworldstats.com), 2014). The compilers of the statistics at Internetworldstats.com, however, label an Internet user as needing only to meet two requirements to be considered as acceptable for inclusion in their statistics, namely, “available access to an Internet connection point [and] the basic knowledge required to use web technology” ([Internetworldstats](http://Internetworldstats.com), 2014).

³⁹ Internetworldstats.com obtains its numbers from the Nielsen Group, which is described “as a global standard for Internet audience measurement and analysis and is the industry’s premier source for online advertising intelligence,” as well as from the International Telecommunications Union (ITU), which is an affiliate of the

to the increase in internet use, and the correlative narrowing of the *digital divide*,⁴⁰ is the growing use of mobile devices – specifically sophisticated cell phone technologies (smartphones) – to connect to the World Wide Web. Indeed, at the end of 2013, *Business Insider* reported that “22% [of the world’s population] will own smartphones” (Heggestuen, 2013), and six months later, the wireless technology site *Fierce Wireless* reported that this figure had grown to 25%, with “1.76 billion people” owning smartphones (Goldstein, 2014). Yet, while one thus no longer needs a fixed connection and expensive hardware (such as a PC, a modem, etc.) to connect to the internet, and while this has certainly made the medium far more accessible to larger sections of the world’s population, one should also be cognisant of the implications of such pervasive reach within the neoliberal context discussed in the previous chapter. And related to this point, one must also consider how ever-larger segments of the world population now operate under the auspices of the DSP, through more robust incorporation into its modes of thinking via their new access to its (information) technological dimension.

In this regard, in *The Network Society: From Knowledge to Policy*, Manuel Castells (with Gustavo Cardoso) argues that “our world has been in a process of structural transformation for over two decades.”⁴¹ He locates the beginning of this process as having taken shape in the 1970s, arguing that while “this process is multidimensional,...it is associated with the emergence of a new technological paradigm, based in information and communication technologies...diffused unevenly around the world” (2005: 3). In relation to this profound structural change, in *The Rise of the Network Society*, Castells employs two key concepts which explain how such a radically altered society operates, namely the idea of society operating as a *network*, and the dominant mode of organization related to such a networked society, namely *the space of flows*. In his exploration of these concepts, Castells

United Nations (Internet World Stats 2014). Statista.com describes itself as “the world’s biggest statistics portal,” and claims to have “statistics, studies, and reports from over 18 000 sources,” all of which have “adherence to academic sources” (Statista 2014). Lastly, Internetlivestats.com is described as “an international team of developers, researchers, and analysts with the goal of making statistics available in a dynamic and time relevant format to a wide audience around the world.” The site claims to be contracted to provide information for, among others, “BBC News, United Nations Conference Rio+20 and Wired [magazine]” (Internet Live Stats 2014).

⁴⁰ Benjamin Compalpe in *The Digital Divide: Facing a Crisis or Creating a Myth?* defines the digital divide as “the perceived gap between those who have access to the latest information technologies and those who do not,” in terms of which “not having access to this information [is] considered a handicap” (2001: xi).

⁴¹ Castells’ *Information Age: Economy, Society and Culture* trilogy, comprising of *The Rise of the Network Society* (1996), *The Power of Identity* (1997), and *End of Millennium* (1998), offer a thorough overview of the multi-faceted socio-cultural and politico-economic features and consequences of the internet. This has led to him becoming one of the most cited scholars on the issue of how information technology is affecting and framing human relations.

discusses the impact of this structural transformation on economic activity itself, and the impact of the resultant new economic organization on individuals and groups.

In terms of the economic sphere itself, or more specifically, the rise of neoliberal capitalism, Castells argues that it was as a result of the aforementioned technological advances that “capitalism itself [underwent]...a process of profound restructuring, characterized by greater flexibility in management [and] decentralization and networking of firms both internally and in their relationships to other firms.” And these changes had manifold consequences, including the “considerable empowering of capital,” and with this, “the concomitant decline of the labour movement,” as well as the “intervention of the state to deregulate markets selectively, and to undo the welfare state, with different intensity and orientations depending upon the nature of political forces and institutions in each society” – all of which occurred within “a context of stepped-up global economic competition” (2010: 1-2).⁴²

Such swift structural changes to an economic context that had previously operated under the guise of relative stability, Castells argues, led to a disorientation on the part of the individual, who was obliged to make sense of their newfound position within a vortex of social change, informed by economic restructurings, and enabled by technological advance.⁴³ Indeed, when “global networks of instrumental exchanges selectively switch on and off individuals, groups, regions, and even countries, according to their relevance in fulfilling the goals processed in the network, in a relentless flow of strategic decisions,” there can only be “structural schizophrenia.” And Castells discusses a number of possible reactions to such flux, ranging from “people regroup[ing] around primary identities: religious, ethnic, territorial, [or] national,” to a search for meaning, “ascribed or constructed” (2010: 3) via technological means.

In terms of individual interaction with information technology, Castells concentrates his exploration on the concept of time, and specifically, the impact of a networked society on

⁴² Castells also lists further important implications, such as “increasing individualization and diversification of working relationships [and] massive incorporation of women into the paid labour force, usually under discriminatory conditions” (2010: 1-2).

⁴³ When referring to “an economic context,” it is acknowledged that, although neoliberal capitalism is today the dominant economic *philosophy* informing most economic contexts and participation in the global economy, each country’s unique social and historical conditions, and any economic modes of organization stemming from such conditions, always entail an element of differentiation in their respective relation to the principles of neoliberalism. For instance, although both subscribe to neoliberalism, the Russian Casino Capitalism associated with the collapse of the Soviet Union (Brzezinski 2002: 13) is different to the gradual privatization of Britain’s public services under the Conservatives and New Labour (van Zon 2016: 60).

time. According to him, “linear, irreversible, measurable, predictable time is being shattered in the network society, in a movement of extraordinary historical significance” (2010: 463). This is because the virtual space enabled by information society comprises “a forever universe, not self-expanding but self-maintaining, not cyclical but random,” that produces a “timeless time;” one which not only uses “technology to escape the contexts of its existence,” but which also “appropriate[s] selectively any value each context could offer to the ever-present” (2010: 464).⁴⁴ But if, as Castells claims, an informational networked society has allowed “capitalism freedom from time,” and “culture an escape from the clock” (2010: 464), what consequences does this have for the individual?

In terms of the individual’s relation to work, and with a view to understanding their societal orientation as *a space of flows*, Castells explores terms such as future time, flex-time, and life working time (2010: 466- 468). By future time, Castells refers to the financial speculation enabled by the time-space compression engendered through advances in information technology, in which capital “is shuttled back and forth between economies in a matter of hours, minutes, and sometimes [even] seconds,” by “powerful computer programs and skilful financial analysts/computer wizards, sitting at the global nodes of a selective telecommunications network,” who “play games, literally, with billions of dollars” (2010: 465). However, understandably, these movements are not without immense and manifold consequences, with Castells arguing that they are “increasingly felt in economies and daily lives around the world,” particularly in terms of “recurrent monetary crises” that have “usher[ed] in an era of structural economic instability” (2010: 466). Flex and life working time refer to the manner in which work has changed over the last few decades, with technology – particularly the emergence of the mobile phone – ensuring that the separation between work and time away from it becomes increasingly blurred. Together, these two technology-enabled developments have profoundly altered the way in which the contemporary person finds him/herself operating within time. In this regard, as Kanouse and Schultz explain in “Notes on Affective Practice: an exchange,” today “our time, bodies and minds are inscribed with capitalist competitiveness (we hustle to live, if some more than

⁴⁴ Castells attributes his notion of ‘timeless time’ to the work of Leibniz (2010: 494), which constitutes an interesting theoretical overlap between him and Deleuze, whose work will be discussed in the next chapter. In his *The Fold: Leibniz and the Baroque* (1988), Deleuze similarly maintained that Leibniz’s concepts of “the monad” and “the fold” allowed for a conception of time that was not structured and ordered like Descartes “rather sober concepts,” but instead embraced a conception of time that sees it as both “singular [and] universal,” and in “continuous variation” (in Marks 1998: 75-76).

others), rhythms (cybertime, or hyper-speed) and productivity (more + more + more)” (2013: 11).⁴⁵

In sum, it is clear that information technology has allowed for the proliferation of the neoliberal economic practices that were embraced globally in the 1970s and 1980s. As David Harvey notes in *A Brief History of Neoliberalism*, “information technology is the privileged technology of neoliberalism” (2007: 159).

The material infrastructure underpinning our digital world

Besides the deep connections between information technology and neoliberalism – an economic ideology and practice which remains largely responsible for the lack of effective action against environmental degradation – the next point of consideration must be the material cost of the ubiquitous information technology we employ continuously for our work and leisure. In this regard, in what follows, such material cost is considered in terms of firstly, the type and amount of energy used to power our digital infrastructure, secondly, the pollution that this causes in a number of different ways, as well as the pollution caused by the devices (end user equipment) themselves, thirdly, the unseen human cost of digital production and disposal, as well as, fourthly, the philosophical implications of all of the above, particularly in terms of the loss of time experienced within a world infatuated by information technology.

As an entry point into the topic of the environmental impact of digitality, Marcus Hurst’s “How Polluting is the Internet?” published by *CCCB Lab*,⁴⁶ offers a comprehensive overview of the material requirements and correlative consequences in this regard. Hurst begins his piece by arguing that, while it should be noted that digital technology may allow for a lowering of individual carbon footprints due to its efficiency – citing Skype as an example of a development that may offset unnecessary travel, particularly in terms of

⁴⁵ As an interesting aside, beyond work, or functioning in relation to capital, individuals often try to cope with this situation through accessing culture, often via technological means. In *The Power of Identity*, Castells elaborates on the primary identities people attach to in response to such flux, citing examples such as Islamic fundamentalism, American Christian fundamentalism and Nationalism (2010: 13-35). Accordingly, despite its presumed backwardness, such involvement often entails sophisticated use of available information technology to reach out to the disorientated. As Castells points out, “When networks dissolve time and space, people anchor themselves in places, and recall their historic memory” (2010: 69).

⁴⁶ The CCCB Lab blog is the online publication of the CCCB, or the Centre du Cultura Contemporània de Barcelona, which describes itself as aiming “to take on board the complexity, intensity and creativity of a historic point in time where old certainties are dissolving and new paradigms require imagination and maximum openness.” It is affiliated to a number of European universities and research institutes, placing a high emphasis on digital and robotic technologies as a field of study (CCCB, 2015).

business – it should also be remembered “that [just because] its footprint is lower than that of traditional activities does not mean it is totally innocuous” (Hurst, 2014). Indeed, as Simon Marvin in *Global City Regions: Their Emerging Forms* notes, “relations between telecommunications and the...environment are much more complex and contradictory than is often assumed” (in Hack and Simmonds 2000: 247). Measuring the precise energy consumption of the internet has admittedly proved a difficult task. As Hurst writes, “the first thing that emerges after surveying various sources is that nobody knows [what it is] for sure,” and he provides a number of differing figures on the matter. For instance, he refers to a 2010 report published by *The Guardian* which puts the figure at “300 million tonnes of CO₂ per year,” which is put into context when one considers that this is “as much as all the coal, oil and gas burned in Turkey or Poland in one year.” Alternatively, the *New York Times* claimed a figure of “30 billion watts of electricity in 2011,” which contextualized is “roughly equivalent to the output of 30 nuclear power plants.” Additionally, in another report commissioned by Gartner consultants,⁴⁷ it was stated that “the internet was responsible for 2% of global emissions in 2007,” thus “outstripping the carbon footprint of the aviation industry.” In turn, the Melbourne-based research centre CEET,⁴⁸ in 2013, “estimated that the telecommunications industry as a whole [emitted] 830 million tonnes of carbon dioxide a year,” furthermore stating that the “energy demands of the internet could double by 2020.” Frighteningly, they advanced that the current energy consumption related to the internet “accounts for 1.5% to 2% of the world’s energy consumption,” which means that if it were classified as a country, it would “rank as the fifth largest for energy consumption.” While the statistics do admittedly vary, what remains clear is that the telecommunications which allow for our digitally-orientated societies certainly do have a substantially negative environmental impact.⁴⁹ That is, while we may experience digital space as an abstract one, the carbon footprint produced in keeping this virtual space constantly active is less oblique, because the power required to keep this space of commerce, information, and interpersonal exchange

⁴⁷ Gartner consultants, or Gartner, Inc. (NYSE: IT), is a prominent US-based research firm, which describes itself as “the world’s leading information technology research and advisory company.” It provides information to a broad selection of clients, “from CIOs and senior IT leaders in corporations and government agencies, to business leaders in high-tech and telecom enterprises and professional services firms, to technology investors,” and has “clients in approximately 10,000 distinct enterprises worldwide” (*Gartner*, 2015).

⁴⁸ The CEET, or the Centre for Energy-Efficient Telecommunications, describes itself as an “academic-industry collaboration located within the Department of Electrical and Electronic Engineering at the University of Melbourne.” The CEET “was launched in March 2011 by Alcatel-Lucent, the Victorian State Government and the University of Melbourne, to address the massive projected growth in energy consumption linked to surging Internet demand” (Bell Labs and University of Melbourne, 2015).

⁴⁹ In this regard, even those such as Barney Warf in *Cities in The Telecommunications Age: The Fracturing of Geographies*, who are positive in their appraisal of telecommunications infrastructures – lauding them as clean technology – have reservations over their potential “negative impact” (2000: 109).

going has a major material effect on our natural world. In a nutshell, the constellation of receptors for mobile phones, our laptops, tablets and smartphones, and storage centres for all the data generated, all require electricity – and this electricity is often produced through traditional, highly polluting means. As a shocking example of the crude material used to power a technology perceived as cleaner than the typical polluting industries and systems, David Whiteley in *An Introduction to Information Systems*, notes that “diesel-powered generators” are often used to make up for any inadequate power supplies (2013: 348).

Besides remembering the power required by the devices that are used to access digital space, one must also consider the data centres required to store the various sets of information exchanged on a daily basis. For instance, something as seemingly innocuous as a personal Facebook profile houses a fair amount of information, and this data must be stored somewhere physically. And if this is multiplied by the hundreds of millions of users a social networking site like Facebook caters to, the space required to house all the information generated becomes considerable. Hurst provides a clearer picture of the size of the data centres in which details of every kind are stored; he explains that, “to get an idea of the energy needs of data centres, Facebook is building one in Prineville, Oregon, that will consume around 78 megawatts of electricity,” which is equivalent to the energy consumed by “around 64, 000 homes” (Hurst, 2014). And this high level of electricity consumption, sourced from typical and polluting energy sources such as coal, is found across the spectrum of the tech giants. For instance, citing the Greenpeace-commissioned report *How Clean is your Cloud?*, Robert Bryce in *Smaller, Faster, Lighter, Denser, Cheaper: How Innovation keeps proving the Catastrophists wrong*, demonstrates that “55.1% of the electricity used by Apple servers is generated by coal plants, as is 49.7% of the energy used by IBM servers, and 39.4% in the case of Facebook servers (2014: 118).⁵⁰ To be fair, however, the big companies of the tech industry have taken a number of steps to reduce their carbon footprint. For example, Vinnie Mirchandani in *The New Technology Elite: How Great Companies Optimize Both Technology Consumption and Production*, explains that in light of the aforementioned Greenpeace report, “Facebook promised a preference for access to clean and renewable energy in picking future sites for data centres,” and furthermore “recruited Bill Weihl, formerly Google’s ‘Energy Czar’” to help them achieve such aims (2012: 137). And in this regard, Vincent Mosco in *To the Cloud: Big Data in a Turbulent World* notes that, although

⁵⁰ Bryce, notes – with some apparent glee – that the commissioner of the report, Greenpeace, “of course has a Facebook page” (2014: 118), which once more demonstrates the immense difficulty of operating outside of the parameters of the DSP.

“Facebook was short on specifics...Greenpeace took this as a step in the right direction” (2014: 134), which demonstrates that the new-age tech companies have indeed shown some level of commitment to addressing their selection of energy sources.⁵¹

In this debate between economic imperative and environmental concern, Hurst offers, in closing, a recommendation that focuses on individual responsibility. While this is potentially problematic in that it displaces difficult questions that should be posed to the tech industry onto ordinary people, it nevertheless offers a poignant reminder of how our subscription to the cyber-world is underpinned by a vast material infrastructure with very real environmental effects. He explains that, “every visit to a website has a carbon footprint,” and cites the Harvard University physicist Alex Wissner-Gross who “calculates that viewing a web page generates about 0.02g of CO₂ per second, which goes up to about 0.03g when viewing a website with complex images, animations or videos.” Evocatively, Wissner-Gross points out the scale of effect of every individual action online, when he claims: “So when you are sitting in London viewing a website hosted in California, there are power plants on at least two continents actively pumping carbon dioxide into the atmosphere in order for you to watch that video or read that online newspaper.” The recommended action in relation to this from Hurst’s perspective, is the optimization of a website’s programming and design, because “a page with clean code and a balanced design will load more quickly than a site full of banners, pop-ups, large photos and external programmes that slow it down.” While this is certainly a noble endeavour to pursue, when one considers the immense scale of communication and information exchange maintained by digital infrastructure,⁵² such a strategy is hardly viable as a long-term solution, especially if one considers that websites actively attempt to offer users as many features as possible (interactive elements, video, etc.).

Beyond the above considerations of the energy resources required to power the internet – which in themselves are issues of concern – the material cost of our digital infrastructure is also immense. Indeed, some thinkers are thoroughly damning in their

⁵¹ For his part, Hurst concurs with the above two assessments on the topic of Facebook and alternative sources of power, writing that the company has committed itself to “solar, hydroelectric, wind and geothermic energy,” setting itself a target of “powering its data centres on 25% renewable energy by 2015.” However, he also notes that, according to Gary Cook, an IT analyst at Greenpeace, while “Greenpeace acknowledges the commitments of companies like Facebook and Google...there is still a long way to go.” And this is because renewable energy is perceived as an expensive alternative, with the consequence that “most Internet companies are choosing the quick and dirty path.” In effect, “they are powering the 21st century data centres that are the engine of the Internet economy with 19th and 20th century coal and nuclear power” (Hurst, 2014).

⁵² As an example, “Google’s servers refresh 20 billion pages a day, process over 100 billion search queries a month, provide email for 425 million Gmail users and process 72 hours of video uploaded per minute to YouTube” (Hurst 2014: 2-9).

indictment of the digital as a huge contributor to environmental degradation. For instance, the ecofeminist philosopher Ariel Salleh, maintains that “reliance on computerization to manage every conceivable aspect of daily life actually multiplies environmental damage to an extreme degree (2014: 1). Similarly, Eric Williams in “Environmental effects of information and communications technologies,” argues that “digital revolution affects the environment on several levels.” Firstly, on a direct level, “information and communications technology (ICT) has environmental impacts through the manufacturing, operation and disposal of devices and network equipment,” even when this can be offset “through smart buildings and teleworking.” Indeed, as noted previously, the big tech companies have exhibited a willingness and at times commitment to more energy-efficient operations, as well as renewable sources of energy. But although “ICTs influence economic growth and bring about technological and societal change” (2011: 354), part of this change is also pollution. In this regard, Williams references some troubling studies that pose serious questions about the broader implications of our subscription to digitality. Using Yu, Williams, Ju and Yang’s “Forecasting global generation of obsolete personal computers,” which offers a frightening assessment of the waste generated by discarded computing parts, Williams writes that “this global forecast predicts that the developing world will dispose of more computers than the developed world from 2016-18 onward.” And if one considers that the developing world is already often used as a dumping ground for unwanted *old* computer components, *old* cellphones, and other similar such devices,⁵³ then such an assessment points to even further, rapid degradation of dump-hosting countries. Moreover, adding to the exponential proliferation of electronic waste, is the issue of wasteful manufacture. Citing his own previous work, “Energy intensity of computer manufacturing: hybrid analysis combining process and economic input-output methods,” Williams argues that “the energy used during manufacturing a home desktop computer exceeds its lifetime operating energy” (2011: 359).

⁵³ African countries appear to be the biggest – but by no means only – recipients of electronic waste from other parts of the world; specifically, Ghana, the Ivory Coast, and Nigeria. In this regard, Greenpeace International reports that “E-waste is routinely exported by developed countries to developing ones, often in violation of the international law” (*Greenpeace*, 2009). John Vidal of the *Guardian*, reports that according to Interpol, “although it is legal to export discarded goods to poor countries if they can be reused or refurbished, much is being sent to Africa or Asia under false pretences,” because a substantial number of the technological goods are “falsely classified as ‘used goods’ although in reality [they are] non-functional” (*The Guardian*, 2013). And PBS, in a story on the matter, shows the devastating effects of such dumping. Their journalists describe an area in Ghana named Agbogloshie, referred to by the locals as “Sodom and Gomorrah,” which “has become one of the world’s digital dumping grounds, where the West’s electronic waste, or e-waste, piles up -- hundreds of millions of tons of it each year.” The journalists’ contact on the ground tells them that when he was a boy, the area was “pristine wetland,” and in an evocative display picks up an old computer with the label School District of Philadelphia” on it, and laments the negative health effects on the local population of this environmental catastrophe (*PBS*, 2009). And although the above examples are from a few years back, Tony Carnie of IOL News, has recently reported that the situation remains largely the same at present (*IOL*, 2015).

Whether or not this is a wilful economic strategy in order to generate constant sales is a debate beyond the ambit of this research; however, it is evident that beyond the incremental efforts of tech companies like Google and Facebook to use cleaner energy, the substantial material cost of the digital world resides at the linked levels of manufacture and disposal.

It is also important, at this point, to discuss the high demand for devices that can access the digital world, as it is this demand that drives both high manufacturing output, as well as high levels of subsequent replacement and consequent disposal. Arne Johann Vetlesen in *The Denial of Nature: Environmental Philosophy in the Era of Global Capitalism*, notes the negative effects of technological consumption for both consumers of such artefacts, and for those – mostly in poorer countries – who are tied to the manufacture of these artefacts. He writes that “technology in our era has liberated us from (meaning us privileged Westerners, not the factory workers in Asian or African low-cost, non-unionized, tax-free business havens)...the toil and monotony of manual labour,” but this has been accompanied by “a diminishing of the fullness of our repertoire as human subjects in the world.” That is, for him, “there is a close and mutually reinforcing correspondence between the shrinking of the outside world (or nature as a whole) into so many items for consumption here and now, and the shrinking of my repertoire as a human subject” (2015: 157). Indeed, Vetlesen argues that “the illusion is fed that the entire world is at the feet of any individual equipped with a keyboard and a screen [or an] iPhone, iPad, and multi-functional cell phones.” Moreover, in relation to these commodities and the services they offer, “we want [everything] now, and we want it to come to us,” and because we have invented technologies that “at a moment’s notice bring to us whatever it is we want, regardless of time and geographical location – bringing us practically *everything, everywhere*, and at *any time* – we are abolishing time.” Correlatively, “the ubiquitous market offers commodities that satisfy the fantasy of instant gratification, causing anxiety or rage whenever the ‘instant’ of the gratification fails to obtain,” the consequence of which is childishness. As Vetlesen explains, the alternative is “the possibility to experience the frustration following from wanting...something without getting it,” which he advances as “an experience crucial to growth and maturation” (2015: 41). Yet, while the above narcissistic dynamic may impact negatively on the millions of users who have the resources to access digital space, on the other side, for those involved in the extraction of resources and manufacture of digital infrastructures and devices, the material effects of a digital society are even more grim. Here we should consider the specific materials without which our portable and multi-functional

devices – such as laptops and the now ubiquitous smartphones – would not be able to operate; in particular, coltan, or more precisely columbite-tantalite. This “black tar-like mineral [is] found in large quantities in the Congo,” which currently produces 80% of the world’s supply, and is exported from here through Burundi, Rwanda and Uganda to major processors in the West, who once they have refined the material, sell it on to companies such as Nokia, Sony, Hewlett-Packard and Compaq, among many others (Conflictminerals.org, 2015). Imtiyaz Delawala writing for *ABC News*, notes that the value of coltan is in its refined form as “metallic tantalum, a heat-resistant powder that can hold a high electrical charge.” It is this property that “make[s] it a vital element in creating capacitors, the electronic elements that control current flow inside miniature circuit boards.” Indeed, “tantalum capacitors are used in almost all cell phones, laptops, pagers and many other electronics,” with the consequence that the price for coltan even “skyrocketed to as much as \$400 a kilogram at one point” (*ABC*, 2015). *The International Consortium of Investigative Journalists* notes, though, some of the many problems with the extraction of this particular substance. According to them, “most Central African coltan is considered a conflict mineral because mining areas are controlled by armed factions and organized crime.” Furthermore, “there is no simple way to keep conflict coltan out of the stream of legitimate minerals used by manufacturers,” because it doesn’t have “geo-fingerprints” like “conflict diamonds.” Moreover, they note that, although attempts at certification have been made, China and India – who import the bulk of the world’s supply – do not require such papers. And in any event, Western attempts at certification would require “comprehensive action by industry, governments, and activists,” and this has been difficult to achieve (*ICIJ*, 2012). Closer to the source of the tech bubble, Lori Gruen in “Technology,” discusses the polluting qualities of what she labels “so-called ‘clean technologies,’” with her specific focus falling on the production of microchips which are central to the operation of all computing technologies. She argues that their manufacture “involves the use of many highly toxic chemicals, such as arsine, acetone, ethylene glycol, and xylene.” And the use of these chemicals by the high-tech industry has caused “massive ground water contamination in the last thirty years.” Furthermore, in the event of unforeseen spillage or leakage “at the site of a high-tech company, the pollution often spreads many miles from its origin and can affect vital sources of drinking water and precious wetlands.” As a surprising example of the ill-effects associated with the manufacture of ‘clean’ technology, Gruen points to the problems faced by the much-lauded Silicon Valley.⁵⁴ In this

⁵⁴ The reason I suggest that this may be surprising is that Silicon Valley is often seen as a Mecca of creativity

regard, she writes that in Silicon Valley, the “centre of high-tech production, there are now more polluted sites prioritized for clean-up by the federal government than in any other county in the United States” (2001: 439-440).

On a final, and somewhat more philosophical note, Greg Kennedy’s *An Ontology of Trash: The Disposable and its Problematic Nature* explores the meaning of disposable objects in general, also focusing on the proliferation of the quickly-outdated (and thus consistently updated and discarded) devices used to access digital space – and why we are so immensely receptive to such a system of relations. According to Kennedy, there are a number of factors at play in our acceptance of disposability, from the quasi-religious through to the alienation pervasive in societies defined by patterns of consumption (2007: 47, 142). Specifically with regard to the disposability of technology, its effects, and our lack of regard for those consequences, he narrows popular sentiment on the topic down to two main ideas. Drawing on the thought of Heidegger, he argues that “much of the appeal of new technologies stems from their promise to diversify our experience, by freeing us up from a limited set of physical tasks.” And in this regard, Kennedy turns to the philosopher Albert Borgmann,⁵⁵ who sees such an exchange as “a promise to bring the forces of nature and culture under control, to liberate us from misery and toil, and to enrich our lives.” Problematically, though, this promised liberty “is often purchased at the expense of bodily activity and participation with the tangible world” (2007: 46-47). Indeed, “the danger of technology lies in the cloud of intoxication that descends on technological humanity; for this cloud obscures the fact of human receptivity,” in that “within this cloud, we are too ready to believe that our existence is self-secured, invulnerable, and without debt, when in truth we exist always and essentially as helpless beneficiaries” (2007: 49-50). For Kennedy, it is this sense of invulnerability and dislocation from the material world that allows for a collective inertia over, or amnesia concerning, the environmental impacts of our consumption, and he provides a good example of the damage of having adopted such a sensibility. He writes, “every time we eat we consume not only the entire transportation network but also the whole inter-connected industrial web of production that created and maintains the former.” For instance, discarding a banana peel means the throwing away of “tires, asphalt, spark plugs,

and, indeed, “a high-tech gold rush” (*IMDB*, 2014) in which fortunes are made. As such, off hand, most people would hardly associate it with the severe levels of pollution pointed out by Gruen.

⁵⁵ Albert Borgmann is a German-born American philosopher, who in relation to the thought of Heidegger, wrote a number of works on technology, including *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, published in 1984, in which he called for urgent reform in terms of how people think about technology.

work boots, fuels, pipelines, paper invoices, boxes, computer chips, television screens, newspaper flyers,” etc. that are used” to produce, deliver, and market the commodity.” And he – perhaps a little dramatically – accordingly describes every such instance of consumption as “the excrement of the technologically externalized body” (2007: 52), which despite being part of this consumption cycle, is a “bulk of this waste” that never comes into our view, because it instead simply disappears “into black plastic bags, out-of-the-way landfills, incinerators, into the depths of the Ocean and Third-World processing plants.”⁵⁶ In effect, for him, “technology disposes of the world by effacing its physical earthly counterpart: the body,” and it is here that an interesting concept is first mentioned. When discussing this issue, and the disposable products that are a feature of our contemporary societies, Kennedy suggests that “they seem to lack all temporal integrity.” Indeed, “out of nowhere they magically materialize on the retailers’ shelves and just as suddenly dematerialize after the brief act of consumption. That is, their being is concentrated into the serial ‘now’ of repeated consumption” (2007: 53-54). Similarly, “even the slightest delays in loading or processing data strikes us as tedious, if not unbearable,” even though “perfect availability...exists outside of time and space” (2007: 72).

Yet, while information technology is inextricably linked to neoliberal economic practice, and while its material infrastructure undoubtedly impacts negatively on the environment, it would nevertheless be myopic to label it entirely incapable of facilitating a positive response to the environmental crisis, without due consideration.

Questioning the relationship between technology and nature

While the environmental cost of a digitally-orientated society, discussed above, should not be ignored, it is also highly unlikely that contemporary societies will move away from their reliance on digital exchange (and the infrastructure that makes it possible) in the near future. It is therefore imperative to seek aspects and features of this technology that may engender a different orientation toward nature on the part of the individual who uses them. In this regard, it is important to consider the relationship between technology and nature carefully, and to

⁵⁶ Here, Kennedy argues that this exchange is highly negative for both the consumers and producers involved in such a system of relations. On the one hand, for the consumer who exists in the “so-called post-industrialized sectors of the Western world,” alienation is the effect, because “sitting confined to a computer for a day of data-entry can severely exhaust and tax the body such that it numbly craves commodities.” In turn, “the high-tech proletariat, which now includes most of the middle class, has lost even the remotest physical connection to the production of the commodities they consume.” On the other hand, while such “mystification surrounding commodities deepens” in the First World, “work is exported overseas to countries still caught in the growing pains of rapid industrialization” (2007: 95).

explore whether these two are mutually exclusive, or whether the exchanges between technology, the self, and nature are far more complex and entangled than is often assumed.

In this regard, Dave Toke in *Green Politics and Neo-Liberalism*, offers an important first point. He argues that the environmental movement is often unfairly labelled as being against progress because of their supposed aversion to technology, but that such conceptions of those who are concerned with the environment are misguided. And he attributes the pervasiveness of this prejudice to the work of Francis Fukuyama, who in his influential *The End of History and The Last Man* – published in 1992⁵⁷ – attacked “the green movement as being infected with Rousseau-like romanticism,” and advanced that they “are against progress and technology.” Indeed, Toke quotes Fukuyama, who argued that Rousseau’s

criticism of the Economic Man envisioned by John Locke and Adam Smith remains the basis of most present-day attacks on unlimited economic growth, and is the (oftentimes unconscious) intellectual basis for most contemporary environmentalism...Is it possible to imagine the emergence of a highly radicalised environmentalism that would seek to reject, on the basis of an updated Rousseauism, the entire modern project of the conquest of nature, as well as the technological civilisation that rests on it? The answer, for a variety of reasons, would appear to be no. (Fukuyama in Toke: 2000: 159).

Toke also points out how Fukuyama maintains that “people will not return to nature and they will not freeze technology,” and in this he is undoubtedly correct. However, it is in his assertion that this is the desire of the environmental movement at large that Fukuyama is mistaken. Against this, Toke argues that “the issue is not whether greens are Rousseau-ites any more than whether some right-wingers support General Pinochet’s fascist methods because they support the introduction of market economics into Chile.” Rather, he argues, the issue “is whether unlimited economic growth is the main priority of social development, whether the current deployment of industrial and social technology is healthy and whether the conquest of nature is a desirable philosophical goal.” As such, rather than being “against progress,” those concerned with the environment are for “a different sort of progress,” one which is at variance with “the blind industrialism and extreme competition which seems to be

⁵⁷ Toke argues that Fukuyama’s “writings have been widely accepted as emblematic in describing the alleged historic victory of capitalist liberal democracy” in the late twentieth century, and that Fukuyama “expresses the dominant view of neo-liberalism when he attacks the green movement” (2000: 159) after the fall of the Soviet Union.

favoured by Fukuyama” (Toke 2000: 159-160). And Toke outlines the position taken by the environmentally-orientated activists further, writing that “this green vanguard of progress may promote different technologies to the industrial mainstream, but it chooses those technologies, including social technologies, which uphold the most fundamental of human truths concerned with the advancement of health and survival.”⁵⁸ In this regard, and by way of a summation of his argument, Toke quotes Barry Commoner, whom he labels “one of the gurus of the new environmentalism that sprang up...in the 1960s,” and for whom “the real question is not *whether* we should use our new (scientific) knowledge, but *how* to use it” (2000: 175).

Against the backdrop of Toke’s argument that a concern for nature does not automatically exclude consideration of technology as a means through which one could affect a positive change in terms of our relationship with the environment, the discussion can be opened up further by considering the relationship between culture, technology, nature, and the self. As Manuel Poitras advances in “Social Movements and Techno-Democracy: Reclaiming the Genetic Commons,” there are three possible positions one could take on the issue of technology as a societal variable. Firstly, the idea of technology as a panacea for all ills, secondly, the idea of technology as the source of all ills, and thirdly, the idea of technology as indeterminate.

To begin with, Poitras argues that it is surprising that, although technology “occupies a central place in the dynamics of societies,” it is seldom “a topic of political debate or struggle.” And he explains that the reason for this is reflected in the first broad position taken on technology, which for him is rooted in “enlightenment thinking on social progress still common in Western societies.” Such thought “views technology as a gift of modernity and as necessarily beneficial, inevitably leading to the greater benefit of all,” such that it does not require “explanation or debate.” Poitras also reflects further that in such a conception, technology is seen as socially neutral, apolitical, and only belonging to the realm of specialists and scientists, with the consequence that it is not readily taken on by politicians or social movements (2008: 268). Specifically for his study, he notes that this is the thinking that underlies the US government’s attitude toward genetically modified food, in its insistence that “GMOs should be regulated on the basis of ‘science’ only, [and] not ideology

⁵⁸ Toke also argues that even those environmental movements often associated with an extreme aversion to technology are mislabelled as technophobic, because “despite their professed anti-technological leanings, even the most radical deep ecologists tend to suggest a path of alternative, not zero, technology” (2000: 175).

or politics.” With regard to information technologies, of course, this template doesn’t apply quite so neatly. Certainly, new developments within this realm are greeted with enthusiasm, and are heralded as progress, but the political and ideological dimension of, for instance, the proliferation of social media sites and applications enabled by the features of Web 2.0, are also seen by many parties – including government – as a realm of political and ideological contest. What does apply to any technology, in terms of Poitras’ argument, is the consequence of this view of technology, namely “that resistance to new technologies is considered necessarily regressive and against the progress of human societies.”

Yet, correlative technophilliac proclamations are both abundant and no less obfuscating. An extreme example of a text which unequivocally reifies the power of information technology, is the tech magazine *Wired*, which welcomed the new millennium through a series of articles that Frederick Buell labels as exhibiting “the culture of hyper exuberance” often associated with information technology. The article Buell focuses on in particular “was a tale of New York City in the new millennium, a story that began right in the midst of environmental meltdown.” In short, the article imagines a city which has embraced information technology to the extent that it has liberated itself from an environmental crisis foisted upon it through a subscription to the supposedly far more destructive technologies of the past. As Buell notes, the conception of such a city is one “in which nature ha[s] become thoroughly technologized and technology ha[s] put nature everywhere to work.” And he quotes a passage from the article which saliently demonstrates such thought, in its suggestion that “in the past, it had always been the cost of time and attention that was the quiet hell of the wannabe-Green lifestyle. The laudable goal was to live an ecologically sane life, close to the good green earth, reading your Emerson essays on the shore of Walden Pond.” However, “in harsh reality, your daily life meant endless hours of butter to churn, pigs to slop, beans to hoe, trash to sort and recycle.” Yet today, instead, through a subscription to technology, one can make the “conceptual breakthrough” to understanding that “the Web could manage that.” And in a self-parodying style, it is advanced that if one “can’t hire a gardener” then one should “wire the garden and hire a gardening site to maintain it for you.” But as Buell notes, despite the “mock-breathy, self-parodic tone – a tone typical of *Wired*” – the message was clear, namely that the environmental crisis is a “cool” realm of creative possibility. Indeed, he notes that the writer and readers of the magazine would have “doubtless felt [that the] environmental crisis was truly good for us. It was truly bad, but then it was good too,” because it generated “urgency and excitement” and provided the “breeding ground of out-of-

the-box contrarian thinking” (2003: 195-196). Thinking which was nevertheless fundamentalist in its embrace of information technology as best placed to respond to the crisis. Fundamentalism is perhaps the most apposite descriptor for such utopian, ahistorical and decontextualized claims, because of the reflections at times of spiritual beliefs within such positive appraisals of digitality. Vincent Mosco, through his examination of the various metaphors and myths that surround our digitally-orientated world in *The Digital Sublime: Myth, Power, and Cyberspace*, provides further explanation of how such “hyper-exuberance” over the potential of information technology has emerged. He argues that popular language on cyberspace is laced with grandiose claims that seem to find in cyberspace “what amounts to the fundamental metaphor for understanding the universe.” And he lists some of these as the internet being perceived as digital library, information highway, electronic commerce, virtual community, digital ecology, and the narrative stream (2004: 51-52). While he does not dispute the capacity of the internet to, in part, play such a role and facilitate such practices, he questions the holism of its capacity in this regard. Beyond metaphor, Mosco looks at myth in relation to the digital. On this matter, he divides his discussion into two strands of exploration; firstly, the idea of the digital as magical, and secondly, declarations of its ends in a thoroughly positive sense – such as those of Fukuyama or of those expressed in the article analysed by Buell. That is, firstly, Mosco addresses in great detail the idea that information technology seems to house within it some sort of spiritual, abstract quality that cannot quite be touched, but that – were one to just push it a little further – would be able to offer us endless possibilities. In this regard, he references the work of the polarizing transhumanist Ray Kurzweil,⁵⁹ whose work *The Age of Spiritual Machines* he lambasts. He writes that through his book, “with its promise of immortality, spiritual fulfilment, perfect community, and practically every other mythic utopian vision, all based on the power of...[the micro] chip,” Kurzweil has done nothing more than turn a “technical forecast” into “a larger quest that amounts to turning [technology] into a spiritual principle and its object” – namely the microchip – “into a magical talisman.” While the optimism exhibited by the likes of Kurzweil might be excessive, it is nevertheless ideologically powerful insofar as it operates in relation to frustrating human limitations. Limitations we have always tried to overcome, whether through perception or through practical means. As Mosco elaborates, “the thorny question arising from all the limitations that make us human were once addressed by myths that

⁵⁹ On the subject of this author, Peter Diamandis and Steven Kotler in *Abundance: The Future is Better Than You Think*, credit Kurzweil with being the best example of a person able to predict technological trends – and that this has earned him as much praise as criticisms (2012: 51).

featured gods, goddesses, and the variety of beings and rituals that for many provided satisfactory answers.” Yet, in the contemporary era, this dynamic has become secularised in Western/Westernized/Westernizing societies because “today, it is the spiritual machines and their world of cyberspace that hold out the hope of overcoming life’s limitations.” In effect, these machines facilitate access to “what Dibbell calls ‘the pre-Enlightenment principle of the magic world,’ in that “commands entered into a computer do not just communicate; they make things happen. As a result, a cyberspace version of ‘the logic of the incantation’ is rapidly permeating the fabric of our lives,” and that, accordingly, for many “our high-technology world is essentially a magical one” in which “the boundary between reality and fantasy is constantly being transgressed” (2004: 78). Secondly, besides this perception of digitality as a mystical exchange, declarations of the immensely transformative capabilities of information technology also abound. Of course, “almost every wave of new technology, including information and communication media, has brought with it declarations of the end,” but in doing so, they represent “the ideology of redemption through networks.” The power of this myth is that such proclamations “take place with no reference to similar proclamations in the previous wave,” and so “one cannot help but conclude that the rhetoric of technology...is powerful enough to create a widespread historical amnesia.” To be sure, Mosco advances a simple way to discredit proclamations of the redemptive end, by arguing that “one of the more useful ways to understand technological myths, including myths of cyberspace, is to excavate the tales that accompanied the rise of earlier ‘history-ending’ technologies” (2004: 117). And he proceeds to do exactly this, tracing the many exuberant declarations that greeted, respectively, the telegraph, electrification, the telephone, radio, and television (2004: 118-130), because for him “looking at the history of technology literally puts us in our place.” Indeed, “rather than ending time, space, and social relations as we have known them, the rise of cyberspace amounts to just another in a series of interesting...exercises in the extension of human tools,” which is certainly not enough to “warrant claims about the [salvific] end of anything” (2004: 119).

The second general position taken on technology reflects a “mirror view” of the above, in that it “sees it as the root of all problems in modern society, and calls for a return to traditional ways” (Mosco 2004: 120). Donald Norman in *The Design of Everyday Things*, gets to the heart of the matter when he explains that, increasingly today, “people are frustrated with everyday things. From the ever-increasing complexity of the automobile dashboard, to the increasing automation in the home with its internal networks,” which

comprise of “complex music, video, and game systems for entertainment and communication,” we face “continued errors, frustration, and a continual cycle of updating and maintaining our belongings” (2013: 10). And Mark Brosnan in *Technophobia: The Psychological Impact of Information Technology*, explains that such breakdowns in the exchange between human beings and ever-proliferating technologies results in what he calls the “emergent phenomena of technophobia.” Indeed, for Brosnan “it affects up to one third of the entire population,” and he rejects the notion that “technophobia is a passing phenomenon affecting [only] older individuals” (1998: 2). After all, if one considers also the earlier discussed contributions of Castells, Kanouse and Schultz, who speak of a schizophrenic world operating in terms of the hyper-speed engendered by information technology, then such aversions to technology can be easily understood.

Both of the above positions are thus marked by a certain fundamentalism, which is problematic in a situation characterised by immense dynamism and change, where what is required is an exploratory attitude. And in light of this, the third position emerges as particularly valuable, because in terms of it “technology is considered ‘undetermined,’” because “there are [always] a number of alternative developments that can arise from [any] one technological advance.” Therefore, when we think about technology, we should be careful to neither accept nor reject it based solely on technical and economic considerations, but instead, should philosophically and ethically consider “the fit between devices and the interests and beliefs of the various social groups that influence the design process.” Indeed, “what singles out an artefact is its relationship to the social environment” and “not some intrinsic property” – a relationship which can also always change or be changed (2008: 268-269).

With this in mind, the aim, as ever, is to get to a pragmatic consideration of the role of information technology in our present day, particularly in terms of its potential contribution to facilitating a positive re-orientation toward nature on the part of individual users. In this regard, to adopt the third position of seeing technology as undetermined, as advanced by Poitras, emerges as the most sensible approach in the interest of gauging what kind of connections have emerged and can be developed between users of information technologies and the environment. Accordingly, a deeper critical reflection must be pursued with regard to the complex exchange between human agency, and technology, nature and culture. In terms of this, Martin Lister, Jon Dovey, Seth Giddings, Iain Grant and Kieran Kelly, offer a rich vein of reflection on this matter in their book *New Media: A Critical Introduction (Second*

Edition). In particular, in “Cyberculture: Technology, Nature and Culture,” Lister et al. argue that when studying new media, we should reconsider our tendency to place human agency in opposition to all sorts of determinisms – specifically in relation to our exchanges with emerging technologies. Rather, they argue, one should see human agency as located within a spectrum in which technology, nature and culture are in constant interplay with one another. This is because, if we adopt such a perspective, a far more productive encounter with technology can potentially occur, insofar as, rather than seeing technology as a substitute – the Western perspective that everything digital is simply substitution – we see it as something in itself; a series of developments that have capacity, potential, and in a sense, agency. Indeed, rather than taking on the somewhat paranoid perspective that digital technology is only about control, restriction, and a poor replica of human agency, their argument is that digitality should rather be approached from the perspective of its uniqueness, and the capacities and potentials that such a *haecceity* can generate.⁶⁰

As a starting point, Lister et al. posit that new media form a part of “cyberculture,” and they define this cultural orientation where “machines play a particularly important role,” as one in which a number of constituents are present, namely “communications networks, programming, and software, [as well as] artificial intelligence, virtual reality, artificial life, and the human-computer interface.” In relation to this relatively new mix of constituent developments and practices, they point out that “cyberculture...marks a threshold at which concepts, theories and practices stemming from cultural and media studies confront concepts, theories and practices stemming from the sciences” – most specifically, from “biotechnology, robotics and genomics.” These tentative and not yet certain exchanges suggest a terrain that is in no way yet fixed and stable; indeed, further complicating the matter “is, of course, the extraordinary pace of contemporary technological change” (2009: 317).⁶¹ And it is their assertion that the many uncertainties and questions that have come to light in relation to the emergence of new media, “are actually versions of larger and more fundamental questions about the relationship of culture to technology and technology to nature.” With regard to this, they argue that at the heart of questions about “advanced technological societies,” that are

⁶⁰ Gary Rosenkrantz in *Haecceity: An Ontological Essay*, defines a haecceity as something exhibiting a “thisness” – or something unique to itself, although Rosenkrantz does point out that such readings of it are in themselves highly contested (1993: 5).

⁶¹ And Lister et al. provide a number of practical examples of how we have entered uncharted waters, as it were, in our embrace of digital technology. For instance, “our newspapers now routinely announce some new marriage of biology and technology in the form of intelligent prosthetics, implant technologies, cloning, and so on, while we are suffering new physical (repetitive strain injury) and psychological disorders (in-tray anxiety, information sickness) as a consequence of the ubiquity of computation” (2009: 317).

organized under the name of cyberculture, lies “the shifting relations between...culture, technology and nature.” As such, while

we may be used to dividing ‘nature’ from ‘culture,’ and...routinely bas[ing] our academic investigations on attending to one or other realm,...the advent of technology troubles this simple distribution of academic labour, and compels us to ask the question of how to approach ‘the question of technology’ at all. (2009: 318)

However, while we do know that technology has an impact, both in a material sense, and in terms of its effects on leisure, work, social relations, and so forth, Lister et al. argue that the response is, in a sense, limited. This is because, on the one hand, “most media theorists are highly sceptical of...[the claim that] technology, both in its forms and its capacities, profoundly affects human culture.” On the other hand, and perhaps in response to such scepticism, certain other theorists participate in “sudden outbursts of techno-enthusiasm and the making of over-inflated claims” that involve an “undisciplined euphoria and ideological overstatement.” And both positions, in attempting to combat each other’s entrenched perspectives, have “largely failed to develop a means of addressing technology as a real and material phenomenon” (2009: 319-320). Accordingly, a way out of this impasse would be to perceive a more amorphous, fluid relation between technology, nature, culture, and within this mix, human agency.

In their endeavour to map this set of relations, Lister et al. begin by exploring the relationship between technology and nature. They state that although this relationship, off hand, seems like a logical opposition, in that “technology is by definition artificial, and biology, by definition, investigates the natural,” if we consider concepts – and indeed realities – such as “cyborgs, clones, and prosthetics,” then such developments “call into question the settled edge between the biological and the technological in the contemporary world.” And to support their assertion, they point to a “long history of doubting the distinction” between the two, arguing that trying to separate technology and nature only leads to more questions posed than stable distinctions made. They then similarly consider the ostensible opposition of “technology to another big idea or category of things: culture,” through asking the key question: “while it may seem self-evidently true that humans put machines together, does it automatically follow that humans and their cultures remain in control of them?” By way of response, they suggest that, certainly, human beings (or human cultures and societies) are in easy control over “simple machines or tools,” but that this position cannot be as easily replicated when it comes to “complex machines or systems of machinery.” Accordingly,

within the context of societies in which embedded digital technologies act swiftly and, in a sense, invisibly, via a range of actions (from the interpersonal, such as texting, to the global, such as automated stock-markets), it makes “increasingly less sense to distinguish technology from culture as cultures becomes increasingly technologized.” Thus, much like the attempt to make the distinction between technology and nature, the attempt to separate technology from culture is fraught with problems and contradictions. Indeed, Lister et al. posit that “the now commonplace division of things into the realms of ‘nature’ and ‘culture’” is nothing more than a “fundamental intellectual habit,” which they attribute to the nineteenth-century German philosopher, Wilhelm Dilthey, who “carved up knowledge into the natural or physical sciences (*Naturwissenschaften*) and the cultural or human sciences (*Geisteswissenschaften*)” (2009: 323-324). What is at stake is rather neatly summed up by Lori Gruen, who asks us to consider the “not unrealistic situation in which an individual has no chance at all of experiencing genuine nature.” Her hypothetical individual “is poor and lives in an overpopulated urban centre” and “most of her time is spent trying to survive and keep her children alive.” Yet, “on rare occasions, she and others like her are invited to view a nature video or experience nature in a ‘virtual’ way.” While this provides her with “genuine pleasure...she knows her experience is mediated through technology,” but this does not diminish her recognizing the “value of nature” within her mediated experience (2001: 447-448). Certainly, Gruen’s scenario is by no means an isolated or decontextualized one – to a great extent, many of us know what we know of the natural environment through mediated means. Thus, although technology – including information technology – is destructive of the environment, it could also be used to offer us an experience that is profoundly unsettling and evocative, and which could ultimately catalyse us into considering nature in a different way. And from this, various interesting possibilities could emerge.⁶²

Conclusion

On a concluding note, if nature does not automatically exclude technology, and if technology can be considered indeterminate and a tool that can be employed for its transformative capabilities, perhaps then it is possible to shift or inflect aspects of the DSP through digital

⁶² Although it is not within the scope of this study to consider at length Bernard Stiegler’s three-volume *Technics and Time*, this is not to discount the further reflections offered by him in his trilogy concerning how we have related to, and currently relate to, technology in general. In this regard, Anna Kouppanou, in “Bernard Stiegler’s Philosophy of Technology: Invention, decision, and education in times of digitization,” points specifically to his evocative “concept of individuation [that] suggests that the human being is co-constituted with technology” (2015: 41). Indeed, this issue is very much explored in this thesis, but via a Deleuzoguattarian framework.

means. Of course, great care must be taken here to avoid what Kilbourne et al. call the trap of the “technofix,” and what Mosco terms the “digital myth.” But against the backdrop of this caveat, the following chapter will begin to explore what kind of new connections between ourselves and nature might be possible and beneficial in this regard, in relation to the theoretical contributions of Gilles Deleuze and Félix Guattari, along with the potential technological obstacles to the establishment of such connections.

Chapter Three – Deleuze and Guattari, becoming-animal, and the digital wall

Introduction

As discussed in the previous chapters, the DSP is operative in the marginalization of pro-environmental discourse, and although it has been opposed by a number of environmental theorists and activists, on account of this, it was also argued that *everyone* is to some extent complicit with the DSP – even the very environmental theorists and activists who write and speak out against it. But the very idea that technology, nature and culture exist as separate and mutually exclusive domains or realms was also called into question, and correlatively the need to approach them in the contemporary era with more circumspection as complex phenomena, characterized by entanglement and imbrication, was advanced. In this regard, it was argued that we should look beyond the oppositional stances of the past and instead explore how individual attitudes and behaviours toward continuing environmental degradation might be re-orientated through technological, and particularly, digital means. That is, despite its negative effects – which were extensively detailed – it was advanced that digitality nevertheless may have the capacity to shift aspects of the DSP toward a more environmentally benign orientation. Yet for this, a philosophical framework is required, both to guide any new interventions, and to recognize resonant interventions. In the interest of establishing this, in what follows, the work of Gilles Deleuze – both his individual works and his collaborations with Félix Guattari – will be focused upon. And this is done not only because they were philosophers of difference and desire outside of the ambit of capitalism, a cornerstone of the DSP. In addition, it is also because their idea of becoming-animal, with its corollary of desubjectivation – which emerged alongside the environmental movement discussed in Chapter One – comports with a critical assessment of the anthropocentrism propagated by the cosmological dimension of the DSP. Yet in this regard, Deleuze's concerns over the negative impact of digitality on thought will also, of necessity, have to be engaged with.

Accordingly, in what follows, firstly, Deleuze's socio-political and academic environment, to which he responded through his various theoretical works, will be explored. In particular, the decade of the 1960s will be discussed in terms of its great changes and instability, and particular attention will be paid to the May/June protests of 1968, so important for Deleuze and his colleagues. Secondly, after such historical contextualization,

the focus of the chapter will shift to an exploration of the philosophical context Deleuze formed part of; that is, the legacy of Hegelian dialecticism which Deleuze found tremendously stifling, the immense influence of structuralism precipitated by the work of Claude Levi-Strauss, and the emergence of Nietzschean-inspired French post-structuralism. Thirdly, attention will be drawn to Deleuze's own contribution to post-structural thought and his exploration of difference, as evinced in his book *Nietzsche and Philosophy* (1962). This text, along with other key theoretical contributions, will be considered in relation to Deleuze's commitment to the production of difference and the correlative eschewal of adherence to dogmatic thought, before the dynamics of his collaborative work with Guattari are elaborated upon. In the latter regard, by the 1970s, Deleuze had begun an immensely productive series of collaborations with the radical psychoanalyst Félix Guattari, and from 1972 onward, with the publication of their book *Capitalism and Schizophrenia: Anti-Oedipus*, Deleuze and Guattari produced a myriad concepts designed to precipitate affirmative experiences of difference. In this regard, specific focus will fall on the Deleuzoguattarian concepts of 'desire and machines/desiring machines,' 'Bodies without Organs,' 'nomadism,' 'nomadic war machines,' and 'rhizomes.' After this, the discussion will turn to Deleuze and Guattari's 1980 work, *Capitalism and Schizophrenia: A Thousand Plateaus*, in which they discuss the generation of difference in relation to interactions between humankind and the natural world, involving desubjectivation through the process of becoming-animal. Finally, the extent to which Deleuze, despite a provocative career and prodigious theoretical output spanning decades, by the 1990s evinced an increasingly sombre perspective on the rapid advance of information technology, will be examined. In particular, his 1990 work "Postscript on Control Societies" will be engaged with, and Deleuze's concern that digitally-orientated societies would ultimately rob people even further of their agency, will be discussed.

Deleuze's historical context: The 1960s as a decade of change

The 1960s, and in particular 1968, are widely regarded as years of great socio-political and cultural change; a revolutionary period in which Western capitalist societies encountered a time of great destabilization, insofar as enclaves of established authority to various degrees became obliged to yield to the desires and critical demands of their citizens. Peter Taaffe in "1968: Year of Revolution," explains that "some years stand out as historic turning points: 1789, 1848, 1871, 1917, 1989," and he goes on to equate the period of the 1960s, specifically the climactic moment of May 1968, with some of the most profoundly unsettling and

transformative flashpoints in modern history. In this regard, he writes that although some of the above years can be seen as “signifying a turning back of the wheel of history,” others – such as 1968 – must be “clearly identified with revolution.” Citing the ideas of Karl Marx and Friedrich Engels, and relating them to the events of the 1960s, Taaffe argues that there are “periods in history when decades appear like ‘one day’ in their apparent tranquillity.” However, alternatively, “there can be days in which the events of 20 years can be compressed” (2008: 1), and the events of May-June 1968 in France comprise a case in point.

For the sake of clarity, it is helpful to consider the immediate historical context preceding and informing this explosion of dissatisfaction, protest and popular desire for a different future. Jeff Kiseloff in his *Generation On Fire: Voices of Protest from the 1960s*, provides a useful frame of reference from an American perspective. He begins by reflecting on the generation of people who had survived the Great Depression and gone on to fight in the Second World War, arguing that although this “greatest generation” – as they were later termed in Tom Brokaw’s best-selling book on the subject⁶³ – were indisputably resilient and courageous, in the years following the war, “many settled into lives of conformity and comfort, paying little heed to the spectres of poverty, racism, and McCarthyism that haunted the country” (Kiseloff 2006: 1). That is, while the decade following the catastrophic global conflict of the 1940s was a period of great economic boom, which accordingly allowed many people access to living standards never thought possible before, as Richard Brownell in *Counter-Culture of the 1960s* demonstrates, this economic prosperity did not reach everyone. Specifically, while many “women...lived with the advantages that the culture afforded them,...they were never expected to want more than the traditional role that prevented them from living independently” (Brownell 2011: 6) similarly, many minority groups faced open discrimination.⁶⁴ Yet in contrast to their parents, or those of the ‘greatest generation,’ “the so-called baby boomers who came of age in the 1960s were less content with such limitations and inequality,” and it was they “who fought and sacrificed to compel a reluctant nation to make good on its promise of ‘life, liberty, and the pursuit of happiness.’” Even though this was often at great personal cost to themselves in terms of their own family relations, societal ostracism and marginalization (Kiseloff 2006: 1).⁶⁵ That is, while some of them were either

⁶³ The book is entitled *The Greatest Generation*, and after its publication in 2001, it achieved both critical acclaim and commercial success.

⁶⁴ The assassination of civil rights leader Martin Luther King, on 4 April 1964, was just one event that indicated the severity of this discrimination (Brownell 2011: 6-8).

⁶⁵ Ironically, the criticisms levelled by the so-called baby-boomers against their parents are being replicated today, insofar as baby-boomers are often criticized by their children for their lapse into conservatism and

implicitly or forcibly pushed to the margins of society, others opted out of mainstream society by choice. This adversarial group, although undoubtedly in many individual cases well placed to access the material benefits of belonging to mainstream society, rejected it, claiming “that most Americans had become prisoners to the lifestyles they maintained,” and that “they wanted no part of the affluence and materialism of the 1950s” (Brownell 2011: 8). The radical nature of this gesture begs the question as to why any group would choose potential exclusion over the lure of comfort and stability, especially in a country which had moreover risen to dominance following the events of the Second World War. By way of answer, Brownell points out that for many Americans, the 1960s had “opened with a promise of change” through the election of John F. Kennedy as President in 1961. As the youngest ever incumbent of the presidency, Kennedy’s replacing of “the oldest man ever to serve in the White House,” namely Dwight D. Eisenhower, served as a symbolic moment for many. And coupled with his progressive views and alignment with the civil rights movement, Kennedy “created a climate of high idealism,” which he pursued – at least rhetorically – with evangelical zeal.⁶⁶ However, the events of the decade, both domestically and internationally, soon diminished the public’s belief that history was moving toward a less cynical and exploitative system of relations. Although a full description of all such events is beyond the scope of the present work, among some of the most important were the 1961 Bay of Pigs invasion, and the related Cuban Missile Crisis of 1962 (Lynch 2009:1-7; Roberts 2012: xi-xix), which demonstrated that the Cold War – characterized by severe political tension and proxy military conflict with an ever-present threat of global nuclear obliteration – was escalating dangerously. Adding to this existential angst was Kennedy’s assassination in 1963, which was followed by the assassination of the civil rights leader Martin Luther King the next year, which seemed to constitute the death knell for idealists who desired change. Something which was compounded by the fact that, toward the end of December, American military involvement in Vietnam increased significantly (Farber and Bailey 2001:38), so that the distant localized conflict grew into an increasingly bloody quagmire, involving hundreds

comfortable lifestyles, at the expense of a more affirmative engagement with life. See, for instance, Greg Jericho’s “Generation Y have every right to be angry at baby boomers’ share of wealth” (*Guardian*, 2014), Will Hutton’s “The Baby Boomers and the price of personal freedom” (*Guardian*, 2010), and Jim Tankersley’s “Who Destroyed the Economy? The Case against Baby Boomers” (*The Atlantic*, 2012).

⁶⁶ Of course, Kennedy was a multi-faceted individual, operating within a specific and complex political, economic and socio-cultural context, and therefore should not be characterized in hagiographical terms. Texts such as Giglio and Rabe’s *Debating the Kennedy Presidency (Debating Twentieth Century America)* (2003), and Robert Dallek’s *An Unfinished Life: John F. Kennedy, 1917-1963* (2004), offer deeper insight into this political figure and his ambiguous stance on many of the key issues that he was popularly perceived to support unequivocally. Yet, such issues notwithstanding, it is generally considered that Kennedy remains one of America’s more progressive presidents.

of thousands of American soldiers. Consequently, when the Republican candidate Richard Nixon became President in 1969, for many it seemed that while order had been restored, an opportunity for radical change through institutional means had also been lost. The cultural backlash to this growing uncertainty took many forms, but in effect, “many young people began to question whether they should make an effort to liberalize a society that seemed closed to their ideas,” and then instead “simply walked away and developed their own society” (Brownell 2011: 42). Of course, in addition to groups such as the so-called Hippies, who opted out of ‘the system’ as best they could, the vast majority instead loosened their attachment to the establishment through more incremental means, like exploring alternative viewpoints, embracing adversarial social practices, and – as noted by Leroy Ashby in *With Amusement for All: A History of American Popular Culture since 1830* – through involvement in politics at a grassroots level, challenging notions of gender and race, and expression in art and music (2006: 348 - 360). And all of these were construed as a challenge to “the mainstream of American culture” (Brownell 2011: 44). What this evinced was a desperate attempt to generate *difference* against the backdrop of a society perceived to be static, ossified and conformist. A society which, moreover, through its commitment to repeat the errors and prejudices of the past – domestically and in terms of international relations – appeared to be moving rapidly toward a catastrophic endpoint.

Such uncertainty and discontent, along with the attendant desire for a different state of affairs, was simultaneously reflected in European society. In this regard, Taaffe points to a number of key events in Europe during the 1960s, singling out revolt in Stalinist Czechoslovakia and the Prague Spring in terms of Eastern Europe,⁶⁷ and in terms of Western Europe, enormous strife within the Labour Party in the United Kingdom, the “sophisticated industrial struggle” that became known as Italy’s Hot Autumn, and the mass protests of May-

⁶⁷ Kieran Williams in *The Prague Spring and its Aftermath: Czechoslovak Politics 1968-1970* (1997), explains the conditions that led to revolt against the Stalinist regime in Czechoslovakia. Accordingly, the Prague Spring should be seen, firstly, as “a liberalization of a Leninist regime,” rather than a revolution. Secondly, it was the result of the way in which the post-war communist seizure of power had “demolished the urban and rural middle classes,” so that by 1967, “around 60 per cent of the working population was aged between fifteen and thirty-seven,” and “had been shaped almost exclusively by wartime and the communist era, and had at most only a fuzzy memory of the pre-war republic.” Consequently, the intelligentsia – sourced from this aforementioned group – was a new one, and did not remember the values of the old Republic. Thus, rather than willingly adhering to a Stalinist framework, they were upset by its orthodoxy. In turn, the Stalinist regime, instead of seeing this grouping as enemies, saw the situation as rather something akin to “one big feuding family” (Williams 1997: 3-5). However, as Bischof et al. explain in *The Prague Spring and the Warsaw Pact Invasion of Czechoslovakia in 1968* (2010), “the invasion by the Warsaw Pact” army stopped “the liberalization and democratization of this Soviet puppet state,” thus demonstrating that any challenge to Soviet power would not be tolerated, no matter how true to Marxism that revolt may be (2010: 4).

June 1968 in France (2008: 1- 8).⁶⁸ In short, in an ideologically-divided continent, regardless of whether people lived under Communist rule, or whether they lived within a capitalist context, a deep dissatisfaction with the status quo emerged. That is, while the brutal might of Stalinism crushed any popular uprising in Czechoslovakia with a Warsaw-Pact assembled army, dissent not only remained but also became even more pronounced in the Eastern Bloc following such heavy-handed action. Indeed, it is plausible to suggest that the Prague Spring was a critical moment in which “the basis for the mass disillusionment with Stalinism” was laid (Taaffe 2008: 7). Similarly, within Western Europe, the unrest of the 1960s which began in England, resonated toward the end of the decade in the May 1968 student revolts in France, which were succeeded in turn by crippling strikes in Italy – inspired by the mass action in France the year before. In many ways then, France emerged as the focal point of a challenge to the capitalist establishment, and to the conservative socio-cultural status quo associated with it.

While the initial student unrest may have sparked the mass unrest, it is essential to note the context that led to such enflamed emotions in the first place. By 1968, the government of Charles de Gaulle had been in power for a decade, with de Gaulle having secured a first term in 1958, and a second in 1965 (Martin 2013: 5, 12-13). And although the French economy had improved significantly since the immediate post-war years through the reforms and projects of the de Gaulle government, which were based on a unique policy named *dirigisme* – in effect, a combination of capitalism and state-direction of the economy (Godin and Chafer 2005:106; Knapp and Wright 2006:18) – many felt isolated by the associated rigidity of the system. By way of response, De Gaulle, whose popularity had declined sharply from the mass support he had enjoyed in his first term, resorted to heavy-handedness and orthodoxy in relation to the politico-economic and socio-cultural affairs of France, and this led to a craving – particularly among the youth – for a different, less rigid

⁶⁸ The events of May-June 1968 will be explained in detail in what follows; however, a brief explanation of events in England and Italy is helpful to understanding the greater context in which it occurred. In terms of the strife in England, Eric Shaw in *Discipline and Discord in the Labour Party* (1988), demonstrates the existential crisis faced by Labour when in the midst of its rule, massive strikes rocked the country, forcing Labour into severe intra-party conflict, with the party stretched between a commitment to its post-war plan of re-nationalization and a less left-wing economic approach. With regard to Italy, William Keach, in his article “What do we want? Everything! Italy’s Hot Autumn 1969,” explains the struggle in the country as one in which working-class and militant student movements were inextricably linked (Keach 2009: 1). He further elaborates on the scope of the mass strikes, writing that, “in the course of 1969, millions of workers went on strike – primarily in the industrialized north of Italy but eventually in other areas, including the severely underdeveloped south” (2009: 1).

milieu.⁶⁹ As the *Independent* noted in an article commemorating the 50th anniversary of the strikes, “May 1968 was, in its origins, a revolt against the stifling papa-knows-best conservatism, and dullness, of General Charles de Gaulle’s economically booming 1960s France” (*Independent*, 2008). Similarly, *International Viewpoint* describes the reasons for the general unrest as a consequence of how “Gaullism had allowed capitalism to accelerate the restructuring of the productive apparatus,” which produced great results in terms of combatting unemployment and so forth, but only at a high price. That is, “to achieve all this, workers had to accept the fragmentation of tasks, shift work and stepped up rhythms,” and face both “an average of 46 hours’ work per week and an armada of little bosses to sweat out the profits.” Within this context, “work was more tiring, [and]...more dangerous also: there were 2.5 million work accidents per year for 16.5 million employees” (Paz, Cabral 2008). Indeed, much like in the post-war American economy, while the French economy was flourishing, the everyday experiences of ordinary people in France had deteriorated in the accompanying atmosphere of pressure and bureaucracy – to which the strikes were a response.

Eric Drott in *Music and the Elusive Revolution: Cultural Politics and Political Culture in France: 1968-1981*, points to 3 May 1968 as the beginning of the civil unrest that, as the *Situtationalist International* put it in 1969, “stopped the economy of an advanced industrial country” (*Situtationalist International Online* 1969: 1) – or at least brought it to a “virtual standstill” (2011: 22).⁷⁰ Drott explains that on this date, a relatively small group of students arrived at the “courtyard of the Sorbonne in Paris” to protest against the closure of “the Nanterre campus of the Universite de Paris following a series of disturbances.” In addition to this complaint, the protesting students were incensed by the threatened expulsion of those accused of being ring-leaders in the above opposition. Drott emphasizes, though, that this was also not an isolated gathering, but rather “followed a well-rehearsed pattern...in the

⁶⁹ For more historical information on French affairs during this period, see also Christian Nuenlist’s *Globalizing de Gaulle: International Perspectives on French Foreign Policies, 1958-1969* (2010), and Jean K. Chalaby’s *The de Gaulle Presidency and the Media: Statism and Public Communications* (2002). While Nuenlist’s text provides a comprehensive overview of de Gaulle’s particular approach to international relations, Chalaby’s text is useful in that, through its exploration of how Gaullism affected the media, it provides a helpful overview of some key dynamics of his domestic policy.

⁷⁰ The *Situtationalist International* was a loose collective of thinkers that was formed in 1957, around a strand of libertarian Marxism. That is, while the ideas of the group were rooted in Marxism, insofar as they rejected capitalism as an affirmative and legitimate means of societal organization, they also rejected the orthodox, authoritarian interpretations of Marx, favouring instead the adoption of a more open approach. Some of their tactics included “attempting to create ‘situations’ where humans would interact together as people,” without being “mediated by commodities,” seeing in these “moments of true community the possibility of a future, joyful and un-alienated society” (Lib com, 2014). Guy Debord’s *Society of the Spectacle* (1967) and Raul Vaneigem’s *The Revolution of Everyday Life* (1967) are cited as key texts of this movement.

series of political rallies staged by student militants,” who were “protesting everything from American involvement in Vietnam to the government’s planned restructuring of the French university system.” While the crowd dispersed following the protest, it quickly reassembled, “spurred by rumours that [a] neo-fascist youth group Occident was planning to confront students as they left.” And with student groups of sharply different political stances “milling about,” the university administration panicked, cancelling classes for the day, and called in security forces. With the police’s arrival and their subsequent “shepherd[ing] of students] into police vans,” an ever-growing number of bystanders grew agitated and violent confrontations began to occur. By the evening, a further “two thousand students flooded the boulevard Saint Michel to protest the police’s occupation,” and such participation grew steadily, so that the subsequent weeks saw an escalation of both the size of the protests and the severity of the state’s response. Drott writes that by 7 May, twenty thousand people had taken to the streets, and that by 10 May, the fifth arrondissement had been barricaded off by protestors,⁷¹ after which it became the site for bitter and violent confrontations between protestors and the police. Soon the protest movement generated sympathy among other groups, and when trade unions called for a general one day strike, “one million people were alleged to have participated in the march through Paris that took place on the 13th of May.” Initially confined to Paris, by the second week of the unrest, “wildcat strikes” had spread across the country as workers “inspired by the students’ occupation of the Sorbonne...seized control of factories throughout the country,” causing the output of the state to grind to a halt (Drott 2011: 21-24). However, their immense impact notwithstanding, the strikes did eventually come to an end. As Peter Steinfels explains in “Paris, May 1968: The Revolution That Never Was,” on 30 May “de Gaulle put his foot down,” announcing new elections and hinting that he would use “military means to restore order.” Additionally, Steinfels suggests that “few people over 30 really had any stomach” for the revolution, so that as “May passed into June,” although “workers and students won some changes...the elections swept de Gaulle and his supporters back into power” (*New York Times*, 2008).⁷² However, while the politico-economic success of May 1968 is still highly contested today, what is far less an issue of debate is that it successfully heralded a socio-cultural refusal on the part of many groups within French

⁷¹ The fifth arrondissement is an administrative district located in one of the central areas in Paris, on the left bank of the River Seine. It houses a large concentration of prestigious research and educational establishments.

⁷² For further elaboration on the final phase of the unrest, see Angelo Quattrocchi and Tom Nairn’s *The Beginning of the End: France, May 1968* (1998).

society to acquiesce to a life confined within what they experienced as a stifflingly rigid conceptual/discursive framework.⁷³

Deleuze's academic context: Nietzsche, Hegelianism and micro-narratives

As Gary Gutting in *French Philosophy in the Twentieth Century* points out, by the early 1960s in France, structuralism was the dominant philosophical approach, and he emphasizes in particular the contribution of Claude Levi Strauss. Specifically, he recalls the long theoretical shadow initially cast by his famous work *Tristes Tropiques* (1955), which was followed up by his *Structural Anthropology* (1958), both of which left an indelible mark on French thought in the 1960s (2001: 221-224).⁷⁴ In terms of this, Edith Kurzweil in *The Age of Structuralism: From Levi-Strauss to Foucault*, explains Levi-Strauss' work as "the systematic attempt to uncover deep universal mental structures," which "manifest themselves in kinship and larger social structures...and in the unconscious psychological patterns that motivate human behaviour" (1996: 1). And Francois Dosse in his *History of Structuralism: The Rising Sign 1945-1966*, further suggests that such attempts reflected both a "rejection of traditional Western culture, and...a desire for modernism in search of new models." Accordingly, he defines the emergent structuralism as "an instrument of de-ideologization for many politically committed intellectuals," who embraced it at "a specific political moment characterized by disenchantment" with the established "configuration of knowledge" (1998: xx). To a certain extent, this dovetailed with the historical and socio-cultural issues discussed in the preceding section. That is, although Western capitalist societies were experiencing unprecedented economic growth, both popular and academic enthusiasm for this success was in short supply, and the prevailing view instead was that such a society was morally bankrupt and culturally stagnant.

However, while structuralism resonated with this disillusionment with the status quo, the thinkers associated with the ensuing post-structural thought saw a flaw in the structuralist approach to societal relations. As John Lechte points out in *Fifty Key Contemporary*

⁷³ Of course, the United States and France were not the only areas affected by this groundswell desire for difference. That is, while the focus here has fallen on these countries in order to outline the context within which Deleuze and his fellow post-structuralists found themselves, it must be remembered that the 1960s were a turbulent decade for virtually all parts of the globe. In Africa, for instance, 30 countries won their independence in this decade, including Cameroon, Senegal, Nigeria, Cote d'Ivoire, Uganda and Zambia. Additionally, the decade also saw great turmoil in other countries such as China, Indonesia, Pakistan, and Mexico (Christiansen and Scarlett 2012: 3-16).

⁷⁴ Patrick Wilcken in *Claude Levi-Strauss: The Poet in the Laboratory* explains that while Levi-Strauss's "memoir of his fieldwork in Brazil," namely *Tristes Tropiques* –his only "non-academic book" – "brought him fame in the 1950s" (2010: 7), it was his academic work *Structural Anthropology*, which remains the canonical work of Structuralism, as it brought together all his writings "in one place for the first time" (2010: 228).

Thinkers: From Structuralism to Post-Humanism, they faulted Saussure – whose contribution constituted the basis for structuralism – for leaving “intact certain (metaphysical) pre-suppositions about subjectivity and language” (2008: 128). In this regard, while structuralists argued their case under the assumption of fixed meaning, post-structuralists emphasized that meaning itself was unstable and protean. And as Madan Sarup suggests in *An Introductory Guide to Post-structuralism and Postmodernism*, the change from structural thought to this new mode of interpretation can be attributed significantly to the events of 1968. That is, for him, “post-structuralism is largely a product of 1968,” because, “unable to break the structures of state power, [it] found it possible to subvert the structures of language.” In terms of this, when “the student movement was flushed off the streets and driven underground into discourse,” it took as its “enemies...coherent belief systems of any kind... [and] all total, systematic thought [became] suspect” (1993: 105-106).

Yet importantly, this new approach to thought was not a rejection of its predecessor, but rather a more sophisticated mode of analysis, based partially on the disappointment with the failed revolution. Consequently, although the events of May 1968 may not have yielded the politico-economic sea-change envisioned by its participants, the events did stimulate many creative responses to totalizing systems of power, which remain important socio-cultural concerns even today. In this regard, Sarup identifies three key features of post-structural thought. Firstly, “if one looks at the work of...post-structuralists...such as Deleuze and Guattari, Derrida, Foucault, Lyotard, and others, one can see the influence of [Friedrich] Nietzsche’s philosophy,” which entailed an analogous “antipathy” toward any system. In relation to this, the second feature associated with post-structural thought is a rejection of Hegelianism, with its systematic view of history (1993: 105). According to Vincent Descombes, a suffocatingly ‘progressive’ Hegelianism had permeated Western thinking in general, and French thought in particular, since the nineteenth century, to the point where many experienced aspects of twentieth century French academia as ossified (1980: 9, 168). As John Marks explains in *Gilles Deleuze: Vitalism and Multiplicity*, according to the French version of Hegelianism taught by Kojève and prevalent at the Sorbonne in the 1940s⁷⁵ – where Deleuze studied – “Hegel predicted that human consciousness would proceed, via a

⁷⁵ Shadia Drury in *Alexandre Kojève: The Roots of Postmodern Politics*, explains that Kojève “was Hegel’s most famous interpreter, reading Hegel through the eyes of Marx and Heidegger simultaneously” (1994: i). A “French philosopher of Russian origin,” his lectures, as noted by Tom Rockmore in “Hegel in France,” were attended by some of the biggest names in French thought, including Klossowski, Bataille, Merleau-Ponty, and Lacan, and for a time, “Kojève became...even more important than the author” he so famously interpreted (2013: 323).

dialectical process of negation, towards a state of perfected human consciousness.” What this, in effect, meant was “that consciousness will develop by negating the errors of past consciousness, [until] reason and rationality emerge from the tension between the rational and the irrational” (1998: 15). Yet this schema, predicated on a belief in a progressive purity of thought, emerged as hopelessly naïve in the 1960s. Finally, the third feature of post-structural thought is its rejection of totalizing conformity in favour of the “small story” within history, and correlatively the affirmation of the “anti-political individual” (Sarup 1993: 105). In effect, then, the aim of post-structuralism was to promote “the notion of difference in all its facets” of life (Lechte 1998: 128), and it was within this philosophical ambit that the work of Gilles Deleuze proved to be of seminal importance.

In his *Deleuze and Guattari*, Ronald Bogue describes Deleuze’s 1962 work, *Nietzsche and Philosophy*, as part of the movement that saw Nietzsche’s rise to prominence in French philosophical thought in the 1960s and 1970s, and he further argues that it is in this work that many of the themes and concerns of Deleuze’s later work find their first enunciation (1989: 15). Nietzsche was a philosopher of difference, whose genealogical approach to morality, art, and philosophy made conspicuous the ruptures rather than the ostensible progressive continuity of the related traditions, and thereby opened up the possibility of radical invention and tangential exploration in a world of increasingly staid academic discourse (Descombes 1980: 7). Robert Williams in his *Tragedy, Recognition, and the Death of God: Studies in Hegel and Nietzsche*, concurs with Descombes’ assessment of Nietzsche’s appeal to Deleuze and his contemporaries, and adds that, in the case of Deleuze’s *Nietzsche and Philosophy*, it is the “anti-Hegelianism [which] runs through Nietzsche’s work” that is emphasized “as its cutting edge” (2012: 38).

To be sure, even though Nietzsche’s work certainly resonated greatly with the French post-structuralists’ interests, their appropriation of his philosophical concerns, methods, and concepts was not simply a repetition of his various arguments, but rather a creative and dynamic application of his thought to their respective contexts.⁷⁶ This approach is particularly evident in Deleuze’s *Nietzsche and Philosophy*, which is not only a meticulous and rigorous examination of Nietzsche’s works, but also a creative encounter in which Deleuze presents

⁷⁶ Michel Foucault’s seminal texts of the 1970s, *Discipline and Punish: The Birth of the Prison* and *The History of Sexuality: Volume 1: The Will to Knowledge*, for instance, apply the Nietzschean genealogical method both to show the competing and mutating discursive features evident in contemporary society, and to illustrate their role in the formation of subjectivity. Similarly, while Derrida uses Nietzsche’s idea of ‘affirmation,’ applying it specifically within the sphere of language, Lyotard’s avowed incredulity toward meta-narratives is couched in thoroughly Nietzschean terms (Anderson 2003: 79; Schrift 1995: 159).

Nietzsche as a philosopher of difference and ‘becoming’ (rather than stable ‘being’). This creative encounter was also the first of Deleuze’s many encounters with various other marginalized ‘Nietzschean’ figures and their philosophical texts, through which Deleuze turned increasingly to the “anti-rationalist tradition,” in order to destabilize “the metaphysical presuppositions of traditional philosophy” (Bogue 1989: 2-3). In particular, in *Dialogues*, Deleuze refers to this stream of thinkers as “authors who seemed to form a part of the history of philosophy, but who escaped it on one side or in all directions: Lucretius, Spinoza, Hume, Nietzsche, [and] Bergson” (1977: 21).⁷⁷ In terms of this project of destabilization, Deleuze not only thematized but also augmented the various works of the ‘anti-rationalist’ philosophers in his canon, to correlate with his own aim. That is, while these various philosophers’ thoughts certainly, in many instances, remain resonant with Deleuze’s arguments, one must make the fine distinction between the original thinker’s concept and Deleuze’s appropriation of that concept, in order to identify Deleuze’s philosophical contribution. In his assessment of Deleuze’s approach to thought, John Marks suggests that “Deleuze’s aim, throughout the course of his writing, is to push philosophy to its limits, often attempting to explore the borderline at which philosophy meets that which becomes ‘non-philosophy.’” This much is evident in Deleuze’s argument, which echoes Nietzsche, that “to think is to encounter and [to] question” (Marks 1998: 13).⁷⁸ In short, for Deleuze, as an emerging thinker in his own right and someone operating in the inhibited environments of Gaullist France and Hegelian/structuralist-dominated academia, the appeal of Nietzsche is quite understandable.

Deleuze, difference, and desire

Of Deleuze’s overall contribution to post-structural thought, Keith Ansell Pearson in *Deleuze and Philosophy: The Difference Engineer*, writes:

Over a period of thirty years, Gilles Deleuze (1925–1995) has had a profound influence on the direction of philosophical and social thought. His presence is felt in contemporary debates in feminism, political theory and continental philosophy

⁷⁷ As a point of interest, a further name, Salomon Maimon, could be added to this list. Although not explicitly mentioned by Deleuze as part of his ‘anti-rationalist’ tradition, Bogue writes that Deleuze called Maimon a “great, great philosopher.” Bogue furthermore argues that “two exigencies laid down by Maimon – the search for the genetic elements of real thought (and not merely the conditions of possible thought), and the positing of a principle of difference as the fulfilment of this condition – reappear like a *leitmotif* in almost every one of Deleuze’s books to 1969, even if Maimon’s name is not always explicitly mentioned” (1989: 65-67).

⁷⁸ Similarly, Nietzsche himself noted, in a letter to his sister Elisabeth, that “if you want to achieve peace of mind and happiness, then have faith; if you want to be a disciple of truth, then search” (Middleton 1969: 7).

where he has challenged and overturned many theoretical dogmas...[Moreover] his work marked a significant turn toward the poststructuralist movement as a whole and its influence increases as it unfolds. (2002: i)

The mention of an aversion to dogmatic thinking is important, and Ansell Pearson elaborates on this when he evocatively advances that “Deleuze was a monster,” insofar as his work is marked by “a subversive, perilous attempt to map out a new becoming of thought” that is “beyond good sense and common sense.” Indeed, in Deleuze’s hands, “thought becomes monstrous because it forsakes the desire for an image of thought” (2002: 3). Although somewhat nebulous at first glance, what Ansell Pearson means by this emerges through consideration of some of Deleuze’s major theoretical contributions.

Although Deleuze’s first work was *Empiricism and Subjectivity*, published in 1953, it was the aforementioned *Nietzsche and Philosophy*, published in 1962, that saw him assume a Nietzschean commitment to the generation of radical difference. Following this text, the 1960s heralded a productive period for Deleuze in which he published seven works, including *Difference and Repetition*, which served as a meticulous indictment of the tendency to privilege and re-produce problematic ideas, and which correlatively focused on thinking difference-in-itself (Deleuze 1994: 28).⁷⁹ The following decade saw further prolific output, but also, significantly, Deleuze’s pairing up with the psychoanalyst and activist, Félix Guattari. Significant works during this time include *Anti-Oedipus: Capitalism and Schizophrenia* (1972) and *Kafka: Towards a Minor Literature* (1975), both co-written with Guattari. While the former text criticized the coagulated ideological environment of the contemporary era, which canalized desire in Oedipal terms and through capitalist normativity, the latter text provided examples of how, through minoritarian literary means, a move away from such dominant modes of desire could be facilitated.⁸⁰ In turn, the 1980s saw Deleuze building on his efforts to de-stabilize dogmatic thought. In *Francis Bacon: The Logic of Sensation* (1981) he elaborated on acts of resistance – explored earlier in relation to the works of Kafka – within the realm of art. And books on Foucault and on cinema then followed, in which the possibilities for difference – thematised in relation to the paintings of

⁷⁹ Deleuze’s publications in the 1960s were: *Nietzsche and Philosophy* (1962), *Kant’s Critical Philosophy* (1963), *Proust and Signs* (1964), *Pure Immanence* (1965), *Bergsonism* (1966), *Masochism: Coldness and Cruelty* (1967), *Difference and Repetition* (1968), *The Logic of Sense* (1969), and *Spinoza: Practical Philosophy* (1970).

⁸⁰ Deleuze’s other works in the 1970s included *Rhizome* (1976), *Dialogues* (1977), and “One Less Manifesto” in *Super-positions* (1978); in these he similarly argued for a move away from dogmatic thought that disallows or eschews difference.

Bacon – were extrapolated, respectively, to Foucault’s archaeological and genealogical phases, along with his work on subjectivation, and to the movement- and time-images of cinema. But it was *A Thousand Plateaus: Capitalism and Schizophrenia* (1987), the counterpart to their earlier *Anti-Oedipus*, that emerged as perhaps the most powerful example of Deleuze and Guattari’s ‘nomadic thought.’ In the forward to this text, entitled “Pleasures of Philosophy,” Brian Massumi explains nomadic thought as replacing “the closed equation of representation” by virtue of “the modus operandi of nomad thought [which] is affirmation.” In other words, unlike representation, which analyses “the world into discrete components, reducing their manyness to the One of identity,” nomadic thought “arrives from outside to break constraints and open new vistas” (2004: xiii).⁸¹ Similarly, Ronald Bogue in *Deleuze’s Way: Essays in Transverse Ethics and Aesthetics*, points out that “nomad thought is anti-identitarian, affirmative and free from the negative [and] lies entirely outside the domain of the reproducible, of representation” (2007: 139).⁸² Within the above texts, a number of key concepts emerged, which can be related to the events of May 1968, and consideration of which correlatively helps to demonstrate the nature of Deleuze’s ‘monstrous’ philosophy of difference. These are, in order, desiring-production, schizoanalysis, bodies-without-organs, nomadic war machines, the rhizomatic, and de-territorialization.

Paul Patton sums up Deleuze’s aim in *Difference and Repetition* as the production of a “systematic philosophy of difference.” In this work of “prodigious conceptual invention,” Deleuze “draws upon his earlier readings of Plato, Hume, Bergson, Nietzsche and Kant, as well as elements of contemporary science and art, to weave together a physics and a metaphysics of difference.” And through doing so he seeks to critique and de-stabilize the “philosophy of representation” or the “image of thought” that has so dominated thinking (Patton 1968: xi).⁸³ Fundamental to Deleuze’s project in this regard, as Ronald Bogue

⁸¹ Massumi further points out that nomadic thought goes by many names, and he cites Spinoza’s “Ethics,” Nietzsche’s “Gay Science,” Artaud’s “Crowned Anarchy,” Blanchot’s “Space of Literature,” and Foucault’s “Outside Thought” as being resonant with to Deleuze and Guattari’s radical attempts to usher in difference (2004: xiii).

⁸² Nomadism also echoed through two other texts, *What is Philosophy?* (1991) and *Essays: Critical and Clinical* (1993), which followed before Deleuze’s death in 1995.

⁸³ The dogmatic way of thinking associated with such a philosophy of representation is neatly explained by Todd May in his *Gilles Deleuze: An Introduction*, when he advances that “representation mediates everything, but mobilizes and moves nothing.” As such, as Deleuze himself notes, and as cited by May, “representation fails to capture the affirmed world of difference” (2005: 74-75). This is because it operates by fixed categories and a common sense that reinforces strict boundaries of acceptable thought, and this is what we ‘recognise,’ automatically, as it were. But such recognition is thus a “model of judgement,” and Deleuze divides this model of judgement into four types, namely “identity, analogy, opposition, and resemblance.” Problematically, these

explains in *Deleuze and Guattari*, “is a single, Nietzschean conception of the cosmos as the ceaseless becoming of a multiplicity of interconnected forces.” A multiplicity that “admits of no stable entities but only of ‘dynamic quanta,’” such that it must “be understood in terms of difference rather than identity” (1989: 150). This type of thinking is well demonstrated in Deleuze’s *Difference and Repetition*, particularly in his discussion of the “Image of Thought,” where this ‘image’ signifies a common-sense view of experience that is often monotonously replicated without an openness to the various ‘multiplicities’ and ‘intensities’ that are present in any exchange.⁸⁴ In short, through de-stabilizing the common-sense understandings of ‘repetition’ and ‘difference,’ Deleuze demonstrates, firstly, that repetition is not a generality, but rather each time – or repetition – entails a new event that is uniquely situated in *time*, and secondly, that difference is not necessarily something oppositional. That is, it is not necessarily opposed to any extant identity but rather different *in itself*.⁸⁵

Published in 1972, *Anti-Oedipus* in many respects entails a politicization of the above concept of difference, and in this sense, as Ian Buchanan argues, it is “a 1968 book” (2008:

four ways of encountering the world are based on the aforementioned categories that we automatically assume to be fixed and incontestable – and this is the ossification argued against by Deleuze throughout his works (2005: 76-78). As Patty Sotirin, in “Becoming Woman,” argues, in Deleuze’s quest to counter the dogmatic thought of representation, he attempted to create a “positive ontology” by “affirming the possibilities of becoming something else,” by opening “new pathways down which living and thinking can travel,” that are “beyond the avenues, relations, values, and meanings that seem to be laid out for us” (2011: 59).

⁸⁴ With regard to terms such as ‘multiplicities’ and ‘intensities,’ Deleuze drew heavily on Henri Bergson’s work, as will be discussed in further detail in Chapter Five. Briefly, though, through his discussion on ‘multiplicities’ and ‘intensities’ (1910: 45-47; 10-19), Bergson distinguishes dynamic intelligence from the homogenization of experience, which he associates with instinctual patterns or tendencies (1977: 25).

⁸⁵ As an example of the affirmative nature of his work in *Difference and Repetition*, one can look at Deleuze’s writing on three different conceptions of time, which comprise a continuum, from the first which is encompassing and constraining, through the second which is unstable, to the third which is far more creative and affirmative. Accordingly, the first order of time is attributed to the philosophy of Descartes, the second order of time to the philosophy of Kant, and the third order of time to the philosophy of Nietzsche (Deleuze 1994: 88-91; 95-108; 135-136). To simplify things, the first order of time is circular, based on seasons and myths, and is thus repetitive, and such a conception of time disallows difference because the present is governed by external factors that endorse its continuity, the most important of which is God, who guarantees the unfolding of time (1994:88). The second order of time, associated with Kant, dramatically breaks this thinking by conceiving of time in terms of a straight line, and in a way that allows for a profound re-orientation of the human relationship to time, insofar as time is situated within the mind, as it were, and conceived of as a crucial factor in human agency (1994: 94). The third order of time – attributed to Nietzsche, and reflected in the work of Proust – is the idea of the ‘eternal return’ in Nietzsche, or ‘time regained’ in Proust (1994: 95). In this conception of time, repetition becomes the central focus, but it is creative and affirmative, in that every moment cannot be the same as before. Rather, every repetition bears the signature of difference, through the malleability of memory, and indeed, the creative experience of memories of the past that have never been present. The latter will be elaborated upon later, in Chapter Five, in relation to Deleuze’s appropriation of the work of Bergson. But for now it will suffice to say that such creative remembering of a past that was never present – as when Proust remembers Combray, through tasting the madeleine, in a way that he has never remembered it before (Proust 2001: 48) – constitutes an example of such difference *in itself*, and correlatively, the creation of new time.

8).⁸⁶ In short, it involves an attack, from a Nietzschean position, on conceptualizations of integral subjectivity, particularly that of Freud's 'psychological subject' and Marx's 'political subject.' In this regard, Deleuze and Guattari's main contention with Freud is their idea that desire is always characterized by 'lack,' which is by default tied to negation. Instead, for Deleuze and Guattari, desire is productive ('desiring-production' involving 'desiring-machines'), multiple, and in a constant state of flux.⁸⁷ Similarly, Marx's appropriation of Hegel's dialectical method is criticized by Deleuze and Guattari, as is his argument that class struggle overcomes 'lack.'⁸⁸ Accordingly, framing the discussion in terms of 'desiring-production,' on the basis of what they term 'schizoanalysis,' Deleuze and Guattari initiate a new way of 'remembering' social relations.⁸⁹ And this new approach comprised Deleuze and Guattari's response to what they considered to be the foremost inhibitory dynamic operating within their immediate context of 1960s/1970s France, namely the State Apparatus co-joined with the axiomatic of capitalism.

One of the primary objectives of *Anti-Oedipus* then, was to remember differently how the state operated, both in the past and in their present day. In terms of this, having re-defined the way in which desire functions, Deleuze and Guattari used their concept of 'desiring-production' to reinvigorate Marx's understanding both of how states organize themselves, and of how capital functions within this relation.⁹⁰ In their discussion of "The Barbarian

⁸⁶ Eugene Holland in *Deleuze and Guattari's Anti-Oedipus: Introduction to Schizoanalysis*, concurs with Buchanan's assessment, arguing that *Anti-Oedipus* should be understood "partly as an inspiration and a reflection of May 1968" (1999: ix).

⁸⁷ For Deleuze and Guattari, a machine is a site where desires flow and compete, and this can apply to something tangible like the human body, through to abstract machines such as the state (2004: 38)

⁸⁸ Admittedly, as Nicholas Thorburn points out in *Deleuze, Marx and Politics*, the relationship between Deleuze and Marx was not as antagonistic as his relationship with Freudian psychoanalysis. Rather, "Deleuze himself more than once proposed that he and Guattari were Marxists," and at the time of his death, Deleuze was working on a book entitled *Grandeur de Marx* (2003: 1-2).

⁸⁹ Adrian Parr in *Deleuze and Memorial Culture: Desire, Singular Memory, and the Politics of Trauma*, explains that for Deleuze and Guattari, a new way of remembering "neither supposes a universal memory, nor a past with a determinate identity." Rather, it involves an active engagement with history, one that is "active," and a "mode of willing." In doing so, "the course of remembering the social field is prompted to connect what previously seemed to be disparate events, giving rise to a memorial cultural activity" that is "productive" (2008: 182).

⁹⁰ Leon Baradat in *Political Ideologies: Their Origins and Impact*, provides us with a clear overview of Marx's understanding of how states organize themselves. In this overview, he traces Marx's concept of societal progression from primitive communism, through empire formation to feudalism, and then into bourgeois democracy before the great proletarian revolution. As a first point, he notes that although Marx disagreed with Hegel, "he adopted the dialectic as the fundamental logic of history." In other words, for him, history moves through a number of stages, with theses, antitheses, and syntheses ultimately resulting in a utopian form of society. In the first stage, or primitive communism, "people were unorganized and unsophisticated," and the antithesis to this state of things "developed as people began to specialize in the production of goods." But this division of labour was fraught with problems, in that "it also caused a major division in society," and the "original collectivism of society was lost." It is at this point that people began to consider possessions their own, and resultantly, "the concept of private property was born." Also, because society valued "various objects

Despotic Machine” and “The Urstaat,” which according to them precede “The Civilized Capitalist Machine,” Deleuze and Guattari trace societal development in terms of a series of organizational phases, and the concomitant blockages of desires that result from each. In the first mode of organization, at a distant time in history, Deleuze and Guattari advance the “despotic machine or the barbarian socius” as involving a despot’s challenging of the “lateral alliances and the extended filiations of the old community.” And through breaking with that community and imposing “a new alliance system,” in terms of which he places himself “in direct filiation with the deity,” he assumes the role of endorsing or watching over their world. They point out that the aforementioned break can occur for a variety of reasons, but that it principally entails “an opposition” between the new despotic machine “and the primitive territorial machine,” which ushers in “the birth of an empire” (2004: 210-211). Furthermore, in order for the empire, and indeed its despotic ruler, to exercise control over its territory and people, it establishes multiple codes which then regulate desires accordingly. Unsurprisingly, such regulation leads to muted negative exchanges, whereby “the eternal *ressentiment* of the subject answers to the eternal vengeance of the despots” (2004: 233).⁹¹ In the second mode of organization, Deleuze and Guattari argue for the emergence of the State, or the Urstaat. It is at this point that the dynamic identified above becomes more sophisticated, insofar as old codes are, where necessary, broken down to suit the requirements of the emerging state – such as “private property, wealth, commodities, and classes” (2004: 238). Using Feudalism as a case in point, Deleuze and Guattari argue that it “not only presupposes an abstract despotic State that it divides into segments according to the *regime* of its private property and the rise

differently,” and concurrently, “the value of the individual was equated with the things he or she owned,” a class stratification began to develop. At this point, “deep prejudices” between groupings began to develop – with dominant groups subordinating others “into servitude.” And it was the development of Empire that emerged from this system of relations. Once more, the antithesis to this was the barbarian challenge, and its eventual success, which ultimately resulted in Feudalism. In this system, “a landed aristocracy provided...protection to the peasants, who soon became *serfs* (people legally bound to the land [or] land slaves.” Yet while manors staffed by serfs were for a time self-sufficient, resulting in a great decline in trade, “the demand for luxury items stimulated a rebirth of trade.” And because the “aristocrats...usually looked down on commerce,” trade and its profits were left to “a new class, the *bourgeoisie*.” This new class eventually toppled the aristocracy in the great revolutions that led to huge upheavals in France and elsewhere, and the new post-aristocracy era “featured *capitalism* as its economic system.” Accordingly, Marx claimed that these capitalist states adopted the term democracy as “a pretence of popular government,” because they refused to cede any control of the system, and as such, the workers they employed (or proletariat/wage slaves) would rise up against them “as the antithesis in the fourth historical era” (Baradat 1994: 162-163).

⁹¹ *Ressentiment* is a Nietzschean term denoting a negative and resentful manner of living. For Nietzsche, *ressentiment* (or resentment) “refers to the process of allocating responsibility and blame for the pain one suffers,” or taking “the outside world seriously as a cause of the pain one suffers,” which is predicated on the idea “that if only one could deal with the outside world the pain would be alleviated” (Strong 1988: 245 - 246). This leads to a very negative way of dealing with life, insofar as one negates the present and attaches oneself to concepts that logically explain injustices; a process which causes “bitter recrimination” and the “perpetual accusation” of the whole world and life within it (Deleuze 2006: 20).

of its commodity production.” In addition, it also does not rid itself of its despotic nature, with “the despot [returning] as the absolute monarch” (2004: 239). But beyond this, Deleuze and Guattari also point to more recent State systems, such as that of “modern capitalist and socialist States,” which “take on the characteristic features of the primordial despotic State” (2004: 241). As Athina Karatzogianni and Andrew Robinson clarify in *Power, Resistance and Conflict in the Contemporary World: Social Movements, Networks, and Hierarchies*, “the despotic-signifier and the ‘Urstaat’ (the State form) do not vanish with Capitalism,” but rather “function as its means to suppress whatever escapes Capitalism itself (2010: 63).⁹² Consequently, within Capitalistic modes of organization tied to States, desire has been channelled and coded to a highly restrictive degree. However, as Deleuze and Guattari point out, it is helpful to use the machine as a mechanism for understanding relations between competing desires, because machines are never capable of running perfectly smoothly for an indefinite period, and instead sooner or later begin to break down (Deleuze and Guattari 2004: 8). And as they do, it becomes possible for Full Bodies without Organs to emerge and precipitate difference.

In this regard, the concept of the Full Body without Organs runs through *Anti-Oedipus* and challenges the dominant notion of “the articulating, self-defining and enclosed subject.”⁹³ That is, the Full Body without Organs can be understood as the inclination which “offers an alternative mode of being or experience” (Parr 2005: 32-34) the opportunity to manifest and grow, or the tendency of openness to difference that constitutes the genetic condition of possibility of such difference emerging. As such, rather than seeing the Full Body without Organs as oppositional, it is more useful to construe it as a deviation that makes possible the yet-to-be imagined. Accordingly, this deviation thereby offers the possibility of experience outside of prescribed normativity, offering a chance to ‘become’ different rather than to ‘be’ or remain the same. Correlatively, for such a Body without Organs to remain full, what it precipitates through its explication should remain in a constant state of modulation, or, in

⁹² In this regard, Deleuze and Guattari also reference Wittfogel, a German-American thinker – and at one point a resolute Marxist – who is best known for his 1957 text *Oriental Despotism: A Comparative Study of Total Power*, in which he, according to Alessandro Stanziani in *After Oriental Despotism: Eurasian Growth in a Global Perspective*, used “his Marxist training and Marx’s notion of the Asian mode of production” to describe “the USSR under Stalin as despotism” (2014: 17).

⁹³ The term originates from a radio play of Antonin Artaud’s entitled *To Have Done with the Judgment of God* (1947), in which he extended his concept of a “theatre of cruelty” by producing a thoroughly estranging and cacophonous piece that was initially banned. Lee Jamieson in *Antonin Artaud: From Theory to Practice*, explains the theatre of cruelty as being informed by Nietzsche, in that Nietzsche’s “definition of cruelty informs Artaud’s own, declaring that all art embodies and intensifies the underlying brutalities of life to recreate the thrill of experience...Although Artaud did not formally cite Nietzsche, [their writing] contains a familiar persuasive authority, a similar exuberant phraseology, and motifs in extremis” (2007: 21-22).

other words, it must remain “a never-completed process” (in Parr 2005: 34); a process of unending creative alterity. In many respects, Deleuze and Guattari’s rearticulation of the Marxist theory of history in terms of desire – a rearticulation which differs from the stratified and dogmatic vision of Marx but which is itself tentative, playful and open-ended – comprises an explication of a Full Body without Organs, insofar as openness to the possibility of thinking outside of Marx’s framework is the genetic moment implicated by their alternative description of societal development. A further good example of the explication of a full Body without Organs is the art of Francis Bacon. In *Francis Bacon: The Logic of Sensation*, Deleuze approaches the aforementioned artist’s work not through the lens of art criticism, orientated around conformity to a given set of criteria through which art is valued, but rather as a creative conduit through which, as Daniel W. Smith notes in “Deleuze on Bacon: Three Conceptual Trajectories in The Logic of Sensation,” Bacon effectively creates “a series of philosophical concepts” (2002: ix). As such, “there is little discussion of the sociocultural milieu in which Bacon lived and worked; nor of his artistic influences or contemporaries, such as Lucian Freud or Frank Auerbach; nor of his personal life” (2002: ix). This is because, for Deleuze, to contend with such aspects is to reduce and thus miss the genetic potential of Bacon’s work, as a never-completed process of differentiation. Rather, Deleuze focuses his attention on Bacon’s paintings *in themselves*, describing Bacon’s work as “the confrontation of Figure and field...that rips the painting away from all narrative as well as from all symbolization” (2002: xxxii), in a way that resists any form of rigid and extensive categorization. Indeed, when discussing Bacon’s Figure, that is, the strange entities enacted upon by various forces or sensations that appear in his work, Deleuze makes the connection between Bacon and Artaud, advancing that

Bacon and Artaud meet on many points: the Figure is the body without organs (dismantle the organism in favour of the body, the face in favour of the head); the body without organs is flesh and nerve; a wave flows through it and traces levels upon it; a sensation is produced when the wave encounters the Forces acting on the body, an “affective athleticism,” a screambreath. (Deleuze 2002: 40)

A key factor in Bacon’s art – consideration of which draws its relationship to the Full Body without Organs into conspicuity – is his use of “free marks.” These are “accidental” marks “because they depend on the act of chance and express nothing regarding the visual image.” But once made – and “they have to be made rather quickly” – they are allowed to function as the genetic point around which the painting is orientated, which “destroy[s] the nascent

figuration [or representational tendency] in it and...give[s] the Figure a chance” to emerge (Bacon in Deleuze 2004: 93-94). As such, the Full Body without Organs is Bacon’s inclination or tendency to be open to free marks, as the genetic points of an aesthetic development that will exceed the representational constraints of the figuration so embedded in the art tradition. Such an understanding, applied to any field, allows for a far more dynamic approach toward any development which has traditionally been inhibited by a narrow set of definitions and concomitant pre-suppositions that relate to an extant dogmatic ‘image of thought.’⁹⁴ This is because Full Bodies without Organs, while they engender a multiplicity of creative appropriations and experimentations, never masquerade as a model which, on the basis of some or other legitimacy, demands conformity to its parameters.

However, Deleuze and Guattari also make the distinction between the open-ended Full Body without Organs, as discussed above, and its more limiting cousins of the Fascist/Cancerous Body without Organs, and the Suicidal/Catatonic Body without Organs. With regard to the first, aspects of the Urstaat – even in its current form under the guise of Capitalism – constitute the explication of a Fascist/Cancerous Body without Organs, insofar as they comprise a series of rules that disallow deviation or experimentation, in favour of constituting a form of organization that canalizes desire in profitable ways, such that movement is allowed but little room to manoeuvre, as it were. With regard to the second, other aspects of Capitalism – such as relentless consumerism – comprise explications of a Suicidal/Catatonic Body without Organs, insofar as the constant flooding of existence with the latest advertisements and uniform commodities precludes both the possibility of openness to creative difference, and the possibility of such genetic differences being afforded the space to grow. In short, the tendency to passively attach oneself to the consumerism of contemporary capitalism, so that with each identification and correlative purchase, one becomes more depleted, dissolute, and incapable of producing creative difference.

In turn, Deleuze and Guattari respond to the challenge posed by the above two limiting Bodies without Organs in their book *Kafka: Towards a Minor Literature* (1975), and build on the related form of resistance in *A Thousand Plateaus* (1987), where they elaborate

⁹⁴ The concept of the Body without Organs is increasingly being utilized in a wide array of fields. For instance, in his article, “Towards socially just pedagogies: Deleuzoguattarian critical disability studies,” Dan Goodley, understanding the Body without Organs as “conceived in ways that question the hierarchical and systemic organization of the organs [and] conceived in ways that open up to new connections” (Goodley 2007: 327), uses it as a means of attempting to establish a far more creative pedagogy in relation to disabled children. Similarly, Pieter de Vries, in his article, “Don’t compromise your desire for development! A Lacanian/Deleuzian rethinking of the anti-politics machine,” discusses the idea of development in terms of it being a Body without Organs, or an “assembled and assembling body of desires” (De Vries 2007: 37) that is always open-ended.

further on the concept of the Full Body without Organs in conjunction with what they term nomadic war machines. That is, in *Kafka: Towards a Minor Literature*, Deleuze and Guattari remain consistent in their stance against the concept of integral subjectivity, and the limiting perspectives indissociable from it, by adhering to Walter Benjamin's assertion that "there are two ways to miss the point of Kafka's works...Both the psychoanalytic and the theological interpretations equally miss the essential points" (in Bensmaïa 1986: ix). Accordingly, in their interpretation of Kafka's work, Deleuze and Guattari seek instead to thematize the genetic potential of the Full Body without Organs that explicates itself in his literary output, and which is correlatively implicated by such minor literature. For them, minor literature is characterized by three things, namely "a high coefficient of deterritorialization," a "political" orientation, and "a collective value" insofar as it entails a "collective enunciation" (1986: 16-17). In relation to this, firstly, they thematise Kafka's anomalous linguistic context; that is, his being a Jew in Czech territory, and simultaneously obliged to operate in German (the official language of the territory), which led to him writing in Prague German. Deleuze and Guattari argue that this was a "deterritorialized language," in which elements from Yiddish, Czech and German had been appropriated to constitute an unstable and protean language. Through this, they argue, Kafka becomes a linguistic nomad, as it were, on account of how he (mis-)appropriates aspects of the linguistic State Apparatus of German and mutates them to suit his own ends. Secondly, with regard to political orientation, Deleuze and Guattari argue that minor literature – unlike major literature which uses "the social milieu...as a mere environment or a background" – amplifies all the aspects that affect a person therein. In this way, all individual crises or issues emerge as inextricably connected to "other triangles – commercial, economic, bureaucratic, juridical," in a teeming political environment where all these aspects constantly intersect and jostle for power. Thirdly, in terms of collective enunciation – unlike major literature – minor literature houses no masters and knows no canon. Moreover, on account of its constantly mutating character, any attempt at establishing a hierarchical code or normative discursive framework would simply collapse because there is no basis for it (1986: 17). Instead, because of all of the above, an immense dynamism exists within Kafka's work, which Deleuze and Guattari remind us entails radical play and experimentation that should not be devalued, as it has been in psychoanalytic or theological interpretations of his literature – both of which tend to seek in it *ressentiment* and suffering in the characters' experiences as reflective of the author's life, rather than to thematize the creative innovation it involves as the explication of a Full Body without Organs.

Such play and experimentation are important for Deleuze and Guattari because, through such a creative response to the State Apparatus, Kafka effectively develops a nomadic war machine. To explain this term – and its relation to the generation of difference and correlative resistance to restrictive State Apparatuses – we can turn to Deleuze and Guattari’s discussion of nomadic tribes in *A Thousand Plateaus*. Here they show that certain concepts can generate an assemblage hitherto unimaginable; for instance, the invention of stirrups by nomadic peoples to produce a new human-animal hybrid, with manifold and radically unpredictable politico-economic and socio-cultural consequences. In relation to this, it is posited that nomadic war machines produce “a people yet to come” (Deleuze and Guattari 2005: 345, 399), through both the conditions for the production of difference and the radical self-transformation which ensues from it. Although such descriptions are often associated with violent historical examples, such as the fifteenth century destabilization of sedentary society by nomadic hordes,⁹⁵ war machines are not necessarily either technical instruments, like stirrups, or violent in orientation. In fact, Deleuze and Guattari identify nomadic war machines as primarily aesthetic, and cite as examples modernist works such as the above discussed minor literature of Franz Kafka, which reveal a people in the process of formation, and the paintings of Francis Bacon, which allow art and the spectator who engages with it to become different, on account of the radical indeterminacy through which such art is produced. In both cases, the most important possibility of such operations is the birth of a people who do not yet exist, “a people yet to come” (2005: 345, 399), who are marked by the differences they express and pursue, which in turn implicates a Full Body without Organs.

Also in *A Thousand Plateaus*, and in relation to the above concept, Deleuze and Guattari in their idiosyncratic way describe a system of relations that such nomadism could precipitate, namely rhizomatic relations. And they explain the ‘rhizomatic’ as follows:

A rhizome as subterranean stem is absolutely different from roots and radicles. Bulbs and tubers are rhizomes. Plants with roots or radicles may be rhizomorphic in other respects altogether: the question is whether plant life in its specificity is not entirely rhizomatic. Even some animals are, in their pack form. Rats are rhizomes. Burrows are too, in all of their functions of shelter, supply, movement, evasion, and breakout. *The rhizome itself assumes very diverse forms, from ramified surface*

⁹⁵ This is a reference to the Mongols who invaded Europe at this time. According to Dariusz Kolodziejczyk in *The Crimean Khanate and Poland-Lithuania*, the word derives from the Polish “horda,” which refers to groups of nomads, such as the Tartars, who participated in the Mongol invasion of Europe (including Poland) (2011: 536).

extension in all directions to concretion into bulbs and tubers. When rats swarm over each other. [My Italics] (Deleuze and Guattari, 1987: 6-7)

Anticipating confusion on the part of the reader, the duo propose to “enumerate certain approximate characteristics of the rhizome.” As a first point, they argue that the rhizome functions according to “principles of connection and heterogeneity,” insofar as all points in a rhizome are in some way connected to one another. Thus, a rhizome does not follow a fixed delineated order. Rather, they argue, the rhizome arranges itself according to the “principle of multiplicity” and not “pseudo-multiplicity” in that it has no positions or points and, most importantly, no central hierarchical structure. Deleuze and Guattari contrast the rhizome to a tree when they write that “any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point [and]... fixes an [arboreal] order.” That is, with the rhizome, as different connections are made a pre-determined pattern is not repeated, but endless configurations are instead brought into existence. The rhizome thus also lends itself to rupture, because, “a rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines.” For example, “you can never get rid of ants because they form an animal rhizome that can rebound time and again after most of it has been destroyed” (Deleuze and Guattari 1987: 7-9).

An important issue here are the dynamics of deterritorialization and reterritorialization. Jennifer Bay in “(In)Formation: Bodies and Writing in Network Culture,” referencing Deleuze and Guattari’s famous wasp/orchid relation, elaborates on the rhizome in terms of re- and deterritorialization. She explains that “Deleuze and Guattari liken the rhizome to the relationship between wasp and orchid.” This is because “the orchid deterritorializes by forming an image, a tracing of a wasp; but the wasp reterritorializes on that image.” On the one hand, “the wasp is...deterritorialized, becoming a piece in the orchid's reproductive apparatus. But [on the other hand] it reterritorializes the orchid by transporting its pollen” (Bay 2004: 941). In effect, then, what the rhizome entails is a constant and dynamic exchange in which there is no one element or aspect that can totally dominate. A further related principle is the “principle of cartography and decalcomania.” Here Deleuze and Guattari argue for a distinction between “a map and a tracing,” once more referencing the metaphor of the tree in their insistence that “a rhizome is not amenable to any structural or generative model.” For them, unlike the arboreal model, which “articulates and hierarchizes tracings” – with “tracings [being] like the leaves of a tree” – the rhizome is completely

different, in that it crucially allows for experimentation. Returning to the orchid/wasp example, they argue:

Make a map, not a tracing. The orchid does not reproduce the tracing of the wasp; it forms a map with the wasp, in a rhizome. What distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real. The map does not reproduce an unconscious closed in upon itself; it constructs the unconscious. (1987: 12)

And this creative mapping explicates a Full Body without Organs, in contrast to a restrictive tracing which explicates a Fascist/Cancerous – or even a Suicidal/Catatonic – Body without Organs. What Deleuze and Guattari's above vivid descriptions demonstrate is their deep and enduring commitment to experimentation and the production of difference. And, as noted earlier by Buchanan and Holland, this commitment was always a political one; that is, the production of difference in an attempt to confront the restrictive normative frameworks informing the academia of the time, and dictating State action within the context of – and in the wake of – Gaullist France.

Deleuze and Guattari on desubjectivation through becoming-animal

The generation of difference is Deleuze's (and Guattari's) main philosophical project, but this begs the question of what concepts can make that difference relevant within the context of the current environmental crisis. One of the key concepts that Deleuze and Guattari employ in this regard is, of course, the concept of becoming, and of particular interest to this thesis – because of its environmental orientation – is the sub-category of this concept, namely becoming-animal. Yet before one can contend with becoming-animal as a concept, it is important to briefly note precisely what Deleuze and Guattari mean when they employ the term becoming. As a first point, for them, becoming is indissociable from affect. As they explicitly state, "affects are becomings" (1987: 256), and as Felicity Colman explains, "Deleuze uses the term 'affection' to refer to additive processes, forces, powers and expressions of change." Furthermore, she suggests not only that "affect can produce a sensory or abstract result," and that it "is determined by chance and organisation." In addition to this, she also advances that "it consists of a variety of factors that include geography, biology, meteorology, astronomy, ecology, and culture." Lastly, she notes that "affect is not only an experiential force," but that it can also "become a material thing," and as such can

“compel systems of knowledge, history, memory and circuits of power” (2005: 11-12). Similarly, Cliff Stagoll notes that becoming is the Deleuzian antithesis to what Deleuze believes to be “the Western tradition’s predominant and unjustifiable focus on being and identity.” Specifically because of this, “becoming is the very dynamism of change” (2005: 21-22) – as we are continually affected by various forces, we change in relation to those forces, and this change can be a very productive and affirmative one. Crucially, though, this can only occur if one is open to the affects that surround us. If this is not the case – and for Deleuze and Guattari it is more often not the case, due to the dominance of ossified dogmatic modes of thought – then the potential for transformative exchange is lost. Thus their understanding of becoming comports with their concept of the Full Body without Organs, discussed in the previous section.

Specifically with regard to Deleuze and Guattari’s conception of becoming-animal, their foray into examining the relations between human subjectivity and the animal kingdom was linked, as ever, to the underlying project of generating affirmative difference against restrictive and negating normative frameworks of thought; particularly those that precipitate ideas of stable being and separate identity . As Elizabeth Grosz reminds us in *Chaos, Territory, Art*, through their philosophical output, Deleuze and Guattari provide an opening up of “both nature and culture to unrecognized and open-ended forces” (2008: 2). But

Grosz also argues that it is the work of the Estonian biosemiotician Jakob von Uexküll that most influenced their conception of becoming-animal (2008: 40). Admittedly, Ronald Bogue in *Deleuze’s Way: Transverse Ethics and Aesthetics*, focuses instead more on a literary inspiration for the conception, arguing that the likely genesis of becoming-animal lies in Deleuze and Guattari’s encounter with Franz Kafka’s *Metamorphosis*. Yet he nevertheless echoes Grosz’s sentiments on the aim of Deleuze and Guattari’s concept of becoming-animal, namely to facilitate “a process of becoming-other that allows people to undo conventional codes of the human through an interaction with animals” (2007: 158). And Tamsin Lorraine in *Irigaray and Deleuze: Experiments in Visceral Philosophy*, not only supports both Grosz’s and Bogue’s understanding of what becoming-animal entails. In addition, she also provides a crucial disclaimer, when she explains that it is in no way the imitation of animal behaviour, but rather entails “destabilizing recognisable patterns of organization” and attempting to articulate them. This is because “articulating these becomings not only demonstrates our ongoing participation with nonhuman as well as human processes but also indicates new possibilities in self- and world- transformation” (1999: 181).

For the purposes of better contextualizing the Deleuzoguattarian project in this regard, it is helpful at this point – before engaging with the primary text, namely Deleuze and Guattari’s *A Thousand Plateaus* – to pursue the aforementioned two points of genesis for the concept of becoming-animal.⁹⁶

With regard to the first point of genesis, namely the writings of Uexküll, Grosz notes that Deleuze and Guattari “use his work to develop an account of the centrality and species-specific notion of milieu...or *Umwelt*...in understanding the ways in which particular species experience their lifeworlds” (2008: 40). And Brett Buchanan in *Onto-Ethologies: The Animal Environments of Uexküll, Heidegger, Merleau-Ponty, and Deleuze*, provides detailed elaboration of how Uexküll influenced the thought of Deleuze and Guattari. He begins by discussing the contribution of Uexküll in itself, referring to the biologist’s 1934 “picture book” publication, *A Stroll Through the Environments of Animals and Humans*, which Buchanan advances as an invitation to move away from an anthropocentric view of nature. Indeed, “what concerns [him] here, as well as elsewhere in his writings, is how we can glimpse natural environments as meaningful to the animals themselves.” And to do this, “rather than conceiving of the world according to the parameters of our own human understanding – which, historically, has been the more prevalent approach,” one must “rethink how we view the reality of the world.” In doing so, Uexküll allows for two new viewpoints to emerge. That is, he allows us both to “multiply the world into infinite animal environments,” and correlatively to “transform our understanding of the animal away from its traditional interpretation.” In accordance with this new approach, he proposes to “understand the ‘life story’ of each animal according to its own perceptions and actions,” rather than approaching the animal as a “mere object.” And the importance of such an approach, in turn, is that it can “unlock the gates that lead to other realms.” For Uexküll, “all that a subject perceives becomes his perceptual world [*Merkwelt*], and all that he does, his active world [*Wirkwelt*],” while specific and differing actualizations from these two vast fields of perceptual stimuli “together form a closed unit, the *Umwelt*” (2008: 2). Grosz provides further elaboration on this when she explains the exchange between perception and action with regard to an *Umwelt*, in suggesting that “each organism in every species is surrounded by its *Umwelt*, an ‘island of the senses.’” In terms of both perception and action, then, responses to this milieu are “always a considerable simplification of the information and

⁹⁶ As will be discussed in some detail in the following chapter, it should also be noted that Guattari – unlike Deleuze – expressed great concern over the environmental crisis, and pursued these concerns in his individual works.

energy provided by [that] milieu.” Indeed, “the Umwelt of the organism is precisely as complex as the organs of that organism.” In relation to this thought, Uexküll accordingly “advocates an extreme perspectivism in which objects are not autonomous or independent sets of qualities and quantities,” but rather “opportunities for engagement that offer themselves in particular ways to particular organs.” In other words, “organisms are sense-bubbles, monads composed of coextensive overlapping beings and fragments of milieus.” Thought of this way, nature emerges “as dynamic, collective, lived rather than...fixed, categorized, or represented” (2008: 40-41), and for Deleuze and Guattari, with their commitment to moving beyond category and repetition, the general appeal of such thinking is clear.

But it is not sufficient to stop there, because the question remains of what precisely Deleuze and Guattari took from Uexküll’s radical understanding of how life operates. Buchanan, in the aforementioned text, provides an answer to this in “The Animal-Stalks-at-five-O’clock: Deleuze’s Affection for Uexküll,” when he argues that it was Deleuze’s problem with the concept of the ‘organism,’ and correlatively Uexküll’s creative response to this concept, which drew the philosopher to the biologist. That is, for Deleuze, “the organism is the enemy,” insofar as it – although by no means exclusively – “exemplifies a kind of conceptualization of life that requires further probing.” In effect, Deleuze has a problem with the concept of organism because such categorization, in providing a solution to lived existence within the world, stops one from further examining “the ontological processes that create what we are accustomed to calling the ‘organism.’” And it is in the work of Uexküll that one finds a counterweight to such ossified and limiting understanding of lived existence, because Uexküll describes the organism *not* in terms of what it is, but rather in terms of how it both affects and is affected by its milieu, or Umwelt.⁹⁷ For Deleuze, such thought goes beyond the simple solution of the relatively closed concept that is ‘organism,’ by offering the opportunity for a far more open and affirmative encounter with the non-human. The best known example of specific affect is, of course, that of the tick, and Grosz sums it up, describing how “the tick is blind, deaf, and mute. It sees and hears nothing; at most it feels temperature through its photosensitive skin and has an acute but highly focused sense of

⁹⁷ Importantly, Buchanan cautions against ascribing too much influence to Uexküll’s thought on Deleuze’s work. Remembering that post-structuralism is a creative appropriation of often already radical thought, Buchanan notes that “there is not a ‘discovery’ of Uexküll that changes the course of Deleuze’s thought,” and “he [does not] prove to be a missing link that had previously escaped Deleuze.” Rather, Uexküll’s work, when accessed by Deleuze, forms “an additional dimension to the rhizomatic composition of Deleuze’s thought” (2008: 155).

smell.” She further explains that once the female tick has mated, she heads up any available foliage toward light, so that she can be in a favourable position to access the warm blood of a mammal. For this purpose, “her organs of smell are well developed, orientated to discern only one particular smell, that of butyric acid, an odour common to all mammals in their sweat.” When a mammal passes by the foliage, its specific odour signals to the tick that it must drop. Once on the mammal’s body, the body’s warmth once more triggers it “to begin sucking, which engorges [it] with blood.” Once sufficiently bloated, it drops off its host, deposits its eggs and dies (Grosz 2008: 41). Uexküll thematizes what is of interest in this exchange, when he advances that “we are not concerned with the chemical stimulus of butyric acid, any more than with the mechanical stimulus (released by the hairs), or the temperature stimulus of the skin.” Rather, what is of immense interest is “the fact that, out of hundreds of stimuli radiating from the qualities of the mammal’s body, only three become the bearers of receptor cues for the tick” (Uexküll 1957: 11). For his part, Deleuze finds interest in such a reading, because of how the biologist defines the animal by its affects – in this case, light, olfactory, and thermal – which comprise a curious world of extreme selectivity, one of “just three affects...indifferent to all that goes on in the immense forest” (Deleuze and Guattari 1987: 257). In sum, what Deleuze finds of most value in Uexküll is, as Buchanan notes, “the attention paid not so much to the animal itself, but to what this animal can do.” That is, the issue is “how the tick relates to its surroundings, where the emphasis is neither on the tick (its species, its colour, whether it has four or six legs, etc.), nor on the environment (this or that mammal, a tree, a bird, etc.), but on the ‘affective’ relation itself.” And this takes us to the crux of the matter and illuminates the value of Uexküll to Deleuze; if one were to “understand life, each living individuality, not as a form, nor as a development of form, but as a complex relation,” then numerous possibilities begin to emerge, including a rethinking of relations between human beings and nature. This is because, by dismantling the organism as a privileged signifier, bodies become open to new connections. Indeed, Deleuze and Guattari in *A Thousand Plateaus* “show little interest in the environmental world of animals” (2008: 156, 160-161, 177). Rather, they utilize Uexküll’s unique writings on nature as the platform through which to argue that relations between human being and animal can be far more open-ended than previously thought.

With regard to the second point of genesis for the idea of becoming-animal, Bogue suggests that Kafka can be credited as a major influence. As already discussed, the play, experimentation and creativity housed in the writings of Kafka were of significant interest to

Deleuze and Guattari in their search for ways in which difference could be generated within the context of restrictive, ossified modes of thought. And in relation to the concept of becoming-animal, they once more turn to the evocative motifs of this same writer. Bogue explains that “it is in *Kafka: Toward a Minor Literature* (1975) that Deleuze and Guattari first take up the topic of becoming-animal,” and he credits “The Metamorphosis” as the most “likely source of inspiration for the concept than any anthropological text” (2007: 158).⁹⁸ Briefly, in this world-renowned novella first published in 1915, Kafka tells the story of a travelling salesman, Gregor Samsa, who awakens one morning to find himself transformed into a cockroach-like creature. While the cause of the transformation is never revealed, the rest of the novella details his post-transformation encounters with his parents and sister, who find him both repulsive and a burden (for instance, financially, in that he scares off potential boarders who are the sources of the family’s income). The story ends when Gregor isolates himself at the behest of his family, and eventually dies (Kafka, 2015). Yet the *moral* that the philosophical duo take from Kafka’s tale, in terms of becoming-animal, is “a real process of becoming-other,” in this case an unexplainable estrangement, as opposed to “literal bodily metamorphoses of humans” (2007: 158). And as is often the case in their work, it is via art – in this instance, the radical, minor literature of the mystical Kafka – that such encounters find enunciation.⁹⁹

Thus, although Deleuze did not explicitly thematize environmental issues in his work, the use of nature as a conceptual tool therein is certainly apparent throughout his texts, and in particular in *A Thousand Plateaus*. In this text, Deleuze and Guattari engage with the idea of becoming-animal, arguing that certain experiences with animals could lead to a de-territorialization of the self, involving – albeit only momentarily – an exceeding of our pre-determined modes of interaction with the world. In this regard, it should also be considered that Deleuze and Guattari distinguish between three different types of animals (1987: 240-241), which reflect how animals have been interacted with traditionally. Firstly, they argue that one could interact with an animal along sentimental lines. As such, one understands this

⁹⁸ Bogue strains to make it clear that Deleuze and Guattari were, in fact, not inspired by the “anthropological kitsch” of French colonial writings on “leopard-men” in Africa, even though they briefly mention this oddity in their work (2007: 156). This argument is, for Bogue, incorrectly put forward by Christopher Miller in his “The Postidentitarian Predicament in the Footnotes of *A Thousand Plateaus: Nomadology, Anthropology and Authority*” (1993), and in his *Nationalists and Nomads: Essays on Francophone African Literature and Culture* (1998).

⁹⁹ Another literary text that Deleuze and Guattari display great affection for is Herman Melville’s *Moby Dick*, proclaiming it to be “one of the greatest master-pieces of becoming,” and arguing that Captain Ahab, through his duel with the great leviathan, in a sense, finds himself making a “pact with the demon” (1987: 243) that transforms him through a process of becoming-animal.

relationship in an Oedipal sense, missing the potential of such an interaction through locating animal sensibility within a domesticated framework which relies heavily on restrictive (familial) signifiers. Secondly, they point to the use of animals in symbolism and mythology, naming these State animals. Again, through such an appropriation, the potential for transformative experience is lost as a result of pre-determined signification. Having outlined the first two types of interactions, they then discuss Demonic animals (in the sense of the Greek term ‘daemon,’ or between this world and the next). Accordingly, if one were to approach interaction with these beings through such a sensibility – as opposed to relying on approaches rooted in either Oedipal or State terms, then “desubjectification” becomes a tentative possibility insofar as indeterminate affects can facilitate a radically new, unanticipated, and correlatively transformative encounter with the ‘otherness’ of the animal (Lawlor 2008: 169). As Bruns points out, becoming-animal is thus “not animal metamorphosis but an achievement of non-identity, which for Deleuze and Guattari is the condition of freedom (for animals as well as for the rest of us, whoever we are)” (2007: 703).¹⁰⁰

While Deleuze and Guattari had Uexküll’s biological expertise and prodigious imagination, as well as the likes of Kafka’s and Melville’s literary output, to draw on in their imagining of a different set of relations with nature, today, we additionally have digital technology of great capacity, able to present to us nature in a variety of ways previously inaccessible or unimaginable. Yet, while digital technology may be able to open us up to nature in new and fascinating ways, it also, for Deleuze, presents a severe – even paralyzing – challenge to the generation of difference.

¹⁰⁰ As appealing as the above may sound, one must approach this theorization with due caution. As Deleuze and Guattari point out in their preceding work *Anti-Oedipus*, “schizoanalysis...is suspicious of all principles, including its own” (Genosko 1998: 121). And correlatively, the concept of becoming-animal must be seen in the light of not only a Deleuzoguattarian approach, but also in terms of responses to it. Alain Beaulieu, in his “The Status of Animality in Deleuze’s Thought,” traces some of the suspicions generated by Deleuze and Guattari’s concept. Beaulieu points to Donna Haraway, who in her *When Species Meet*, argues that the animal remains above all conceptual for Deleuze and Guattari. She also takes issue with their claim that developing a relationship with an animal in a domesticated setting is a sign of Oedipal regression, arguing instead that such a relationship is suggestive of our capacity to overcome anthromorphism by learning how to live in a post-human environment (Beaulieu 2011: 80). Yet the above criticism notwithstanding, it is without doubt that through their concept of becoming-animal, Deleuze and Guattari open up an exciting range of possibilities for moving away from the restrictive normativities that enforce certain modes of thought centred on stable being and static identity.

The digital challenge to difference: Deleuze's "Postscript on Control Societies"

In his 1990 work, "Postscript on Control Societies," Deleuze argued that the current information age is impacting very negatively on the generation of difference, through its capacity to normatively infiltrate ever more pervasively all aspects of everyday life, where it renders difference exceedingly difficult to achieve. Accordingly, Deleuze expressed pessimism over the potential implications that the cyber age – and its resultant 'societies of control' – held for the production of *new* thought.¹⁰¹

Before one contends with Deleuze's conception of such digital 'societies of control,' it is helpful to briefly recount Michel Foucault's description of disciplinary society, because Deleuze uses it as his point of departure. Against the backdrop of growing awareness of totalizing forms of power and the 1968 critical response to it, in his *Discipline and Punish: The Birth of the Prison* (1975), Foucault attempted to uncover how power has been exercised from the eighteenth century through to the twentieth century. In this regard, he begins his account by examining the French Revolution of 1789, in which monarchic formations of sovereign power were violently removed and replaced with bureaucratic formations of disciplinary power. According to Foucault, the shift from sovereign to disciplinary power had a profound effect on how ordinary people saw themselves. That is, whereas under the monarchy, the masses had remained largely anonymous, with only the aristocracy having a well-established and documented identity, in the bureaucratic period following the French Revolution, this dynamic became inverted. Now the State, functioning via its vast bureaucracies, was protected by anonymity, while each person of the previously anonymous mass became identifiable via technologies of documentation and surveillance. Correlatively, whereas in the past the monarchy had resorted to the brutal spectacle of public torture in order to produce collective fear and thus enforce power, under a disciplinary regime the State exercised power through more discrete means. This occurred, firstly, through the division of

¹⁰¹ Mark Poster, in *Deleuze and New Technology*, suggests that Deleuze was very pessimistic in this regard, arguing that "at heart Deleuze adopts a limited view of digital culture as simply 'control'" in his "Postscript on Control Societies." On account of this, maintains Poster, Deleuze does not anticipate that "digital culture moves in two opposite directions at the same time: towards control and towards freedom from control" (in Poster and Savat 2009: 261). Poster's above perspective comports with that of Verena Andermatt Conley, who in "Of Rhizomes, Smooth Space, War Machines and New Media," argues that with regard to "the accelerated circulation of information" associated with "societies of control...Deleuze seems rather pessimistic about the emergence of new singular and collective assemblages" (in Poster and Savat 2009: 37). However, as will be discussed later in this study, although we can describe Deleuze's position in this text as pessimistic, as Poster himself later points out, Deleuze also offers various remarks on how to resist the homogenization of informatic control societies through his concept of counter-information, which does not preclude the use of digital media to this end.

space and the regulation of time. In terms of the division of space, we can look at the Foucauldian concept of *the art of distributions* within a disciplinary society. Here Foucault discusses four inter-related categories, namely enclosure, the use of functional sites, partitioning and the creation of rank. In terms of the first category, “enclosure” entailed “the specification of a place heterogeneous to all others and closed in upon itself,” that produced a “protected place of disciplinary monotony” in which only certain activities were permitted. This, in turn, gave rise to the second category of functional sites, or the “coding of a space that architecture [had previously] generally left at the disposal of several different uses.” This development brought into existence an entire range of location-orientated divisions of labour, which, in effect, dictated how individuals should regulate themselves and what acts they could perform in the spaces in which they were located. In terms of the third category of partitioning, individuals were further assigned specific places within the new functional sites, insofar as “each individual ha[d] his own place; and each place its individual” (Foucault 1991: 141-143). This functioned to dissolve the possibility of collective resistance forming because, through it, disciplinary power was able to “avoid distributions in groups; break up collective dispositions; [and] analyse confused, massive or transient pluralities” (Foucault 1991: 143). In short:

Disciplinary space tend[ed] to be divided into as many sections as there are bodies or elements to be distributed. One [had to] eliminate the effects of imprecise distributions, the uncontrolled disappearance of individuals, their diffuse circulation, their unusable and dangerous coagulation; it was a tactic of anti-desertion, anti-vagabondage and anti-concentration. Its aim was to establish and to locate individuals, to set up useful communications, to interrupt others, [and] to be able at each moment to supervise the conduct of each individual...It was a procedure, therefore, aimed at knowing, mastering, and using. (Foucault 1991: 143)

A further element, rank, also proved essential for this system of operations to function effectively, insofar as it engendered cognisance of “the place one occupies in a classification” (Foucault 1991: 145). Through such a mechanism, discipline individualized bodies not only through situating them in ever more specific actual locations, but also by “distribut[ing] them and circulat[ing] them in a network of [virtual] relations” – a virtual network which ensured further atomization, competition, and correlative isolation (Foucault 1991: 146). In other words, within such a configuration, people of a higher rank, or those hoping to achieve higher

rank, are obliged to perform supervisory or surveillance functions on lower-ranked individuals, who, in turn, cannot identify with those ranked above them. The above was also coupled with an exhaustive regulation of time in disciplinary societies, underpinned by “the principle of a theoretically ever-growing use of time; exhaustion rather than use” that entailed “extracting...from time...ever more available moments and, from each moment, ever more useful forces” (Foucault 1991: 154). Through this, disciplinary individuals were increasingly caught in a rigid, unyielding and unforgiving system of increasingly efficient operations. Moreover, within this restrictive spatio-temporal setting, the related subordination to normative expectations was difficult to resist, because of the technologies of “Panopticism” and “the dossier.” While the first subjected individuals to surveillance – a gaze which they could not confirm was directed toward them, but which obliged them to act as if it were (Foucault 1991: 200), the second recorded their transgressions and moments of disciplinary achievement, so that the threat of a recalcitrance in the past returning to haunt them in the present, in the form of normative judgement, obliged further compliance (Foucault 1991: 169). In sum, while the regulation of space and time restricted and inhibited the movement and activities of individual bodies, the technologies of observation/surveillance gave these bodies an increasing specificity, or “individuality,” that was marked by pronounced docility.¹⁰²

As mentioned above, Deleuze begins “Postscript on Control Societies” by recalling the above parameters and dynamics of *disciplinary society*, which Foucault associated primarily with the eighteenth and nineteenth centuries. However, he also thematised how Foucault himself suggested that after World War II the disciplinary model was already eroding and being replaced by “an altogether different aim and operation” (Deleuze 1990: 177). In terms of this, Deleuze advances that the contiguous confinement associated with disciplinary societies was being replaced by a continuity of control, with rapid technological advances and economic shifts precipitating such transformation. And he called societies operating under these new conditions “control societies” (1990: 178). As Michael Peters points out in *Post-structuralism, Marxism, and Neoliberalism: Between Theory and Politics*, control societies do not completely replace disciplinary structures, but rather extend their

¹⁰² In *The Will to Knowledge: The History of Sexuality*, Foucault elaborates further on the later increase of such docility. While disciplinary power was the discursive development that gave birth to a docile individual, the emergence of bio-power in the late eighteenth century extended the parameters of this docility, making the subject even more powerless to the point of infantilization, most notably through imperatives to confess – to medical practitioners – thoughts, desires, etc., which by definition they were precluded from understanding or being able to interpret themselves (Foucault 1998: 65-67).

reach through “interconnected, flexible and networked architectures,” and they do so, on the one hand, in relation to an increasingly rapacious form of capitalism, and on the other hand, through the capacity for surveillance monitoring made possible through information technology (2001: 97-98).

With regard to the new system of neoliberal economic exchange, Deleuze explicitly pointed to the above digital technology as the set of machines that makes such societal organization possible. For him, “control societies function with a third generation of machines, with information technology and computers,” which are inextricably intertwined with “a mutation of capitalism” (1990: 180). Indeed, he makes a distinction between the capitalism which informed and operated within disciplinary societies, and the capitalism associated with control societies. Accordingly, the mutation occurred through a move away from nineteenth century capitalism – which was “concentrative, directed towards production, and proprietorial,” and which rendered sites of production into sites of confinement – and toward a capitalist orientation that “is no longer directed toward production.” Rather, present-day neoliberal capitalism is orientated toward “metaproduction,” outsourcing various aspects of production, focusing on abstract notions such as the selling of services, and operating as an assemblage, in which everything is “transmutable or transformable.” Thus, in contrast to the contiguity and confinement of disciplinary societies, in control societies, everything becomes “short-term and rapidly shifting, but at the same time continuous and unbounded.” Perhaps the best example of this is Deleuze’s excellent summation that, within control societies, “a man is no longer a man confined but a man in debt” (1990: 180-181). And it is precisely digital technology, according to Deleuze, that makes such continuous control possible. As he warns, “We don’t have to stray into science fiction to find a control mechanism that can fix the position of any element at any given moment” (1990: 181), before he provides a list of examples of digital technology that allow for such control – from electronic tagging devices to electronic cards that allow or disallow (and record) access to certain areas at specific moments in the day. The major implication of such a form of societal organization, for Deleuze, is that one is constantly engaging with the features that the State – tied to capitalism – aims to promote. Accordingly, this debilitates populations far beyond the docility engendered through disciplinary societies by effectively disallowing them the *time* to operate in adversarial ways outside of its confines. That is, Deleuze suggests that within the disciplinary societies thematized by Foucault, one was always beginning or starting again, as one moved from the school, to the barracks, and from the barracks to the factory, etc.;

consequently, interstices existed between disciplinary institutions where the formation of resistance – or the generation of difference – was in principle always possible. In contrast, Deleuze argues that “in control societies, you never finish anything – business, training, and military service being coexisting metastable states of a single modulation, a sort of universal transmutation” (1990: 179). Moreover, disciplinary societies had “two poles: signatures standing for *individuals*, and numbers of places in a register standing for their position in a *mass*,” which allowed power to simultaneously amass and individuate. But this is no longer the case; rather, control societies, on the one hand, replace signatures with numbers and codes or “passwords,” which one gains and utilizes for the purposes of access through compliance with the status quo. On the other hand, within control societies it is no longer possible to distinguish between the “individual” and the “mass” – as it was in disciplinary societies – but only between “*dividuals* and...samples” (1990: 179-180). In this regard, Robert Williams explains that Deleuze’s “notion of the dividual grasps a vital part of the dynamics of modern technology: the intersection of human agency and high-technology in the constitution of selves” (Williams 2005: 1). And from Deleuze’s viewpoint, what this entails is the progressive loss of the agency still possible for docile disciplinary subjectivity, through the dissolution of critical individuality and its transformation into coded economic data, dividualized to the point where resistance is not only difficult, but *de facto* unimaginable.

Conclusion

The pessimism of Deleuze’s stance toward digitality in the above text is unmistakable, and his concern over its capacity to canalize thinking and desire in ways that limit thought – and by implication, the generation of difference – stand in marked contrast to his earlier exploration of difference in philosophy, art and literature. And this accordingly begs the question of whether or not the generation of difference is indeed possible in relation to the digital, even though the environmental crisis has rendered such difference – particularly in terms of becoming-animal – utterly crucial. But as will be discussed in the next chapter, although Deleuze did not elaborate on the concept, he did advance ‘counter-information’ as a means through which such digital hegemony could be resisted.

Chapter Four – Contemporary reflections on Deleuze’s concern over digitality, and resonances between Deleuze’s ‘counter-information’ and Guattari’s ‘post-media’

Introduction

Despite Deleuze’s forebodings over digitality, discussed in the previous chapter, he does offer some rudimentary remarks on features within control societies that may facilitate resistance to such totalizing domination. In this regard, Deleuze argues in “Control and Becoming”– an excerpt from a late interview with the Italian Marxist sociologist Antonio Negri – that “since ‘information is precisely the system of control’...counter-information becomes a form of resistance” (in Tampio 2009: 383). However, as Mark Poster points out in *Information Please: Culture and Politics in the Age of Digital Machines*, Deleuze unfortunately fails to elaborate more fully on what such counter-information entails, and he asks rhetorically, “Does he mean that critical content is resistance? Or does the form of the critical content constitute resistance?” (Poster 2006:60). Additionally, in his “Control and Becoming,” Deleuze is equally laconic in his assessment of what constitutes a response to the restrictive totalizing information technology features of control societies, writing only that “forms of delinquency or resistance (two different things) are also appearing. Computer piracy, and viruses for example” (Deleuze 1995: 175). But while he repeats this assertion in his “Postscript on Control Societies,” when he notes that “with information technology and computers...the passive danger is noise and the active, piracy and viral contamination” (1990: 180), he again fails to discuss this issue at length. Consequently, although these remarks seem intriguingly relevant when one considers the current informational landscape, they remain, as Poster rightly points out, underdeveloped.

This is, of course, quite understandable, because Deleuze died in 1995, and thus never encountered the hyper-rapid proliferation of information technology developments after 1995, specifically the dizzying changes that have occurred in this regard in the twenty-first century. But a consequence of this is that Deleuze’s pessimism over digitality in “Postscript on Control Societies,” has often served as a point of departure for contemporary theorists who echo his call that the digital is a negative development for the generation of difference – and in what follows, these views will be explored in the first section of this chapter. After this, Deleuze’s two suggestions concerning what might constitute a counter-informational response to the restrictive totalizing information technology features of control societies –

namely viruses and piracy – will be considered in association with Guattari’s concept of post-media. That is, in the work of Deleuze’s long-time collaborator, Félix Guattari, particularly in relation to his idea of post-media, one finds a viewpoint that draws heavily on Deleuze’s promotion of difference, but which also valorises digital space as a potential zone through and within which subjectivity can be experimented with and changed – provided certain conditions are met. And while Deleuze and Guattari may have differed on the capacity of information technology to produce difference, with Guattari assuming a more positive outlook in this regard, in certain respects his concept of post-media comports with, and indeed clarifies, aspects of Deleuze’s counter-information. Accordingly, with a view to exploring this issue, in the second section of this chapter, Guattari’s context and his conception of post-media, particularly in relation to its philosophical underpinnings, will be examined. Finally, and as with the above-mentioned contemporary theorists who echo Deleuze’s pessimism over information technology, focus will fall on those contemporary theorists who in relation to the work of Guattari – and Deleuze’s concept of counter-information – express far more optimism over the potential of the digital to usher in difference.

Reflections of Deleuze’s pessimism over digitality in contemporary theory

Deleuze’s reservations regarding digitality within the context of control societies find further enunciation in the issues thematized by an array of contemporary theorists. For instance, Jeffrey Bell in *Deleuze’s Hume: Philosophy, Culture and the Scottish Enlightenment*, points to the coercive effects of digitality on personal relations and desires. For him, societies of control “utilize constant and rapid communications (memos, emails, advertisements, and so on) to inform people where they stand in the constantly shifting field of interpersonal relations.” And he argues further that if one does not participate in this field – which is inextricably tied with “inexpiable rivalry and competition” – one risks falling off the grid, as it were, and thus becoming an undesirable “unknown variable,” who will undoubtedly begin to “fall behind.” As Bell darkly notes, “the net result is that we come to desire the very systems that control and monitor us” (2009: 151).¹⁰³ To this, Alexander Galloway in his *Protocol: How Control Exists after Decentralization* adds a further insight, when he compares Deleuze’s notion of control societies with the ideas advanced by the media theorist

¹⁰³ The immense popularity of social media sites such as *Facebook*, where users willingly disclose their personal information, innermost thoughts and anxieties, along with their successes – however arbitrary these might be – under the auspices of a belief that one only *is* insofar as one is digitally articulated in this way, immediately come to mind when considering Bell’s argument.

Friedrich Kittler in his *Discourse Networks, 1800/1900*. Galloway writes that Kittler's work, "reminiscent of Foucault's genealogies," illustrates "how the store of knowledge changed from a 'kingdom of sense'...based on understanding and meaning, to a 'kingdom of pattern'...based on images and algorithms" through the shift from disciplinary to control society. And that this profound change in societal experience correlates with Deleuze's claim that control societies, based on hyper-speed, digital simulation and replication, leave virtually no space for adversarial reflection, creativity, and indeed, modes of experience different to that of ubiquitous dividuality (2004: 22).¹⁰⁴

Consequently, certain contemporary theorists, such as Ian Buchanan, are critical of the trend – both popular and academic – of appropriating the Deleuzoguattarian model of the rhizome for understanding the Internet and the interactions it facilitates. For example, in his article "Deleuze and the Internet," Buchanan undertakes a five-point analysis of why the Internet cannot be seen as rhizomatic. That is, although he concedes that at first glance "there are...excellent grounds for thinking that the internet meets some if not all the basic criteria of the rhizome" (2007: 9), he goes on to consider a range of compelling counter-points for why this is not the case. Accordingly, he considers the internet in terms of connection, multiplicity, homogeneity, mapping, and the rhizome, and his ideas in this regard are resonant with the concerns of various other theorists.

That is, Buchanan's first consideration relates to the idea of connection, or more specifically, to how people's experience of the internet is not quite as free-flowing and agency-promoting as many people believe. Rather, as he points out, one does not "surf the Internet," but instead moves from "one fixed point in space to another, which is interestingly not at all what surfers do," and which implies that the internet is more schematic than some have suggested. In support of such an assertion, Siegworth and Tiessen in their article "Mobile Affects, Open Secrets, and Global Illiquidity: Pockets, Pools and Plasma," emphasize the predetermined parameters of such schematization. Quoting John Cheney-Lippold, they maintain that "we are entering an online world where our identifications are

¹⁰⁴ As a supplementary point, one can consider for instance this disturbing entry from *The Internet Encyclopaedia: Volume 1: A-F* (edited by Hossein Bidgoli) on the subject of *Mass Personalization*. It reads: "In general, personalization refers to making a Web site more responsive to the users' individual needs...Personalization is usually based on building predictive models of customer behaviour, preferences, and interests. Given its ability to build successful predictive models, data mining is an excellent personalization approach for building customer profiles, providing recommendations to the customers, and delivering personalized Web content. Most of the existing personalization tools make extensive use of different data mining techniques" (2004: 401).

largely made for us,” and that this “‘new algorithmic identity’...removed from civil discourse via the proprietorial nature of many algorithms...simultaneously enjoy[s] an unprecedented ubiquity in its reach to surveil and record data about users.” They moreover equate this concept directly with Deleuze’s concerns, arguing that “these are the continuous algorithmic modulations and open exposures described by Deleuze...in his vision of the control society: an undulating series of actions-upon-actions that often feel so very intimate (even if at a distance)” (Siegworth and Tiessen 2012: 54). Indeed, even more disturbingly, there appears to be a growing public acquiescence to being treated as a data sample. For example, there have been numerous concerns aired against Google’s newest browser, *Chrome*, pointing to it “essentially acting as a key logger, potentially recording users’ every keystroke” (Keizer 2008). Yet, despite such reservations, the browser has a pervasive reach, with users continuing to access it *en masse* despite it receiving near-constant criticisms with regard to its dissolution of people’s privacy.¹⁰⁵

Buchanan’s second criticism functions as an adjunct to the above, and is directed at the “many people [who] think of the Internet as the realisation of the Deleuzian ideal of multiplicity.” Against this type of thinking, Buchanan argues that “the incredible proliferation and constantly expanding number of websites does not by itself mean that the Internet can be classed as a multiplicity in Deleuze’s sense.” This is not least because, while according to Deleuze and Guattari’s definition of the rhizome, removal of a component alters the whole, in contrast, if one were to remove thousands of websites, the Internet would remain practically unaffected. Similarly, while Vincent Miller in *Understanding Digital Culture* writes that “the internet is fully able to sustain breakages without much effect on its function” (2011: 27), Allison Cavanagh – for analogous reasons – in *Sociology in the Age of the Internet* writes that even though “Deleuze and Guattari’s position has a certain resonance for examining the internet, the application of their concepts [to it] is profoundly problematic” (2007: 47).

Thirdly, and related closely to the above two points, Buchanan argues that if the rhizome “operates by variation, expansion, conquest, capture and offshoots,” or by the principle of heterogeneity, then we must acknowledge that the internet, in many ways, acts in a manner contrary to this, as a “homogenising and standardising machine.” A good supporting example of online developments that have precipitated such limitation and

¹⁰⁵ According to the browser statistics website, w3schools.com, as of May 2016, Google Chrome had the highest share of users (71.4 %) in relation to their competitors – with Mozilla Firefox coming in second at 16.9 % of user share (W3 Schools, 2016).

restriction – rather than space for personal experimentation – can be found in the recent dispute over the mobile application, *Whisper*. The aforementioned application, aimed at both the widely used *Android* and *Apple iOS* operating systems, was launched in 2012 and was initially met with great excitement, because of how the application purportedly allowed users to send and receive messages anonymously on the most personal of topics. In doing so, it ostensibly offered a ‘safe space’ in which to discuss any range of issues a user might be troubled by, and in an article entitled “The Genius of Whisper, the Massively Popular App You Haven’t Heard Of,” Alexis Madrigal of *The Atlantic* accordingly gushed about it, even calling the application “ephemeral” (Madrigal, 2013) – although he eventually settled for a more moderate but still positive appraisal of its features. He neatly summed up his understanding of the application as follows:

Anyone can post an anonymous message to the service in the form of an image macro: text overlaid on a picture. When you open the app, you see six such images. Each one has a “secret” on it. You can respond to a message publicly or privately, choosing a public anonymous post or a private pseudonymous chat. Users don’t have a public identity in the app. While they do have persistent handles, there’s no way to contact them except [through] the messages they post. (Madrigal, 2013)

The popular appeal of such anonymity was clearly evinced in its garnering some “2.5 Billion page views a month” (Madrigal, 2013), and *Whisper* accordingly seemed to comprise a substantial online development. However, on 16 October 2014, the UK paper *The Guardian*, in an article entitled “Revealed: how Whisper app tracks ‘anonymous’ users,” alleged that the application, among other things, not only monitored some users even after they had opted out of “geolocation services,” but also “shared information with the US Department of Defense,” and even “collated and indefinitely stored...user data...in [a] searchable database” (Lewis and Rushe, 2014).¹⁰⁶ What this reveals once more is Deleuze’s keen foresight that digital space, rather than being a smooth space of exploration, creativity and possibility, would ultimately come to function as a striated intermediary, through which Capital enterprise and the State would co-operate to extend their collective hold over communication and interpersonal relations. Buchanan also adds to his above argument concerning digital homogenization by thematizing an important related point that applies specifically to such

¹⁰⁶ The company behind the application responded to the allegations on 19 October, with CEO Paul Heyward “not [disputing] the accuracy of *The Guardian*’s reporting” (Lewis and Rushe 2014).

media, when he emphasizes how “pre-existing media” are being compelled “to adapt [themselves] to suit the internet environment.” Pointing to bloggers and citizen journalists, among others, Buchanan argues that the Internet has “set off a massive expansion of media operations into virtually every corner of existence” (2007:11). This seems to confirm the ultimate Deleuzian nightmare in this regard, and a brief consideration of Google helps to illustrate this point. Julian Assange, in an interview with *The Huffington Post*, discusses some of Google’s current infrastructure and its plans at expansion. According to him, “Google controls 80 percent of Android phones now sold, [and] YouTube,” a subsidiary of Google’s, bought in 2006, “is buying up eight drone companies. It’s deploying cars, it’s running...Internet service providers,” and it even “has a plan to create Google towns.” Going on to liken Google to a “high-tech General Electric,” Assange proposes that the company represents “a push towards a technocratic imperialism or digital colonialism,” in which “Google envisages pulling in everyone, even in the deepest parts of Africa, into its system of interaction” (in Grim and Harvard, 2014). Problematically,

that system of interaction concentrates global power into those people who already have a lot of it, and that means not just companies like Google but a lot of the alliance of interests – organizations like the National Security Agency and contractor... institutions like Google and Facebook, which directly or indirectly are involved in the worldwide collection efforts of those organizations. At a less geopolitical level and at a more personal level, the global erosion of privacy for the average person [will] bring...democratic states socially into a position...where they are more like authoritarian states. (in Grim and Harvard, 2014)

Turning to the concept of the map as a fourth point of discussion, Buchanan argues that, in his view, Deleuze and Guattari intended the rhizome to operate as “a therapeutic tool,” so to speak, insofar as acknowledgment of rhizomatic relations would “produce the unconscious, and with it new statements [and] different desires.” However, with regard to popular ideas of a cyber-rhizome, he argues that the “internet cannot simply be the pre-existing network of connected computers. Rather, we have to conceive it in terms of the set of choices that have been made concerning its use” (2007: 12). In relation to this, we can think back to Deleuze’s explicit linking of his conception of digital control societies to “a mutation of capitalism,” in which people, fixed to “a control mechanism that can fix the position of any element at any given moment,” find themselves no longer confined – as in disciplinary society – but rather

“in debt.” An arrangement in which they are no longer individuals in relation to a mass, but “*dividuals* and...samples” (1990: 179-181). By way of example, it can be argued that Google’s digital infrastructure, rather than producing a space for therapeutic explorations that are couched in creativity and openness to experimentation, controls according to *its* interests. In this regard, David Vise in his *Foreign Policy* article “Google,” provides a good overview of some of the major questions surrounding the behaviour of the company. Claiming that it has drawn “scepticism from Wall Street and the ire of human rights groups” (2006: 20), Vise thematizes how Google has been discredited on a number of counts.¹⁰⁷ Although some of these criticisms are market-orientated,¹⁰⁸ issues concerning Google protecting its approach to business, and the privacy of its users, remain important (2006: 22-24). In terms of Google’s claims that it is not operating within a standard business mould, Vise highlights how Google functions strongly along the lines of the dominant corporate ethos of today, with a “traditional management team to operate the business [and] traditional mechanisms to measure the company’s financial performance” (2006: 23), and he argues that because of this, despite their declarations to the contrary, the company operates according to the dictates associated with neoliberal capitalism. The consequent issue that emerges, then, is how this private enterprise, in conjunction with government, is less concerned with facilitating free participation and free information exchange, and more focused on trying to find ever more efficient means through which to exercise control within a digital space – as Deleuze feared.¹⁰⁹ Correlatively, in terms of privacy, Vise explains how the company acts in its own

¹⁰⁷ It is curious that Vise begins with a note on how Google is seen by the financial world, before moving onto the criticisms it has drawn from human rights groups; an order which may well indicate priority in the author’s mind.

¹⁰⁸ For instance, he attempts to refute the claim that Google is global by pointing to South Korea, which has strong “domestic Web search firms” that make it difficult for Google to compete within this particular country (2006: 20). In support, *The Economist* reports that, as of 1 March, 2014, Google had still not been able to reverse its South Korean situation, stating that “South Korea’s biggest web portal has [both] thrashed Yahoo and kept Google at bay” (*The Economist*, 2014).

¹⁰⁹ Beyond Google, an additional example compellingly demonstrates this system of relations. When the whistleblowing website, WikiLeaks, via U.S. soldier Bradley Manning, published “a flood of classified documents that went to the heart of America’s military and foreign policy operations” (Leigh and Harding 2011: 3), documenting serious misconduct by the Americans in Iraq and Afghanistan, controversy erupted. And after further leaks, specifically the release of “251 287” diplomatic cables from around the world, which WikiLeaks claimed to be the “the largest set of confidential documents ever to be released into the public domain” (2011: 210-211), the non-profit organization was in serious trouble. At this point, WikiLeaks, which as a non-profit organization relies on donations, came under sustained attack; under severe pressure, several companies – including *MasterCard* and the online payment service provider *PayPal* – closed WikiLeaks’ accounts, and in doing so, partially crippled the organization. Other tech-giants, such as the online retailer and web-hosting service *Amazon*, as well as smaller firms such as *Tableau Software*, which provided WikiLeaks with “data visualization” (Finley 2010), similarly withdrew infrastructural support. In many respects, what this demonstrated was the power relations and resultant censorship dynamics operative in cyberspace, and correlatively, the extent to which the digital realm is profoundly unfree.

interests, protecting information only when disclosure could lead to it “losing its competitive edge,” that is, when revealing too much information on how “its users search the Internet, [might allow] its competitors...to decipher secrets of its technology.” In relation to this, Vise cites examples of how, in the past, Google has failed to co-operate with the U.S. Justice Department, when this governmental wing requested “a week’s worth of searches [related to] a child pornography investigation” (2006: 22). Alternatively, as has been suggested by reports on the more recent NSA (National Security Agency) spying scandal, Google, along with the social networking site, Facebook, have indeed co-operated with governmental authorities. Jason Leopold of *Al Jazeera America*, neatly sums up the controversy. He explains that “disclosures by former NSA contractor Edward Snowden about the agency’s vast capability for spying on Americans’ electronic communications prompted a number of tech executives,” such as those from Google and Facebook, “whose firms cooperate...with the government to insist they...do...so only when compelled by a court of law.” However, “email exchanges between National Security Agency Director Gen. Keith Alexander and Google executives, Sergey Brin and Eric Schmidt, suggest a far cosier working relationship,” further intimating that “not all co-operation was under pressure” (Leopold, 2014).¹¹⁰

¹¹⁰ The corollary of this is the relative powerlessness of the individual to contest such machinations. For instance, the British technology site *The Register*, following a discussion between WikiLeaks founder Julian Assange and another news site (*PandoDaily*), recounts some of Assange’s criticisms against Google. Assange, speaking with reference to his recently published book *When Google Met WikiLeaks*, “dubs Google, Facebook and Apple ‘surveillance barons’” (Orlowski 2014) – which, as is also pointed out in the article, is disturbingly *no revelation*. And he goes on to demonstrate how the tech-giant, tied to commercial and governmental interests, often works against the interests of its users. A related example from the article markedly illustrates this point, in relation to “Google’s network of ‘digital rights’ groups.” In this regard, it is suggested by Assange that “Google funds 150 academic departments, think tanks and ‘citizen groups,’ offering them advertising, analytics help and fund-raising tools – and often hard cash.” In doing so, the company obtains the support of these supposedly critical groups established to protect individuals accessing the Internet, but who help to “shape the policy agenda [so] that [it] doesn’t disrupt Google’s business” (Orlowski 2014). In such an arrangement, the individual user clearly becomes subordinate to commercial interest, with the mechanisms meant to support individual users’ interests undermined significantly. In effect, robust monitoring of any potentially unethical online practice is replaced by a collection of groups’ dependant on those they are meant to hold accountable for any violation – a clear conflict of interest. And Orlowski notes a further case which demonstrates such issues, when he discusses an individual case against Google. In an echo of his previous point, he notes that “a better indicator of Google’s influence is not when money changes hand, but when it doesn’t.” Accordingly, he cites a 2014 case brought forward to the Court of Justice of the European Union by Mario Costeja Gonzalez, supported by the Spanish Data Protection Agency (the AEPD), against Google Spain and Google Inc. In his complaint, Gonzalez contended that “when an internet user entered his name in the search engine of the Google group, the list of results would display links to two pages of *La Vanguardia*’s newspaper of January and March 1998.” Problematically for Gonzalez, these pages “contained an announcement for a real-estate auction organised following attachment proceedings for the recovery of social security debts owed by [him].” Arguing that the legal proceeding against him had been fully resolved and subsequently closed, Gonzalez wanted the pages, which discussed his personal information, firstly, to be removed or altered by the newspaper in question, and secondly, for Google to remove or conceal the links in its search engine attached to his name which led users directly to the newspaper’s site (CJEU 2014). In accordance with European data protection law, or *the right to be forgotten*, Gonzalez won the case. But, while legally Gonzalez could claim victory, as Orlowski reports, in the court of public opinion the matter became deliberately obscured. He writes that roughly two months after the

It is in relation to the above that Buchanan discusses the fifth and final point, namely that of the rhizome. That is, while “the rhizome is acented, nonsignifying, and acephalous,” he argues that the internet, even though it seems this way in its appearance and construction, in terms of “the reality of its day-to-day use still does not live up to this much-vaunted Deleuzian ideal.” Citing our behaviour online, Buchanan advances that instead we tend to follow set patterns – for instance, oscillating between three or four different sites consistently – such that we move from point to point on the internet. For him, this suggests that “there is no liberated line of flight in cyberspace,” and that we are instead held hostage, in a sense, by infrastructural developments online. One example is, of course, PageRank, or Google’s ability to predict what one will search for, and so forth (2007: 10-13). Admittedly, while there may be a distrust of the seemingly impersonal operations of Google, which most users encounter simply as an excellent search engine that fulfils their various search requests, Facebook continues to attract great personal investment on the part of its users. After all, your Facebook profile is you, and so it becomes hard for users of the site to see it for what it is, namely a programmed website running on codes and algorithms that are backed up by servers, cabling, and other material infrastructure. In relation to this problematic dynamic, Tiana Bucher in “Want to be on Top? Algorithmic power and the threat of Invisibility on Facebook,” discusses the algorithm EdgeRank, used by Facebook to determine what information users are exposed to in their news feeds (a collection of updates drawn from their pool of ‘friends’ that is displayed as a single, central page). On the one hand, she explains that, in the EdgeRank system, to become “visible is to be selected by the algorithm,” and that, accordingly, “inscribed into the algorithmic logic of the default News Feed is the idea that visibility functions as a reward, rather than as punishment, as is the case with Foucault’s notion of Panopticism” (2012: 1174). But on the other hand, certain behaviours on the site linked to constant presence and action – such as ‘Posting’ information through text or pictures, ‘Liking’ items posted by ‘friends,’ or ‘Commenting’ on these items – guarantee that one’s individual profile will be picked up on by the EdgeRank system and placed at a priority

case was decided, “The Media Society, supported by ITN, held a discussion of the ruling... and featured a representative from Google, along with a barrister, an academic and an ITN executive who were all hostile to the decision, on numerous occasions citing misleading evidence,” while the last panellist “was the UK Information Commissioner, who is legally obliged to be even handed between the data processor (Google) and the individual.” In effect then, as the author acerbically notes, “four and a half panellists represented Google, the data processing giant, and half a panellist represented the individual – some of the time” (Orlowski 2014). While the author admits that no direct funding link can be established between the names mentioned above and Google, it is quite clear that an individual involved in any such dispute holds very little power. Thus, far from being a democratizing space, as is often claimed, it would seem the internet – and particularly the companies that have emerged as giants within its framework – simply replicate the unequal dynamics of the past, albeit in a far more pervasive form.

spot on one's friends' news feeds. Consequently, such behaviour becomes normalized and indeed promoted as desirable, which does fit well into the Foucauldian framework of disciplinary technologies that inculcate repetitive behaviour. However, it equally serves to demonstrate Deleuze's complimentary and cogent point that such behaviour "imposes a particular conduct on a particular human multiplicity" (Deleuze 2006: 29). After all, Facebook users subordinate themselves to a system of interpersonal relations set out by an algorithm, and in this sense, the social networking site represents one of the greatest threats to the generation of difference. That is, in a continuous pursuit of popularity, manipulated by the aforementioned algorithm, people using Facebook literally begin to lose the time to be different, operating rather in accordance with a set of behaviours set by Facebook's programmers. Indeed, it is hard to imagine how there could be any adversarial reflection within the confines of this continuous narcissistic information flow. And when a concept like 'virtual identity suicide' becomes a topic of exploration, as evinced in Stieger, Burger, Bohn and Voracek's "Who Commits Virtual Identity Suicide? Differences in Privacy Concerns, Internet Addiction, and Personality between Facebook Users and Quitters," then it would seem that Deleuze's worst fears have been realized.¹¹¹ In relation to this, and returning to Siegworth and Tiessen's work on Deleuze and digital spaces, further description is given of how Facebook users operate under the influence of a particular digital infrastructure. Referencing Mark Andrejevic, they discuss the concept of "digital enclosure," or in other words, "the creation of an interactive realm wherein every action and transaction generates information about itself." In such an enclosure, there is no "pre-determined shape or form;" rather, "a digital enclosure is continually produced in and through the volunteered coordinates and the subsequent movements of interactions themselves."¹¹² These interactions have two components to them, insofar as they entail "temporary closure on one side (the participant side)," while they tend to be "leaky or open on the other side (the network side)." It is on the latter side that information becomes available to interested third parties, be they governmental agencies or more commonly "marketshare-seeking corporate entities"(2012: 55-56). Thus, as Andrejevic argues in *iSpy: Surveillance and Power in the Interactive Era*,

¹¹¹ This article explores the experiences of those users who have recently quit Facebook, citing privacy concerns as their primary motivation for doing so, and the problematic implications 'offline' of having done so, particularly in terms of the reactions toward these former users by those users who have stayed with the site (2013: 629).

¹¹² Nigel Thrift in "Life world Inc. – and What to do about it," understands how we relate to digital infrastructure in a similar way. He argues that "the introduction of new forms of information technology...produced a general capacity to track movement and is likely to end with the redefinition of the world of persons and objects as constituent elements of a mutually constitutive moving 'frame'" (2011: 7).

we become “cybernetic commodities” (2007: 7), performing certain actions prompted by the imperatives of a particular code or algorithm, while at the same time having all these actions monitored for their monetary potential. When one considers Facebook in such a critical light – *as* a digital enclosure producing cybernetic commodities, or in Deleuzian terms, *dividuals* – then its appeal becomes hard to fathom. However, active Facebook devotees, as alluded to previously, would no doubt tend to reject any claims that they were merely algorithmic identities, whose identifications have been largely made for them (Siegworth and Tiessen 2012: 54), and would no doubt instead argue that Facebook remains a highly user-friendly framework through which they can express their unique personalities.¹¹³

However, while the engendering of narcissistic behaviour through the site is worth the attention it has garnered, because of the socio-cultural problems that accompany such a disposition,¹¹⁴ what is more pertinent for the current argument are the ways in which Facebook users fail to make the distinction between digital (*virtual*) space and their offline (*actual*) lives. Something that Sherry Turkle in her *Alone Together: Why We Expect More From Technology and Less From Each Other*, neatly captures in her concept of “the robotic moment” (2011: 3) – a moment that strongly confirms Deleuze’s suspicion of growing dividuality. For Turkle, the robotic moment constitutes “the moment in which we are philosophically ready for technology to replace human interaction” (2011: 3), or the process of “remaking human values and human connection,” but in a non-affirmative way (Moskowitz, 2013). And Turkle provides a wonderful example that powerfully explicates the features of such a moment. Discussing a visit with her teenage daughter to “the Darwin exhibition at the American Museum of Natural History in New York,” she describes “at the exhibit’s entrance...two giant tortoises from the Galapagos Islands, the best known inhabitants of the archipelago where Darwin did his most famous investigations.” The two tortoises, one hidden from view and the other completely still, failed to impress her young daughter, who, “unmoved by [their] authenticity,” noted: “They could have used a robot”

¹¹³ The idea of Facebook as a conduit through which one expresses one’s unique personality is well documented in academic study, particularly within psychological studies. See, for example, Gosling et al. *Manifestations of Personality in Online Social Networks: Self-Reported Facebook-Related Behaviours and Observable Profile Information* (2011), and Zwier et al. *Boundaries to the Articulation of Possible Selves Through Social Networking Sites: The Case of Facebook Profilers’ Social Connectedness* (2010).

¹¹⁴ See also, Mauri et al. “Why Is Facebook So Successful? Psychophysiological Measures Describe a Core Flow State While Using Facebook” (2011), Espinoza and Juvonen’s “The Pervasiveness, Connectedness, and Intrusiveness of Social Network Site Use Among Young Adolescents” (2011), Yin Zhang et al. “Gratifications, Collective Self-Esteem, Online Emotional Openness, and Trait like Communication Apprehension as Predictors of Facebook Uses” (2011), Zizi Papacharissi’s “Look at us: Collective Narcissism in College Student Facebook Photo Galleries” (2010), and Soraya Mehdizadeh’s “Self-Presentation 2.0: Narcissism and Self-Esteem on Facebook” (2010).

(2011: 3). If one were to think about this moment in relation to Deleuze's concern over the dissolution of difference through digitality, what the robotic moment illustrates is the triumph of information over the recognition of existence. Indeed, in this example, a thing is seen only for its informational value, and if one were to apply this to the information flow produced by Facebook users, a similar idea emerges, namely that people are becoming dividualated collections of information, rather than human beings who exist in time and space, and who comprise sites of multiplicities.¹¹⁵ When everything is already documented, and presented as information that one can access, it would appear that in a pervasive digital culture, we can no longer be "half-secrets, even to ourselves" (Siegworth and Tiessen 2012: 54).¹¹⁶ And even though Buchanan is not wholly negative over the internet and its impact on society, but rather aims to temper some of the more enthusiastic understandings of the Internet-as-rhizome, the point remains: in many ways, the concept of the internet as a totalizing force within our new societies of control is not easily dismissible.

Consequently, in light of the above, the possibility of generating openness to difference through this medium, particularly in relation to the environmental crisis, appears extraordinarily limited. However, counter-weights to such pessimism thankfully do exist.

¹¹⁵ This dissolution of the *individual* is taken even further by online practices engendered through web-cam based chat sites, such as Chatroulette. Turkle neatly explains how the site functions. She writes that in Chatroulette "you sit in front of your computer screen and are presented with an audio and video feed of a randomly chosen person, also logged into the game," and "you can see, talk to, and write each other in real time." Statistically-speaking, the popularity of the site is evinced by the fact that by February 2010, "it had 1.5 million users [translating to] about thirty-five thousand people logged onto Chatroulette at any one time" (2011: 225). More recent figures for the site also show further growth, with the site claiming 50,000 users active at any given point in time, and it is estimated that 11.6 million users visited the site from 1 February 2015 to 1 July 2015 (SimilarWeb, 2015). Although pairing up with random users around the world for conversation may sound like a fairly innocuous and interesting practice, it is a well-known joke in popular Internet culture that the site is a hub of pure reduction, something which Turkle demonstrates vividly when she describes entering a chat session during a class she was presenting at MIT. She remembers the encounter: "It took only a few seconds for me to meet my first connection. It was a penis. I hit next, and we parted company. Now my screen filled with giggling teenage girls. They nexted me. My third connection was another penis, this one being masturbated." Turkle thinks of the encounter as "faces and bodies [becoming] objects" (2011: 225), and we could, if we apply a Deleuzian framework to understand such behaviour, broaden her conclusion. Through such a lens, Chatroulette is an immensely dividualating experience, insofar as it presents, for the most part, what users consider to be the most essential information they can communicate at the expense of any vague simulation of real contact and engagement. No longer presenting themselves as human beings, Chatroulette's users seem content with experiencing themselves and others as a rapidly shifting series of images, each one as interchangeable and fleeting as the next.

¹¹⁶ In this regard, the mobile application TimeHop markets itself as a time capsule of you, and is described by Liz Gannes of the website All Things D, as "a daily time capsule of everything I shared online on today's date a year ago, two years ago, and as far back as it goes." Besides sounding like a terrifying echo of TimeHop's slogan, albeit in longer form, Gannes' gushes further over the application when she writes, "It's especially cool on birthdays and holidays, when I can see patterns from pictures of how I've celebrated and where I've travelled across the years" (Gannes 2013). If one were to consider similar such applications, like the "life-logging" application Saga, which "compiles users' locations, travel times, and posts to [multiple] social networks into one Lifelog" (Gannes 2013), then it would seem that the exchanges between actual users and their virtual identities have become even more blurred.

Deleuze and counter-information

Deleuze's concept of counter-information did not arise solely from his encounter with digitality, but rather, relates to a very specific political history. As Albert Moran explains in *TV Formats Worldwide: Localizing Global Programs*, "counter-information" tactics were initially employed by the "Italian radical left movement" of the 1960s, long before they were "championed by famous intellectuals from Deleuze and Foucault to Meaghan Morris" (2009: 212). In short – as already discussed – in the 1960s Italy was experiencing a multitude of problems, exacerbated by a weak and ineffective "centre-left coalition that had been marked by a constant failure to bring promised reforms to Italian society" (libcom.org, 2008). In response to such stagnation, "Italy's extra-parliamentary revolutionary movement...took as its starting point the need to fill the void" created by two associated factors, namely the "growing moderation of the official Communist party," and the growth of "the American-dominated capitalist status quo in Italy" (Drake 2008: 450). And this response, termed counter-information, took a number of forms, including the spreading of messages that criticized the status quo, the provision of competing perspectives, the exposure of the state broadcaster's lies and omissions, and the use of humour to mercilessly poke fun at the shortcomings of the political and bureaucratic establishment (Moran 2009: 210-211). Gino Moliterno provides an excellent example of the type of tactics employed in the *Encyclopaedia of Contemporary Italian Culture*, in an entry on the actor, playwright and director, Dario Fo. He explains that Fo (along with his collaborators) "terrorized the Italian bureaucratic and political establishment...with their unique brand of theatre which aimed primarily to provide the working class with 'counter-information' on the real state of national and international affairs." And this was because they felt that the working class had been "deprived of critical viewpoints on current affairs by the state-owned media monopoly" (2005: 336). Accordingly, this is the framework that preceded Deleuze's thoughts on counter-information as a possible antagonistic force within digital societies of control. And in "Having an Idea in Cinema (On the Cinema of Straub-Huillet)," Deleuze states specifically what he means by the act of producing counter-information, when he advances that "counter-information only becomes useful when it is – and it is this by nature – or when it becomes an act of resistance," and that "counter-information is effective only when it becomes an act of resistance." Thus if one concurs with Deleuze that "information is the controlled-system of order-words used in a given society," then any challenge posed to this digital system, whether through individual viruses/error or the collective act of piracy, can be regarded as a form of

counter-information. And Deleuze further elaborates on the concept of counter-information through a reference to the films of Straub/Huillet, and their use of “disjunction between auditory and visual image.” In this regard he writes, “each act of [such] art is not an act of resistance, and yet, in a certain sense, it is” (in Kaufman and Heller 1998: 18-19). As Nadine Boljkovac in *Untimely Affects: Gilles Deleuze and an Ethics of Cinema* explains, counter-information should thus be understood as utilization of the opportunity “to counter-actualise,” or, in other words, to “refold, break open, and recombine thought” (2013: 20). Put another way, Michael Shapiro in *Methods and Nations: Cultural Governance and the Indigenous Subject*, advances that while “to propagate information uncritically is to reaffirm the dominant order within which the information is intelligible,” through “oppositional modes of artistic production...of what...Deleuze calls counter-information” such otherwise automatic reaffirmation of a troubling dominant order is problematized (2004: ix).

Admittedly, Deleuze never elaborated on his two suggestions of viral contamination and piracy within the context of control societies, but various theorists have recently, albeit in different ways, understood both these suggestions as relating to actions online that rupture the continuity of control.

Deleuze’s counter-information in contemporary digital theorization

Contemporary writers certainly do seem to share the view of the internet as a space of counter-informational possibility, with this possibility thought of largely in terms of error, or what Deleuze termed a virus. As Nunes argues in *Error. Glitch, Noise, and Jam in New Media Cultures*, digital “error” in relation to global digital networks “signals a path of escape from the predictable confines of informatic control: an opening, a virtuality, a poiesis.” With regard to this, and drawing heavily on the work of Deleuze and Guattari (both on their collaborative work and on their individual texts), Nunes advances that in a “network society predicated on the control of information...strategies of misdirection serve as both cultural and artistic interventions.” And it is these interventions that facilitate “creative openings and lines of flight that allow for a reconceptualization of what can (or cannot) be realized within existing social and cultural practices” (2011: 3-4). As a first example, Nunes draws attention to the infamous ‘HTTP 404 Error’ message, or more precisely, the standard response code one receives if a command entered via a web browser is not understood by a given server. In relation to this, Nunes writes that “errors come in many kinds, but increasingly, our errors arrive pre-packaged,” with “failure notices” in our networked lives “correspond[ing] to a specific category of error.” And it is this category of error that is one already predicted by the

system, in that it is “a *potential* error that the system must predict before it has *actually* occurred.” Thus, “while the error notice signals failure, it does so within the successful, efficient operation of a system.” For Nunes, at first glance, such an exchange admittedly signals a reaffirmation of Deleuze’s explanation of how societies of control operate. Indeed, he even concedes that such “control systems do not deal in the singularities of instances, but with fields of the possible,” and that, as such, the correlative initial fear is that they will increasingly produce homogenization in terms of communication exchange. On further reflection, though, and via reference to the work of Stuart Moulthrop, Nunes finds a strong counter-argument to such a pessimistic reading.¹¹⁷ He writes, “Error 404 can also highlight ‘the importance of not finding’: that error marks a path in its own right, and not merely a misstep.” And it is such a critical perspective that “runs contrary to a dominant, cybernetic ideology of efficiency and control,” by demonstrating that digital space is not as enclosed a system as it is often made out to be. Nunes closes by arguing that while we “may find indulgence for errors, glitches, and noise” in fields such as literature, music, or art, “such erratic behaviour finds little favour in a world increasingly defined by protocol and predictable results.” Consequently, it is precisely within the latter domain that error is such a seductive phenomenon, because “uncaptured error refuses to signify within a system of feedback control” (2011: 13-14). In other words, although the digital interface is pervasive, it is not a perfectly refined machine in which no differentiation – whether through deliberate or accidental error – can occur. And such errors comprise key moments of counter-information, albeit at a formal, cyber-infrastructure level, which can precipitate a reconsideration of subjectivity. Indeed, as Benjamin Mako Hill points out in “Revealing Errors,” errors like the above - which are statistically inevitable – can lead to “users” considering some troubling and potentially critical questions. And he refers to the following relatively common scenario:

Anyone who has seen a famous “Blue Screen of Death” – the iconic signal of a Microsoft Windows crash – on a public screen or terminal knows how errors can thrust the technical details of previously invisible systems into view. Nobody knows that their ATM runs Windows until the system crashes. Of course, the operating system chosen for a sign or bank machine has important implications for its users. Windows, or an alternative operating system, creates affordances and imposes limitations. Faced with a crashed ATM, a consumer might ask herself if, with its

¹¹⁷ Nunes provides reference for Moulthrop’s article: Stuart Moulthrop, “Error 404: Doubting the Web,” <http://iat.ubalt.edu/moulthrop/essays/404.html>.

history of rampant viruses and security holes,...she [should] really trust an ATM running Windows? (2011: 27)

What such a scenario neatly demonstrates is that information technology is a mediator, or a “hidden intermediary,” and in serving this function is inevitably held hostage by its own limits and constraints. In this regard, Hill argues that “errors are underappreciated and underutilized in their ability to reveal technology around us,” and that in such revelation, “scholars and activists can reveal previously invisible technologies and their effects more generally” (2011: 27). Hill provides a wonderfully elucidating example of how one such error, revealed to subscribers of a particular publication, led to some troubling practices being exposed, and to some difficult questions being asked by the publication’s readership. He explains:

ONN [One News Now, a news site run by the Christian American Family Association, or AFA] provides Christian conservative news and commentary. One of the things they do is offer a version of the industry standard Associated Press news feed. Rather than just republishing it verbatim, however, AFA runs software to modify the feed’s language so it more accurately reflects their organization’s values and choice of terminology. They do so with a hidden intermediary in the form of a computer program. (2011: 34)

However, in the run up to the 2008 Beijing Olympics, and covering the athletic efforts of US sprinter Tyson Gay to qualify for the global showpiece, ONN made use of an Associated Press article on the matter. But, while the AP article read, “Gay eases into the 100m final at the Olympic trials,” the computer software employed by ONN/AFA automatically changed the headline to “Homosexual eases into the 100m final at the Olympic trials.” As the article progressed, each mention of the athlete’s surname was replaced with the term ‘homosexual,’ leading to jarringly awkward passages and continual references to a “Tyson Homosexual.” To be sure, the glaring mistake brought significant attention to the publication’s website, and bemused many of its readers. But in the surrounding controversy, the fact that AFA/ONN “changed words in its AP news feed” was also brought to light, as users of the site had never before realized that the information they were receiving was being manipulated. And the revelation brought about through error, of “the presence of a hidden script,” led to serious questions being asked of the ideological commitments of the paper. As Hill notes of the

Tyson Gay error, it revealed “a set of values that AFA...have about the terminology around homosexuality and the way that these values invisibly frame users’ experience of reading an AP article through their system.” In short, on the one hand, the error served to indicate to users “the power that designers and service providers have over their users” (2011: 35). But on the other hand, it also revealed how, despite such power, the conduit through which it is exercised remains a faulty one, and not a totalizing generator of informatic control that is beyond query or resistance.¹¹⁸

One should also consider errors of judgement made by those in positions of power, in relation to a profound misunderstanding of what behaviours and personal creations online constitute. Elizabeth Losh in her article, “The Seven Million Dollar PowerPoint and Its Aftermath: What Happens When the House Intelligence Committee Sees ‘Terrorist Use of the Internet’ in a *Battlefield 2* Fan Film,” discusses one such instance. In this regard, she shows how entities that exercise control are often shown up as both incompetent and ill equipped to contend with the rapid proliferation of developments and trends online that are the primary feature of networked societies. And where this occurs, however incrementally, power is shifted back toward the ordinary person within the digital space. In her article, Losh discusses a fan video created by someone from the Netherlands, celebrating the computer game *Battlefield 2*, and uploaded for fellow enthusiasts on the *Planet Battlefield* forum – a space designated for users to discuss various aspects of the game, swap strategies, and so forth. The fan video in question, which “represented an imperfect rendering of a popular mash-up aesthetic that was created for a particular remix culture around global gaming,” made use of the soundtrack from the satirical puppet movie *Team America*, audio clips from press gaffes committed by former U.S. President George W. Bush, as well as music from Anthony Quinn’s 1981 film *Lion of the Desert*.¹¹⁹ While those familiar with this online practice around popular games would have been able to interpret the creator’s purpose

¹¹⁸ An error such as this one, in which an unsophisticated programme lacks the ability to take context into account, is well represented throughout digital spaces. Consider, for instance, the very similar and quite common “clbuttic effect,” which relates to a curious past phenomenon online found specifically on online forums. These sites, using software that filtered user language deemed inappropriate, were not sophisticated enough to distinguish between ‘swear’ words and non-offensive words which contained the same collection of letters as the offending word. Most famously, the software would pick up on the word ‘ass’ and change it to ‘butt.’ However, because this configuration of letters is very common in a number of words, many user posts were soon rendered unreadable. As an example, and this is where the effect derives its name from, the word ‘classic’ would be reconfigured to ‘clbuttic.’

¹¹⁹ *Team America: World Police* is a satirical 2004 film by duo Trey Parker and Matt Stone, which pokes fun at the rampant jingoism of the George W. Bush era, while *Lion of the Desert* is a cult Libyan film, directed by Moustappa Akkad, that tells the story of Arab resistance to the imperial aspirations of Benito Mussolini in Libya before the outbreak of the Second World War (IMDB, 2014).

clearly, the U.S. House Permanent Select Committee on Intelligence were far less capable of decoding the video accurately. As Losh writes, “federal investigators on the intelligence committee” found the video difficult “to rationalize and interpret.” Indeed, “the main message of online smack talk, virtuoso individual performance, and parodic reappropriation was overlooked, because it did not fit the narrative of serious terrorist evangelization.” With the investigators reading an innocent fan video as “carefully crafted political statements from a group of malevolent opponents,” one can see that although the digital reach of governmental structures is pervasive, it can – and often is – prone to serious error. In a Deleuzoguattarian sense, then, one could argue that re-territorialization is often undermined within the digital sphere by its inability to keep up with very specific trends online that operate by their own logic. And Losh demonstrates such profound misunderstanding clearly when she discusses reactions to the video at a congressional hearing entitled, “Terrorist Use of the Internet.” She points out that, by this point, the video had already been “misidentified as material for terrorist indoctrination at least twice” by supposed experts – “the military contractor SAIC...and once more by Pentagon witnesses who had reviewed SAIC reports.” As the misidentification proliferated, one congressional representative dramatically called the subsequent presentation on the video “very compelling and sobering” (2011: 133-134). While the situation by this stage could be described as thoroughly absurd, what the *experts* had demonstrated was a profound misunderstanding of not only fan generated content, but also the massive commercial enterprise that is video gaming. Of the many errors in their analysis, they had focused on the fact that the video’s protagonist was a terrorist, and not a traditional American or Allied soldier, as would often be the case in commercial video gaming that focuses on contemporary conflicts for its storylines and settings. In this, they had committed a fundamental misreading. As Losh points out of the producers of commercial video games:

The industry practice of allowing such role-reversal in the first person shooter genre strengthens brand loyalty by extending play time and player engagement, and therefore it also solidifies the commitment of so-called “hardcore gamers” to a given company’s products and guarantees profits in the most reliably lucrative segment of electronic entertainment’s market share. (2011: 135)

Again, rather than having its capacity to control extended by digital space, as Deleuze would have it, such examples serve to demonstrate that the State Apparatus struggles to make sense not only of standard commercial enterprise online, but also more specifically of creative

individual re-appropriations of the products generated by these enterprises. And in their response, they do not successfully re-territorialize, but rather grope and fumble for understanding and control, incapable of distinguishing between legitimate and bogus interpretation. Indeed, put differently, their error produces a site of counter-information that can precipitate a renegotiation of subjectivity.

Guattari and post-media

However, while the above writers provide us with a fair insight into the contemporary parameters of Deleuze's first suggestion of virus/error as counter-information which resists the homogenizing tendencies of digital control societies, it is Guattari who illuminates the dynamics of Deleuze's second suggestion, namely, piracy, in relation to his concept of post-media. Yet before detailing Guattari's conception of post-media, it is important to examine the context within which he operated. This is not only because such exploration provides clearer insight into the issues that informed Guattari's approach. In addition, it is also because it correlatively allows for a more balanced perspective on the Deleuze-Guattari partnership, by allowing the relationship between Guattari's individual work, and his input into the creative philosophical experiments in thought that resulted in provocative texts such as *Anti-Oedipus* and *A Thousand Plateaus*, to emerge into conspicuity.

The French historian who specializes in intellectual history, Francois Dosse,¹²⁰ in *Gilles Deleuze and Félix Guattari: Intersecting Lives*, provides an evocative and colourful historical account of Guattari's earlier years. Discussing his childhood, Dosse notes that Guattari came from a "traditional, conservative family," and that having turned 15 in 1945, "was able to go to the university thanks to the Liberation." He further explains that by this time, Guattari was already "precociously politically aware," and that he accordingly "joined the [highly politicized] Student Hostels organization [and] started to attend Communist Party meetings" – much to the distress of his father, who remained "a stalwart Gaullist." In terms of his studies, Guattari, despite a profound interest in philosophy, "did his first internship in pharmacy in July 1948 in Bécon les Bruyères," but failed this course dismally on both his

¹²⁰ As Jean-Pierre Herubal explains in "Observations on an Emergent Specialization: Contemporary French Cultural History – Significance for Scholarship," French cultural history mostly "privileges specialization in nineteenth- and twentieth-century French phenomena," but "its historiographic innovation and publication extend to an international audience." And he defines "contemporary French cultural history as a specialization and as a vector in the contemporary historiographic landscape" (2010: 216). For this reason, the next few pages lean relatively heavily on Dosse's critical biographical account of Guattari, as Dosse's information is both immensely detailed, and relatively rare in its approach to the often marginalized Guattari.

initial and second attempts (2010: 21-26). At this point he reconsidered his studies and registered at the Sorbonne for a degree in philosophy (2010: 27), while his various political commitments – all related in various ways to the French Communist Party – continued unabated. (2010: 30-36). Another highly influential strand of his academic development was his interest in the prestigious psychoanalytical philosopher, Jacques Lacan. With regard to this, Dosse explains that by the 1950s, “Guattari was known both for his political militancy and for being a specialist in Lacanian ideas,” and he attributes his interest in the latter to Guattari’s meeting with the psychiatrist Jean Oury, who introduced him to the work of Lacan before it became the toast of the Parisian intellectual scene. As a consequence, “Guattari read Lacan’s texts on the mirror stage, aggression, and the family earlier than the rest of the intellectual world [and]...was so affected by them that he learned them virtually by heart.” Later, “in 1953, Guattari went to a lecture on Goethe that Lacan gave,” and “at the end of 1954, Lacan invited Guattari to his seminar at the Sainte-Anne psychiatric hospital in Paris” (2010: 37). As Guattari enthusiastically noted, “I was the first non-psychiatrist, non-doctor to take the master’s seminar” (in Dosse 2010: 37-38). Subsequently, Lacan also further enhanced Guattari’s interest in the field of linguistics, through his “famous Rome lecture, where he established the importance of linguistic methods for psychoanalysis” (2010: 38).¹²¹ At this point, one could argue that Guattari’s experience of philosophical enquiry, as opposed to Deleuze’s frustration with the Hegelian framework foisted upon the discipline, was one of immense creative relief – an outlet from which he could escape both his conservative upbringing, and his earlier problematic encounter with the study of pharmacy.

These two strands – namely his association with the French Communist Party and his interest in Lacan’s work – were moreover interwoven and actualized in his work at La Borde, and in his subsequent contribution to a radically reflexive engagement with psychoanalysis. Admittedly, this was partly facilitated by the context of La Borde, which was “an unorthodox

¹²¹ The other major influence on Guattari’s academic development was the work of Jean-Paul Sartre. With regard to this, Dosse writes that Guattari discovered Sartre’s work – in particular, his famous *Being and Nothingness* – in the early 1950s, and never “repudiated his taste for Sartre” (2010: 28), as evinced by his statement in the 1990s that, “for me, Sartre is an author like Goethe and Beethoven, it’s all or nothing. I spent fifteen years of my life completely immersed in Sartre’s work and actions.” He furthermore advanced that “everything I said or did was obviously affected by him. His reading of annihilation, of detotalization,...becoming for me, deterritorialization, his idea of seriality, of the pratico-inert, which informed my idea of the group-subject, his understanding of freedom, and of the commitment and responsibility of the intellectual, which he embodied, all of these remained imperatives or at least immediate givens for me”(Guattari in Dosse 2010: 28-29). Interestingly, Sartre was no less important for Deleuze; in *Desert Islands*, Deleuze writes, “That’s what Sartre was for us (for us twenty-year-olds during the Liberation). In those days, who except Sartre knew how to say anything new?” Indeed, Deleuze even suggests that *Being and Nothingness* was “an event,” through which “we learned...the identity of thought and liberty” (2004: 77).

psychiatric clinic where mental illness was treated unconventionally,” insofar as it “reject[ed] the traditional approach of isolating people with psychiatric disorders.” In this regard, the clinic was seen as “a real utopia” in that it offered a progressive and experimental approach to mental illness (2010: 40). And because La Borde thus offered “new approaches” the space to grow, “letting chance and spontaneity play an important role” (2010: 44), it is unsurprising that Guattari was drawn to this particular clinic.¹²² With regard to Guattari’s challenge to certain theoretical features of psychiatric practice, Gary Genosko in *The Guattari Reader: Pierre-Félix Guattari*, points out that Guattari should be considered as one of the “radical psychiatrists” who emerged in the 1970s as a response to “the anti-psychiatry movement” of that decade, which emphasized “the close relationship between psychiatric and other forms of repression.” Indeed, rather than ignoring such criticism, these radical thinkers tried to combat France’s (and Europe’s) archaic asylum system, by putting together a more progressive approach to national mental health. And it was during this period, or during “the second wave of anti-psychiatry,”¹²³ that Guattari came to an important realization that began to inform his subsequent writings – both his individual works and his collaboration with Deleuze. In terms of this, Genosko refers to Guattari’s statement at the time that “no fundamental problem will be solved in this domain as long as we do not have the goal of what they call a *depsychiatrization* of madness.” Accordingly, for Genosko, “in developing his perspective on ‘popular alternatives to psychiatry,’ Guattari emphasized that mental illness was irreducible to social alienation and the critique of capitalism” (1996: 3-4). In effect, and as Genosko further notes in his later work *Félix Guattari: An Aberrant Introduction*, “Guattari, in addition to being a leading theoretician of the innovative La Borde psychiatric clinic, was also a militant political activist,” and, as such, “always sought to link his (anti)-psychiatric reforms and theorization to working-class and community-based revolutionary politics” (2002: 30-31). And the events of 1968 were to prove pivotal in this regard.

Indeed, Guattari’s meeting and subsequent highly productive collaboration with Deleuze is generally attributed to the spirit of rupture and experimentation generated by the

¹²² Dosse also notes that, in more practical terms, Guattari’s friend and influence, Oury, had made his way to the clinic earlier (2010: 43), and thereby paved the way for Guattari’s entry into this highly sought after place of work.

¹²³ The first wave of anti-psychiatry is associated with thinkers such as the American psychiatrist, Thomas Szasz (Genosko 1998: 109). As Oliver Ralley explains in “The Rise of Anti-Psychiatry: A Historical Overview,” Szasz, “in his foremost work, *The Myth of Mental Illness: Foundations of a Theory of Personal Conduct*...explains how mental illness’ cannot exist in any real sense and why psychiatry therefore has no right to rule over those who are diagnosed as ‘mentally ill’” (n.d, 1).

events of May 1968 (Bogue 1988:1; Alliez and Goffey 2011: 58). However, while the related intellectual atmosphere set the conditions for a meeting between the two thinkers, it was a more personal connection that ultimately brought them together, and this connection was “Jean- Pierre Muyard...a medical student” specializing in psychiatry “in Lyon and a militant member of the left wing of the National French Students’ Union” (Dosse 2010: 2). Through his activities, Muyard was well acquainted with Guattari, but over time he developed an interest in the work of Deleuze and befriended him, partly because of his own interest in Deleuze’s work on Sacher-Masoch, and partly because of Deleuze’s desire to “better understand the world of psychotics” (2010: 2). Accordingly, in response to Deleuze’s interests, Muyard arranged a meeting between him and Guattari, and the resultant output, *Anti-Oedipus*, became one of the defining texts of the post-1968 intellectual scene. Yet, Ronald Bogue makes an additional important point concerning the book. He argues that while many readers “saw a philosophical expression of the spirit of the May 1968 student-revolt” in the book, as a result of its “irreverent radicalism and critique of psychoanalysis,” it should also be remembered that it was neither “a spontaneous effusion of May’68 irrationalism nor an opportunistic exploitation of the cult of Lacanism.” Instead, Bogue argues that *Anti-Oedipus* “was the result of nearly twenty years of investigation in philosophy, psychoanalysis and political theory on the part of its authors.” And in many respects, this description can be extended to all of Deleuze and Guattari’s collaborative works. That is, although the various concepts presented therein are truly a joint venture, each man’s lengthy and individual preceding engagement with different strands of theory – for Deleuze, his work on Hume, Kant, Nietzsche, Proust, Bergson, and so on, and for Guattari, his deep interest in Sartre and Lacan, as well as his experience in radical psychiatric practice and militant politics – should not be understated as important components in forming the subsequent Deleuzoguattarian concepts.

Apart from the above collaboration, Guattari also continued to produce theoretical work on an individual basis. And this work continued to reflect the concerns he had developed in his own considerations of the prevailing problematic social relations of his era. Of these works, those that have been translated into English include *The Machinic Unconsciousness* (1979), *Molecular Revolution: Psychiatry and Politics* (1984), *Schizoanalytic Cartographies* (1989), *The Three Ecologies* (1989), *Chaosmosis: an Ethico-Aesthetic Paradigm* (1992), and *Chaosophy* (1995). And as is clear from these titles, many of the themes of *Anti-Oedipus* and *A Thousand Plateaus* were deeply resonant with his own

perspective. Stephen Zepke in *Art as Abstract Machine: Ontology and Aesthetics in Deleuze and Guattari*, neatly captures Guattari's orientation in these above works, when he draws attention to a passage in Guattari's *Chaosology*. Discussing art as having the potential to be creative and thus political, Guattari suggests that, "promoting a new aesthetic paradigm...involves overthrowing current forms of art as much as those of social life. I hold out my hands to the future" (in Zepke 2005: 183). In many respects, this passage encapsulates the resonance between Deleuze and Guattari, which led to such a productive relationship. That is, while Deleuze was the supreme theoretician who rigorously promoted difference through the rejuvenation of oft-maligned philosophers, and via the generation of concepts borrowed from diverse and (seemingly) unrelated fields of study, Guattari, the practicing doctor and militant activist, advocated movement or deterritorializations away from stale formulations, the effects of which he witnessed daily in his line of work.

Yet, while Deleuze did not elaborate further on what 'counter-information' entailed, despite it being so crucial to resisting the dividualizing forces of digital control society, Félix Guattari was far more explicit in his description of the capacity of information technology to engender difference, as evinced by his concept of post-media. In this regard, particularly in his 1992 text *Chaosmosis: An Ethico-Aesthetic Paradigm*, Guattari – referencing the conceptual tools he had developed with Deleuze in their co-authored works, primarily *Anti-Oedipus*, *Kafka: Towards a Minor Literature*, and *A Thousand Plateaus* – advanced his idea of post-media.¹²⁴

In order to understand what Guattari means by post-media, it is helpful to briefly consider *Chaosmosis* in context. It was not only this author's last published work, but also comprised an attempt at complexifying subjectivity, against the backdrop of the advances made in *Anti-Oedipus* and *A Thousand Plateaus*. As discussed in the previous chapter, through these works Deleuze and Guattari proceeded beyond Freud and Marx via their

¹²⁴ It is important to clarify that Guattari's post-media differs from two other well-known uses of the same term, namely, the post-media advanced by Rosalind Kraus, and the concept of post-media aesthetics advanced by Lev Manovich. In *Beyond New Media Art*, Domenico Quaranta draws the distinction between Guattari's and Kraus's uses of the term. He writes that firstly, in Guattari's use of post-media, "the term seems to be a front for a more complex theory," which furthermore "starts with a reflection on the independent media and free radios of the 1970 to posit, at the end of the consensual era of mass media," an era "in which the media would be a tool of dissent." Secondly, Quaranta points out that Kraus, in her celebrated *A Voyage in the North Sea: Art in the Age of the Post-Medium Condition* (1999), actually uses the term "post-medium" as opposed to "post-media" in her reflection on the decline of the "concept of media specificity." As such, her post-media has "a different meaning from that posited by Guattari" (2013: 199-200). With regard to Lev Manovich, his use of the term is also dissimilar to Guattari's insofar as it forms part of the debate precipitated by Kraus over medium-specificity. In terms of this, Manovich proposes "a new postmedia aesthetic that focuses on a cultural analysis of software and informational behaviours" which allows us to "see old and new cultures as one continuum" (Kinder 2014: 8-9).

exploration of the politics of desire in relation to the construction of radically different subjectivities. Similarly, from the opening chapter of *Chaosmosis*, namely “On the Production of Subjectivity,” Guattari pursues further complexification by pointing out that his conception of subjectivity is rooted in a Bakhtinian understanding of subjectivity, as something “plural and polyphonic,” rather than based on any “traditional systems of binary determination.”¹²⁵ Accordingly, and in keeping with his earlier projects with Deleuze, Guattari argues in this chapter that “at least three types of problem prompt us to enlarge the definition of subjectivity beyond the classic opposition between individual subject and society.” These are, firstly, “the irruption of subjective factors at the forefront of current events, [secondly,] the massive development of machinic productions of subjectivity,” and thirdly, “the recent prominence of ethological and ecological perspectives on human subjectivity” (1995: 1-2). While the latter issue of the environmental crisis was discussed at length in Chapter One, the first refers to the collapse of the Eastern Bloc following the disintegration of the Soviet Union, and the second to the growing momentum in the development and capacity of information technology.¹²⁶ Referencing models of analysis that do not explicitly contest classic conceptions of subjectivity, such as “sociology, economic science, political science, and legal studies,” Guattari goes on to propose that they are “poorly equipped” in their ability “to account for the mixture of archaic attachments to cultural traditions that nonetheless aspire to the technological and scientific modernity characterising the contemporary subjective cocktail” (1995: 3-4). And it is in relation to this deficit that Guattari attempts to create a “schizoanalytic meta-modelisation” (1995: 58) that can help thought move forward toward an “Ecosophy” (1995: 119). That is, an understanding of how subjectivity is an ever-augmenting result of a heterogeneous combination of productive forces; something which can run ‘counter’ to the flow of ‘information’ through State Apparatus channels.

Importantly, in the above endeavour, Guattari focuses heavily on information technology as a conduit through which the kind of subjectivity generated by State Apparatus

¹²⁵ Sue Vice in *Introducing Bakhtin*, explains that polyphony “refers precisely to the construction of the voices of characters and narrator in the novel.” For these to be considered polyphonic, they should feature the “co-presence of independent but interconnected voices” (1997: 112). The importance of such an arrangement is made clear by Steinby and Klapuri, who in *Bakhtin and his Others: (Inter) Subjectivity, Chronotope, Dialogism*, argue that polyphony is correlative to the production of “polysubjectivity” (2013: 38).

¹²⁶ Importantly, if one considers the collapse of the Soviet Union as coterminous with the dawn of neoliberal hegemony – as Alexander Callinicos does (2003: 6) – then this event, along with the rise of information technology, parallels the two issues highlighted by Deleuze in his “Postscript on Control Societies” as characterizing the contemporary era, and thereby lends further support to the idea of implicit synergy between Deleuze’s counter-information and Guattari’s post-media.

information flow can be countered, contested and experimented with. And in this respect, he attempts to liberate the machine from its typical technological connotations, by insisting that it can fulfil an aesthetic function through the generation of creativity, difference and *new* thought. In his first mention of the potential impact of world pervasive information technology, Guattari writes that “technological transformations oblige us to be aware of...universalising and reductionist homogenisations of subjectivity and of a heterogenetic tendency” (1995: 5). Yet through this he not only echoes Deleuze’s concern over the normative effects of digitality, but also establishes the need for a circumspect approach that does not reject digitality out of hand. This is clear when he suggests that:

We should be on guard against progressivist illusions or visions which are systematically pessimistic. The machinic production of subjectivity can work for the better or for the worse. There exists an anti-modernist attitude which involves a massive rejection of technological innovation, particularly as it concerns the information revolution. [But] it’s impossible to judge such a machinic evolution either positively or negatively; everything depends on its articulation within collective assemblages of enunciation. At best there is the creation, or invention, of *new* Universes of reference; at the worst there is the deadening influence of the mass media to which millions of individuals are currently condemned. (1995: 5-6)

Consequently, Guattari contends that “computer-aided design leads to the production of images opening on to unprecedented plastic Universes,” and he argues that when technological development is tied with “social experimentation,” it becomes possible for “these new domains” to “lead...us out of the current period of oppression and into a post-media era characterised by the reappropriation and resingularisation of the use of media” (1995: 5-6).¹²⁷ Through Guattari’s reference to the *collective enunciation* detailed in his collaborative work with Deleuze on Kafka, it is clear that he sees digitality as a potential generator of connections with unpredictable results, in a manner akin to the nomadic machines he wrote about with Deleuze in *A Thousand Plateaus*. And this becomes even more conspicuous when Guattari, referencing Deleuze’s work on cinematic movement- and time-images, maintains that when we are confronted by any form of art, “we are not in the presence of a passively representative image, but of a vector of subjectivication” (1995: 25).

¹²⁷Although Guattari does not dedicate overly much attention to the specific features found within information technology that could be ‘reappropriated’ or ‘resingularised,’ he does indicate “access to data banks, video libraries, interactivity between participants, etc.” (1995: 6), as the digital aspects he has in mind.

Indeed, Guattari takes his argument further than just stating that information technology has the potential to counteract the production of isolated and limited subjectivity, by making a number of specific related claims further on in his text. For instance, he argues that “informatic subjectivity distances us at high speed from the old scriptural linearity,” in that it engenders “an ontological heterogenesis,” especially in light of “the proliferation of new materials [and] new electronic representations,” and when combined with “a shrinking of distances and an enlargement of points of view” (1995: 96). Adding to this, he also advances that “machinic mutations...deterritorialize subjectivity” and that “the junction of informatics, telematics and the audio-visual will perhaps allow a decisive step to be made in the direction of interactivity, [or] towards a post-media era.” Yet importantly, heeding his own call for a careful and considered approach, Guattari sees such positive developments as possible *only* if there is a correlative creative engagement with digitality within society as a whole. With regard to this, he writes that all of this is possible “provided that society changes,” and specifically, “provided that new social, political, aesthetic and analytical practices allow us to escape from the shackles of empty speech which crush us” (1995: 97). Nevertheless, regardless of whether or not society moves powerfully toward any kind of change that may be considered positive, Guattari acknowledges that profound shifts (at his time of writing) deriving from the digital revolution have generated a destabilized setting of opportunity. With regard to such flux, he argues that in conjunction with “geopolitical configurations [which are] changing at a great pace,” we have ever-present and ever more pervasive “the Universes of techno-science, biology, computer technology, telematics and the media,” all of which “further destabilise our mental co-ordinates on a daily basis” (1995: 119).

Guattari’s post-media in contemporary digital theorization

A number of contemporary theorists have critically considered and ultimately lent support to Guattari’s insistence that rapid technological advance has the potential to engender difference. For example, in “Post Media Occupations for Writing Theory,” John Tinnell both elaborates upon Guattari’s proposition of adopting an “Ecosophy,” and relates it specifically to the realm of digital media. In terms of the first point, he argues that the usefulness of Guattari’s idea of developing an Ecosophy is in its very Deleuzoguattarian insistence that oppositions should not be validated as a form of understanding the self in relation to its societal context. That is, “Guattari’s refusal to oppose nature against culture or ecology against technology” offers, according to Tinnell, an approach that provides a far more

dynamic perspective, one which takes complexity and openness into account (2012: 126). And this derives its strength from the fact that “Guattari’s Ecosophy...aims...to theorize the production of subjectivity as a dynamic network involving transversal connections among collective assemblages of enunciation.” A view which is opposed to the typical perspective of “‘separate’ realms of humans, animals, plants, buildings, music, computers, etc.,” realms that are related but that exist in “discrete and relatively stable categories.” Indeed, Guattari insists that “the world [can be seen] as a dance between chaos and complexity – a multitude of productive syntheses between nomadic parts that exist independent of any fixed structure or transcendental whole.” Accordingly, the challenge is *not* to seek to regulate or create a false hierarchy or harmony, but rather to “engender institutional and ontological conditions that encourage people to encounter the world as a series of open and ongoing syntheses between partial objects” (2012: 127-128). And for Guattari, it is precisely the digital that could potentially contribute to such dynamic destabilization and promotion of exchange. For his part, and in pursuit of such contributions, Tinnell points to the “dynamic software made popular by Web 2.0 – such as interactive databases and server-side scripting languages” that have the potential to “generate...new writing” (2012: 140).¹²⁸

Similarly, in “Digital Ecologies,” Sean Morey further explores the idea of the digital as a space of contestation and difference, by discussing Guattari’s idea of post-media specifically in relation to the capitalist ethos that it would have to operate in relation to. Referencing Guattari’s *The Three Ecologies*, Morey neatly summarizes the concept of Ecosophy as “understanding wholes through heterogeneity rather than homogeneity.” And he contends that, for Guattari, it is precisely “a capitalist subjectivity” that demands the dissipation of any difference or heterogeneity (2012: 113). In this regard, he quotes Guattari who, in *The Three Ecologies*, advances that such capitalist subjectivity “demands that all singularity must either be evaded or crushed in specialist apparatuses and frames of references,” and that through doing so, it “forms massive subjective aggregates from the most personal” (2010: 33-34). One is immediately reminded here of Deleuze’s concern over dividualization within digital societies of control, and Guattari is by no means dismissive of this potential problem in his conception of post-media.¹²⁹ Rather, using the conceptual tools

¹²⁸ It must be noted that Tinnell focuses specifically on new writing practises, as opposed to a broader examination of the digital space, because “writing theory and digital media” is his specific ambit of research (2012: 215).

¹²⁹ Not only is one immediately reminded of Deleuze’s concern over dividualization when one reads Guattari’s words, but the contemporary of such dividualization that also looms large is Facebook. As discussed in some detail earlier in this chapter, this pervasive network is, in a sense, omnipresent and the first port of call whenever

co-created with his long-time collaborator Deleuze, Guattari proposes a potential practice of resistance. That is, unlike Deleuze – who never substantially developed on his concept of ‘counter-information’ as it pertains to piracy – Morey proposes that in his idea of post-media Guattari develops an “electrate, digital ecology,” in which “the media will be reappropriated by a multitude of subject-groups capable of directing its resingularisation” (2012: 114). Which arguably sheds more light on what Deleuze meant. And to avoid construing this in utopian terms, we must remember Guattari’s caveat in *Chaosmosis* that this would only be possible “provided that society changes,” and specifically, “provided that new social, political, aesthetic and analytical practices allow us to escape from the shackles of empty speech which crush us” (1995: 97). Interestingly, as Byron Hawk in “Curating Ecologies, Circulating Musics: From the Public Sphere to Sphere Publics” suggests, reflections of this can already be identified. That is, in relation to Guattari’s *The Three Ecologies*, Hawk finds examples of practical realizations of Guattari’s post-media. Referencing Tiziana Terranova’s book *Network Culture*, he demonstrates how Terranova brings forward some evocative and exciting ways of looking at the Internet. For example, she argues that “mapping Internet traffic shows distinct hubs of activity and connection, not just around the mega sites such as Google, Facebook, and CNN, but also around smaller networked archipelagos of like-minded sub-sites.” Accordingly, what this leads to is “a fractal ecology of social niches and micro niches [that] materialize at the intersection of manifold connections” (in Hawk 2012: 160). Another interesting insight is her assertion that in networked space “information is not simply transmitted from point A to point B,” but rather, “it propagates and by propagation it affects and modifies its milieu” (in Hawk 2012: 174). And Hawk closes on a similarly pro-post-media position, by making explicit reference to Guattari’s proposition that “computerization in particular has unleashed the potential for new forms of ‘exchange’ in value, new collective negotiations, whose ultimate product will be more...singular, [and] more dissensual” (Hawk 2012: 177).

Indeed, even Castells validates Guattari’s position, when he advances that technological means can be employed to counter developments seen as destructive, and subsequently provides a number of examples in this regard. For instance, he points out that “networking, and particularly Internet-based networking, is of the essence in the anti-globalization movement” (2010: 154). Thus while Castells, as discussed earlier, does echo

one experiences anything at all, even though it is a coded schema which lacks the sophistication to capture experience in anything other than the most basic of formulations.

certain of Deleuze's concerns regarding the capacity of the digital to infiltrate and restrict populations – the continuous moulding identified by Deleuze as the most salient feature of control society, for instance, is analogous to Castells' writings on work and time – he also reflects a Guattarian optimism that the internet can function as an interactive space which can help groups of people precipitate change. And at least two examples serve as a testament to this more optimistic viewpoint. In a 2001 interview with Harry Kreisler, as part of UC Berkeley's "Conversations with History" series, and in response to Kreisler's hypothetical scenario that computers donated to Nigeria by an oil company could, in turn, be used to organize local protest and global dissent against that very company, Castells paints a picture of a system of relations that are hard to manage by the more powerful entities within that relation. In terms of this, he argues that:

It's informational guerrilla tactics, if you wish, with different components being part or not part of the movement, and, of course, no possibility of control. How do you control the movement on the Internet? Yes, you can arrest people or beat up people in a particular demonstration, but the media effect of that...in fact...help[s] the anti-globalization movement to introduce a debate that did not exist. Until three or four years ago, it was clear in the official ideology of companies, governments, [and] institutions that "globalization is good and you just have to explain it to people. Technology, by definition, is good, and if you are quiet and patient for a couple of decades, everybody will begin." Well, the anti-globalization movement, right or wrong, has created a space for social and political debate that did not exist. And this is thanks to the ability of environmentalists and other groups to connect with the Internet, relate to the public opinion through the media, and connect their locality to the global processes through specific events and demonstrations. (Castells 2001: 5)

Thus, unlike Deleuze, who foresaw digitality primarily as a move toward further societal and conceptual restriction, Castells, with the benefit of access to a multitude of subsequent developments in relation to information technology, sees it as a far more multi-faceted domain, in which the generation of diverse effects is possible. And in doing so, Castells validates Guattari's position that post-media has the capacity to act as an agent of difference generation. Indeed, Castells even updates and extends such thought in his 2012 work *Networks of Outrage and Hope: Social Movements in the Internet Age*, in which he discusses the nature of the new networked social movements that came to prominence during 2011 –

first in Tunisia and Iceland, and then spreading from these countries elsewhere. Here he argues that “Internet social networks...are spaces of autonomy largely beyond the control of governments and corporations” (2012: 2), and he furthermore praises these movements for their weariness of mainstream media, their lack of affiliation with orthodox political organizations, and their decentralized means of operation, citing virtual space or cyberspace as the means through which physical, actualized protest was galvanized and organized (2012: 4).

Beyond this, Deleuze and Guattari’s terminology, and especially the concepts they advanced in texts such as *Anti-Oedipus* and *A Thousand Plateaus*, are featuring with increasing prominence in various analyses of how people and the internet interface, and the implications thereof. In particular – and notwithstanding Buchanan’s reservations discussed earlier – contemporary theorists seem very much drawn to the Deleuzoguattarian concept of a rhizome as a means by which to understand the workings of this interface, as well as the related Deleuzoguattarian concepts of assemblage/s, nomadism, lines of flight, smooth/striated spaces, and deterritorialization/reterritorialization. Agnieszka Wenninger in “Territory (ies) Internet: A Deleuzian perspective on ownership and identity on the web,” explains that such an approach allows for a far more dynamic and reasoned engagement with trying to understand the internet as both a restrictive and a creative space. And she writes that “along with Deleuze, one can state that [the] Internet is neither *terra infinita* to be explored, nor an electronic library, but should rather be conceived of as a battlefield of (on) territories/domains as well as deterritorialization and reterritorialization movements” (n.d. 2). Admittedly, it would have been more correct for her to also cite Guattari in this regard, since her related sentiments are more an optimistic echo of his post-media than of Deleuze’s thoughts on digitality in general. Nevertheless, in employing such an understanding, she returns to Castells’ assertion that “the Internet is no longer a free realm, but neither has it fulfilled [an] Orwellian prophecy” (Castells 2001: 171). To be sure, we have already seen how both the State, through surveillance and the creation of laws that allow its interference, and Capital, through its monopolization of Internet infrastructure and its commodification of information, constitutes a large chunk of what the internet now is. But by employing the rhizomatic schema to the Internet, it also becomes apparent that total homogeneity online is not a possibility. As the anonymous author on *thing.net* writes, with specific reference to deterritorialization and reterritorialization, “rhizomatic-nomadic resistant Internet actors...will need to map out new territory and terrain,” because “the Panopticon sees all, but

only in territory it knows.” Thus, “resistant actors will need to create new territory and act while the panoptic forces of State and capital play catch up” (N.A. 1997).¹³⁰

Arguably, what the appeal of vivid conceptualizations such as Deleuze and Guattari’s rhizome serve to demonstrate is a contemporary commitment to the production of difference and experimentation. As Scott Sundvall in “Post-Human, All too Non-Human: Implications of the Cyber-Rhizome” enthuses, “the cyber-rhizome is a becoming-everything, an n-1 system, endlessly producing multiples, asignifying and uncoding its apprehensions along its course of flight, along smooth, flat lines.” Moreover, for him, the cyber-rhizome is “both/and, not (n)either/(n)or,” insofar as it is “a constant and virtual ‘becoming-other’” (2012: 16). In turn, Jennifer Bay employs the Deleuzoguattarian concept of an assemblage, which “relies on the structure of the rhizome,” to discuss the social capabilities offered by information technology.¹³¹ Focusing her analysis on “smart mobs,” which she explains as “the phenomenon of people acting in concert regardless of whether they know one another” – reminiscent of the hacktivists working together on Operation Payback¹³² – Bay writes that the assemblage is “a machinic assemblage of bodies, of actions and passions, an intermingling of

¹³⁰ Edward Shanken in *Art and Electronic Media*, and Mark Tribe and Reena Jana in *New Media Art*, both explain the idea behind ‘the thing’ (thing.net) as “an international net-community of artists and art-related projects that was started in 1991 by Wolfgang Staehle.” In short, it was launched in 1991 as “a mailbox system accessible over the telephone network in New York feeding a Bulletin Board System (BBS) in 1991 before their website was launched in 1995.” However, on account of its increasing popularity, “by the late 1990s, The Thing grew into a diverse online community” (Shanken 2009:50; Tribe and Jana 2006: 22-23). Although the community is seemingly far less active at present, statements such as the one quoted above reflect the excitement over the potential of the internet as a creative space. That is, although the State and Capital have certainly further encroached onto and into the cyber domain, the author’s initial point stands, namely that these forces will always be ‘playing catch up’ within such a dynamic communication space; a viewpoint that constitutes a good response to Buchanan’s reading of cyberspace, discussed earlier, and one that moreover validates Guattari’s concept of post-media.

¹³¹ Diane Currier in “Feminist Technological Futures: Deleuze and Body/Technology Assemblages,” explains Deleuze and Guattari’s conception of the assemblage as “functional conglomerations of elements” where “the component elements are not taken to be unified, stable or self-identical entities or objects, that is, they are not grounded on a prior unity. In each assemblage the particles, intensities, forces and flows of components meet with and link with the forces and flows of the other components: the resultant distribution of these meetings constitutes the assemblage” (2003: 325). The effect of this, as Grosz points out in *Volatile Bodies*, is that the body as assemblage allows for “an altogether different way of understanding the body in its connections with other bodies” (1994: 165).

¹³² Although all the companies that suspended WikiLeaks’ accounts as a result of governmental pressure denied that any such pressure had been exerted on them to sever ties with WikiLeaks, public response, although varied, was in many cases less than convinced of this. Accordingly, seeing the denial of service as “an attack on liberty and free speech,” many people started “coming to WikiLeaks’ defence” (Bradley, 2010). In this regard, the Operation Payback campaign, operating under the moniker Operation Avenge Assange, consisted of a number of decentralized distributed denial of service (DDos) attacks by individual hackers (or “hacktivists”) on companies involved in freezing WikiLeaks’ account (Sklar 2011). In terms of a more ‘legitimate’ response, the “Philadelphia, PA-based mobile payments firm Xipwire, Inc.” stepped in to act “as an intermediary for WikiLeaks after the world’s largest credit card providers halted all electronic donations to the non-profit media outlet,” arguing that, in their view, “people should be able to make their own decisions as to who they donate to” (Webster, 2010).

bodies reacting to one another; [but also] *a collective assemblage of enunciation*, of acts and statements, of incorporeal transformations attributed to bodies” (2004: 491). This “intermingling of bodies in a society,” according to her, is made ever more possible by advances in information technology, and in particular by social networking, through which people connect, for among other reasons, “political action.” In terms of the actualization of political positions discussed online, she also writes that “these ad hoc mobile networks enable human bodies to spontaneously assemble in a physical place through [their] mobile connections” (2004: 492), and thereby express a view strongly indebted to Guattari’s post-media.¹³³

¹³³ Even outside of the ambit of Deleuzoguattarian studies, academic writers have been quick to spot the various collective potentials engendered through the rapid changes undergone by the medium. For instance, while Zizi Papacharissi in *The Virtual Sphere: The Internet as a Public Sphere*, discusses the growth and spread of Guattarian group subjectivity in the form of people collaborating online in pursuit of democracy, Stale Stenslie in *Virtual Touch: A study of the use and experience of touch in artistic, multimodal and computer-based environments*, discusses the possibilities of developing haptic technologies associated with the digital. And in his book *Convergence Culture: Where Old and New Media Collide*, Henry Jenkins, hailed as “the 21st Century McLuhan” (Rheingold, *Smart Mobs*), provides an evocative example of the unpredictable nature of the internet. Far from being a striated space, in which desire is channelled, and in which activity is controlled ever more pervasively by the State Apparatus and free-market capital, Jenkins demonstrates how even a singular action or image can have unpredictable effects that are difficult to control. Jenkins’ story focuses on events taking place in 2001, when “Dino Ignacio, a Filipino-American high school student created a Photoshop collage of *Sesame Street*’s (1970) Bert interacting with terrorist leader Osama bin Laden” (2006: 1). This image was only one of a series of images featuring Bert, with the character in each case situated next to various notorious historical figures and criminals. These images were all featured on Ignacio’s personal homepage, and not intended for any serious distribution beyond his local network of friends and acquaintances. However, Jenkins explains that post 9/11 “a Bangladesh-based publisher scanned the Web for Bin Laden images to print on anti-American signs, posters and T-shirts,” and in doing so, picked up on Ignacio’s image, and printed and distributed thousands of items bearing the picture. When CNN, covering one such anti-American demonstration, filmed protestors with images of the unlikely duo, a maelstrom of accusation, confusion, and further distribution and re-appropriation of the image erupted. Jenkins reports that “Representatives from the Children’s Television Workshop, creators of the *Sesame Street* series, spotted the CNN footage and threatened to take legal action” (2006: 2). It was here, much like in the *Battlefield 2* video misunderstanding, discussed earlier, that the dissonance between individual digital practice, digital flow, and the sanctioned frameworks tasked with controlling information distribution become abundantly clear. The intellectual property attorneys employed by the offended party found it difficult to pursue any legal action, or indeed, to control the distribution of the image. They could not pursue claims for damages against CNN, as the network was simply reporting on an event and the images had been coincidental to that event. Similarly, the Bangladesh-based publisher formed part of a loose and ambiguous set of relations in a different part of the world, and thus was almost impossible to prosecute. Beyond this, while the publisher had initially distributed the offending image, the resulting replications had been made by others, over a dispersed geographical region. Pursuing the high school student Ignacio would have been of no use either, as he had not intended to distribute the image – it had only been a ruse designed to entertain a select group of friends. As the media, and thus the public, picked up on the dispute, the Children’s Television Workshop lost complete control of their intellectual property. Users amused themselves by mimicking Ignacio’s original concept, creating images of various *Sesame Street* characters posing with a collection of notorious historical and contemporary figures. As Jenkins summarizes: “From his bedroom, Ignacio sparked an international controversy. His images criss-crossed the world, sometimes on the backs of commercial media, sometimes via grassroots media.” And for Jenkins, this example serves to demonstrate that in the convergence culture precipitated by the internet, “old and new media collide [and] grassroots and corporate media intersect,” in ways that are often-times erratic. As he writes, in convergence culture, “the power of the media producer and the power of the media consumer interacts in unpredictable ways” (2006: 2).

Conclusion

In closing, while Guattari pursued heterogeneity actively in *Chaosmosis* and *The Three Ecologies* through his concept of post-media, Deleuze only alluded to the possibility of counter-information engendering difference, but never developed the concept more fully. But rather than Guattari's concept of post-media clashing with Deleuze's concept of counter-information, the former in many respects can be understood as an elaboration of certain features of the latter, particularly the aspect of piracy mentioned explicitly by Deleuze. Moreover, while Guattari's post-media similarly entails acknowledgment of the homogenizing dangers of a digital society of control, it also maintains openness toward the digital production of heterogeneity. And, through this, Guattari – perhaps more so than Deleuze – in many ways reinvigorates and makes applicable Deleuzian/Deleuzoguattarian thinking for theorizing the Internet as a potential place for the production of difference.

A certain irony hangs over this issue, though, as it is often the case that the work of Deleuze in relation to digitality is read through a Guattarian post-media lens, and then broadly attributed to Deleuze. That is, despite being widely available, Guattari's theoretical contribution is often minimized in favour of attributing the conceptual tools he uses in discussing the digital – as a space of potential difference – to either Deleuze himself, or to a collaborative Deleuzoguattarian framework. Gary Genosko in *Félix Guattari: An Aberrant Introduction*, explores this tendency of ignoring Guattari in favour of Deleuze, and points out that

despite the...publications of English translations of two books, *The Three Ecologies* and *Chaosmosis*, Guattari remains unknown, unless it is through his problematic subsumption as a partner of Gilles Deleuze. [Yet] even under such less than desirable conditions, Guattari's influence may be said to be quite strong but unacknowledged, and poorly understood. (2002: 1)

Trying to account for such marginalization, Genosko traces the problem back to how Guattari was perceived in his native France, writing that he was either viewed as an “activist or intellectual: but not both.” As such, despite being “a star” of sorts, as a result of his perceived straddling of both pursuits, the popular instantiation of this binary public identity “kept him outside the orbit of intellectuality.” As a further reason for his marginalization, Genosko notes that “in the English-speaking world, Guattari has occasionally been poorly mounted as

a specimen of postmodernism.” And his situation within a “category of convenience for all those thinkers that lack a proper place” has led to the reluctance of “organizations and administrators” to take the risk of publication and promotion in case profits are not realized (2002:1). Beyond these two unfortunate circumstances, Genosko points to a third factor, in “Deleterious Deleuziana,” where he identifies the word ‘Deleuze’ itself as an order word, or one of those words that “issue commands and arrange bodies in standardized ways.” Put differently, these are words that place emphasis on a particular aspect in a relation, and in terms of this, Genosko argues that “the order-word – ‘Deleuze’ – has come to haunt the burgeoning critical literatures on ‘Deleuze and Guattari.’ Indeed, he even remonstrates that “no matter how creative the combination” of “Deleuze and Guattari. D+G. D/G. D–G. D&G. DaG, Deleuzo-Guattarian, Philosopher and psychoanalyst/activist...none adequately evoke the remarkable accomplishments of Deleuze and Guattari’s collective projects,” which were created in collaboration “between one another” (2002: 41). Moreover, beyond re-orientating our perspective to read Deleuzoguattarian concepts as a series of works created between two thinkers, whose individual contributions are lost within the concepts they created together – between one another – it should also be considered that, as Ronald Bogue argues in *Deleuze and Guattari*, “Guattari’s several independently written works reveal...[how] his is an incisive and engaging intellect that merits serious attention in its own right” (1989: 9).

And this is all the more so today because, in the serious exploration of information technology and the possibility of continued agency in the generation of difference, it is *his* concept of post-media, built on his collaborative work with Deleuze, which to a large extent is being endorsed and expanded upon by contemporary theorists in the absence of a more detailed account of what Deleuze meant by counter-information. Yet in the same breath one must also acknowledge the value of Deleuze’s concept of duration, which underpinned his concept of difference, and of the need to include it in any consideration of counter-information, in the interest of augmenting its adversarial efficacy – efficacy which, after all, is indicated as its defining feature. And it is to such consideration that we now turn.

Chapter Five – Deleuze, durationality, difference, and digitality

Introduction

As discussed in the previous chapter, despite Deleuze's misgivings over the relationship between digitality and societies of control – misgivings which have been echoed and elaborated upon by a range of contemporary theorists – Deleuze did allude to the possibility of contesting the informational flows of control society through the production of counter-information. And although these allusions remained vague and, in the words of Mark Poster, “underdeveloped” (2006:60), more clarity over what Deleuze had in mind can be achieved if the tendency to marginalize Guattari's work through seeing him as an addendum within the Deleuzoguattarian collaboration, is relinquished. In this regard, Guattari's post-media was explored as a concept not only resonant with Deleuze's counter-information, but also helpful in establishing the dynamics and parameters of the latter, which to a certain extent it elaborates upon. However the question of what Deleuze meant when he insisted that counter-information could be identified by its *efficacy*, remains. And it is important to explore this because it opens up the issue of the relationship between duration and difference, in a way that can guide the production of counter-information.

That is, to ignore Deleuze's insistence that *duration* is inextricably linked with *difference*, is a problematic oversight because it displaces a key point of reflection with regard to digital technology, in the absence of which only a superficial – and ineffective – application of Deleuzoguattarian concepts to the realm of the digital is possible. In relation to this, and in order to provide a fuller perspective on the matter, the focus of this chapter will fall initially on Deleuze's writings on the durational component of difference, a theme already developed by Deleuze to some extent in his *Nietzsche and Philosophy*, and which he engaged further with in his *Difference and Repetition*, *Proust and Signs*, and *Bergsonism*. After this, focus will shift to Deleuze's two texts on cinema, namely *Cinema 1: The Movement-Image* and *Cinema 2: The Time-Image*, because of how in these two works Deleuze conjoins his quest for durational difference with the technological phylum that is analog cinema. Here, Deleuze provides a profound and meticulous meditation on the potential of analog technology to engender difference as a result of its reflection of and upon duration. Next, and against this backdrop, the discussion will centre on whether digital cinema – and relatedly digital technology – can continue and extend such durational reflection in the interest of engendering difference, or whether digitality is indissociable from a different ontology inimical to the

durational contemplations so important for Deleuze in this regard. In terms of this, focus will fall on the debate over the capacity of the digital to generate durational intuition with reference to three prominent Deleuzian scholars; one of whom is somewhat sceptical of the capacity of digitality in the above regard, namely David Rodowick, and two of whom contest such scepticism, namely Brian Massumi and Ronald Bogue. And ultimately, the counter-arguments of Massumi and Bogue – who advance, respectively, that the digital cannot be extricated from its analog context, and that any new, non-dogmatic thought is dependent on an aesthetic dynamic before any dependency on technological means through which the aesthetic is pursued – will comprise the basis for the argument in the following chapter, concerning the importance of hybrid digital durationality.

Nietzsche, duration and Deleuze

Among Nietzsche's many books, three of his texts gained particular notoriety as adversarial works, namely *The Birth of Tragedy*, *Thus Spoke Zarathustra*, and *Twilight of the Idols*,¹³⁴ and through consideration of some salient themes in these, intimations of the important relationship between awareness of duration and the generation of difference emerge quite clearly. In what follows, firstly, related reflections will be traced in *The Birth of Tragedy*, where Nietzsche thematizes the decline of culture, from the tragic heights of Aeschylus' work to the limited (and limiting) form of culture reflected in the work of Euripides. Secondly, with reference to *Thus Spoke Zarathustra*, the manner in which this limiting conception of life can be defined in terms of the negation of duration and how, according to Nietzsche, it has come to inform modern culture, will be thematized. Thirdly, Nietzsche's explicit and thunderous reaction to such a restrictive reality in *Twilight of the Idols*, along with his identification of its roots in *ressentiment* against, and a hiding away from, durational awareness, will be considered. Fourthly, against this backdrop, how Deleuze's appropriation of Nietzsche involves an emphasis on such durational awareness, and its engendering in the interest of pursuing difference, will be investigated with reference to his *Nietzsche and Philosophy* and *Difference and Repetition*.

¹³⁴ *The Birth of Tragedy* with its fire-and-brimstone tone caused considerable consternation among Nietzsche's fellow academics, and was poorly received by many of his contemporaries. In *Nietzsche: Untimely Meditations*, Daniel Breazeale notes that Nietzsche not only struggled to get the book published (1997: ix), but that straight afterwards, it was "savagely attacked" by "the then-young classicist Ulrich von Wilamowitz-Mollendorf," who "directly challeng[ed] the professional competence of its author." This particular critique proved, in a sense, quite fateful, serving to reinforce "the growing doubts about [Nietzsche's] professional soundness." Indeed, of a total of 156 students attending the University of Basel, whereas before the publication of Wilamowitz-Mollendorf's influential criticism Nietzsche had 21 attending his lectures, afterwards he had only two (1997: x).

To begin with, in *The Birth of Tragedy*, Nietzsche's exploration is twofold. Firstly, he discusses the changing face of Greek tragedy, tracing the movement from the plays of Aeschylus, whose conception of tragedy he celebrates, through those of Sophocles, whose work he regards as marking the decline of the artform, to those of Euripides, whose plays he labels as "in some sense 'diseased'" (Burnham and Jesinghausen 2010: 37). To elaborate, Nietzsche begins *The Birth of Tragedy* by posing the question, "What purpose was served by Greek art?" (1999:04), and then answers it through an application of his genealogical method. In doing so, he refuses to see this Greek artform through the classicist lens of his time, as the portrayal of a "beautiful, calm and happy sphere of Greek culture and its Olympian gods," which according to Burnham and Jesinghausen "dominated throughout the eighteenth and nineteenth centuries" (2010: 52). Rather, in accordance with his genealogical approach, which was both "opposed to absolute values" and which saw "the history of a thing, in general, [as] the succession of forces which struggle for possession" (Deleuze 2006: 03), Nietzsche sought an 'unmasked' reading of Greek culture – one which would bring into sharp focus crucial differences between the exalted names of this ancient world, and the implications of their varying approaches. In his reading, he identifies three central figures which for him best represent shifts in the conception of tragedy, namely the playwrights Aeschylus, Sophocles, and Euripides. And he attributes such shifts in their work to the loss of the tension between Apollo and Dionysus that characterizes Aeschylus' work, which occurs through the progressive dominance of Apollo in the works of Sophocles, and culminates in the negation of Dionysus in the work of Euripides (Winnington-Ingram 1980: 111; Nussbaum 1998: 36; Ward 2013:1). What is less often thematized is the immensely close relationship between Dionysian movement and time, and for that matter, Dionysian expressions such as music which can only be encountered through the passing of time.¹³⁵ Accordingly, while Apollo stands for reason, logical thought, and the stable image, on the one hand, on the other hand, Dionysus stands for the more chaotic elements of emotion, passion and music (Hatab 2001: 49). Yet neither can be isolated from the other, insofar as together they form the poles of a continuum, with the excess of each balancing those of the other. For Apollo, unmitigated

¹³⁵ As will be discussed in due course, Henri Bergson makes a similar point concerning music and duration, when he suggests that "a melody to which we listen... comes close to coinciding with this time which is the very fluidity of our inner life," insofar as we recognise and appreciate melody only to the extent that the notes played in the immediate past persist in our memory alongside those notes played in the present, which, in turn, does not cease to pass (Bergson 1945: 44). This is, of course, not to suggest that the melody to which Bergson refers is similar in form to the dithyrambic music thematized by Nietzsche, which was marked instead by a powerful "primitive" form which would "excite the mood" of listeners to "such a degree" that they would "forget their normal identities in real life" (Crawford 1999: 279).

excess would entail stasis and death, while for Dionysus, it would involve dispersion and death. As Elaine Miller explains in her “Nietzsche on Individuation and Purposiveness in Nature,” Nietzsche saw the Apollonian as “embodying the principle of individuation,” while Dionysus, “as the other natural aesthetic force...[represents]...the counterpart to Apollo’s formative impulse” (in Ansell Pearson 2006: 58). It is thus important to remember Nietzsche’s suggestion that “we must understand Greek tragedy as the Dionysian Chorus which ever anew discharges itself in an Apollonian world of images” (1999: 44), and his argument that “the glory of activity which shines around the Prometheus of Aeschylus,” must be contrasted with the “glory of passivity” found in Sophocles, and further extended by Euripides (1999: 48). This is because such recollection allows one of Nietzsche’s central concerns to emerge into view, namely the progressive loss of durational awareness *through music*, which occurred through the displacement of the Aeschylean chorus by the increasing reification of reason in the tragedies of Sophocles and Euripides.

For Nietzsche, the implications of this decline are manifold, but can be summed up in the rise of a dialectical approach to thought, which involved an attempt to grasp, hold, and reflect upon reality that was indissociable from a denial of how such reality remained part of the ocean of time – or duration – characterized by perpetual movement and change.

Although distant from us in time, for Nietzsche, the above aesthetic shifts in fifth century BCE Greece were of immense cultural importance, because of the ways in which they filtered into, and subsequently informed, the modern culture that surrounded him, and which he found so limiting on account of its denial of tragic time.¹³⁶ In terms of this, he establishes the first link between Euripides and Socrates, whose rationality informed modernity via Plato (1990: 60). As Nietzsche unapologetically declares: “The deity who spoke out of...[Euripides] was not Dionysus, nor Apollo, but an altogether new-born daemon called Socrates” (1990: 60). And in turn it was “Plato [who] assume[d] (in *The Republic* as in his other writings) that Truth is something eternal, unchanging, and unchangeable” (Ebenstein 1999: 24). For Nietzsche, the dialectical reasoning represented by Socrates/Plato constitutes one of the most intense expressions of a growing subordination to Apollo, and a correlatively increasing rejection of the Dionysian counter-weight so crucial to pursuing an affirmative, creative life in relation to time. Also, Socrates was the precursor to both Plato

¹³⁶ As Foucault points out in *Discipline and Punish*, this effectively entailed a domestication of time through its disciplinary regimentation in the eighteenth century into minutes and seconds, in the service of an obsessive emphasis on industrial productivity that was couched in salvific terms (1991: 148-151).

and Aristotle, whose respective ideas went on to collectively form the basis of the Christian morality that Nietzsche so despised.¹³⁷ Consequently, as Alexander Nehamas writes in “Who are the Philosophers of the Future? A Reading of *Beyond Good and Evil*,” it is no surprise that Nietzsche describes Socrates as “his greatest enemy” (Nehamas 1988: 55), and as “the archetype of a [new] form of existence,” namely that of “*theoretical man*” (Nietzsche 1999: 72) who, by definition, is distanced from the durational intuition which Nietzsche heard echoing in Aeschylean tragedy via the music of the chorus.

Notwithstanding his sweeping strides through the history of drama, philosophy and religion, for Nietzsche the fundamental tension between the Greeks of the past and the *new* Socratic Greek – the theoretical man which informs the subsequent degeneration of culture – derives from their different attitude toward the Apollonian/Dionysian dynamic and the concept of difference. While the former did not deny Dionysus, and instead led a creative, affirmative life,¹³⁸ the latter not only increasingly embraced a reactive, pessimistic mode of being, through their progressive rejection of the Dionysian element. In addition, this approach also gained near hegemony via its amplification through Christianity. For Nietzsche, its basis had thus to be challenged urgently because the “Socratic-Platonic dishonesty” had resulted in a degenerate cultural spiral (Strong 1988: 82; 155). To be sure, it has been argued that this idea of a decline of Western culture due to a subscription to the Apollonian sphere at the expense of the Dionysian, was informed by the work of Schopenhauer. As Paul Raimond Daniels notes in *Nietzsche and The Birth of Tragedy*, “the text is replete with reference to the ‘true’ nature of the world (the Dionysiac) as corresponding to the Schopenhauerian conception of the world as will, [or] as a ‘mysterious primordial unity’...and a ‘primal contradiction and pain.’” In contrast, and to “complete the dichotomy,” Daniels further points out that “the Schopenhauerian concept of representation seems to find its embodiment in the Apolline” (2013: 60). However, Gemes and Sykes in their *Individual and Community in Nietzsche’s Philosophy*, make an important observation with regard to Nietzsche’s subscription to Schopenhauerian thought. They advance that “Schopenhauer is in a sense an ahistorical and hence global thinker,” and “Nietzsche and Wagner are in a sense local thinkers.” Indeed, “while Schopenhauer was concerned with the eternal problem of suffering,

¹³⁷While Plato’s thought found succinct expression in Augustine’s work – with the parallels between Plato’s *Republic* and Augustine’s *City of God* unmistakable (Harding 2011: 172), Aristotle’s work resounds through the ideas of the other great Christian scholar, namely Aquinas (Velasquez 2010: 298), whose writings (along with those of Augustine) comprised the foundation of Christian theology.

¹³⁸ Once more, music plays a key role in this regard. As Paul Raimond Daniels notes in *Nietzsche and The Birth of Tragedy*, Nietzsche is in agreement with both Schopenhauer and Wagner that “musicality grounds our being” (2013: 60).

Wagner and Nietzsche were very much concerned with a cultural malaise they took to be endemic to their time.” As such, they argue that Nietzsche more readily “is a follower of Wagner, and not Schopenhauer,” preferring Wagner’s idea of “art and illusion lead[ing] one to affirm life and hence willing,” over Schopenhauer’s position that “art...provide[s] a means to a release, at least temporary, from the bondage of the Will” (2015: 68). After all, it was Nietzsche himself who stated of *The Birth of Tragedy*, that “the cadaverous perfume of Schopenhauer sticks only to a few” pages (in de Almeida 2006:4). No matter the exact sensibility, and even though Nietzsche was later to part company with Wagner,¹³⁹ even this dispute was underpinned by a persistent attempt to seriously contend with time, because of how for Nietzsche it was only through such honesty toward the passing of time that an affirmative and creative life can be lived.

Deleuze, in his work on Nietzsche, neatly summarizes the issue when he explains Nietzsche’s conception of Aeschylean tragedy as fundamentally opposed to two things: Firstly, the dialectical thought moved toward by Sophocles and pursued enthusiastically by Euripides – under the influence of Socrates. And secondly, the Christian thought inspired by Plato and expressed later in Hegelianism. Accordingly, Deleuze points out that, for Nietzsche, tragedy had three related ways of dying: by Socratic dialogue (or its ‘Euripidean’ death), by Christianity, and finally by the combined blows of the modern dialectic (Deleuze 2006: 10).¹⁴⁰ Moreover, Deleuze maintains that the increasing dominance of the dialectic has had significantly negative consequences for the generation of difference, insofar as it has removed ‘joy’ from life, and placed it instead within a limited and binding framework of ‘pleasure.’ What Roland Barthes calls the “specious good” of “bourgeois taste” (Barthes 1977: 167) that stands in contradistinction to the “effacement of pleasure” which occurs through a “progression of *jouissance*” – something he identifies as the dynamic underpinning tragedy (Barthes 1975: 48). A dynamic which involves the honest joy of experiencing an excessively Apollonian integrity shattering and thus returning to the moving ocean of time from which it has temporarily denied its relationship. That is, whereas “the tragic is the *aesthetic* form of joy,”¹⁴¹ the dialectic is “a moral solution to pain, fear or pity” which is “not

¹³⁹ In the critical essay, “Nietzsche contra Wagner,” published in 1895, Nietzsche takes back any praise he had formerly given the composer.

¹⁴⁰ In *The Case of Wagner*, Nietzsche also includes Wagner as a collaborator in the ‘final death’ of tragic thinking, his earlier praise of Wagner in *The Birth of Tragedy* notwithstanding (Nietzsche 1999: 5-8; 2005: 231-263).

¹⁴¹ The link between Deleuze’s thought and stoicism (Sellars 2010: 155) is helpful to recall here. As Pierre Hadot explains, a stoic “does not find his joy” in himself, but rather “by transcending” himself, through

a [joyfully] tragic vision of the world...but, on the contrary...the replacement of the tragic vision by a theoretical conception or a Christian conception,” orientated around producing the pleasure of a spurious form of harmony (Deleuze 2006: 16-17). In effect, as Kathleen Higgins explains, for Nietzsche, “since Socrates, the Western world has been one-sidedly rational, privileging a truncated Apollonianism as the correct way of interpreting the world.” An Apollonianism comprising of an “imbalanced perspective” at odds with “the healthy vision of individuality afforded by Greek tragedy” (1988: 138), in terms of which an awareness of duration and the irresistible change it entailed comprised a safeguard against its coagulation into a state of morbid integrity. In response to this degeneracy, “Nietzsche...wished the ‘overcoming of philosophers, through annihilation of the world of being’” (Strong 1988: 82), and the pursuit instead of ‘becoming’ through limit-experience, or “the ecstasy [or *jouissance*] of the Dionysiac state, which destroys the usual barriers and limits of existence” (Nietzsche 1999: 129). And Nietzsche’s *Thus Spoke Zarathustra* and *Twilight of the Idols* can be identified as two key texts which demonstrate the nuances of this trajectory.

In *Thus Spoke Zarathustra*, one of Nietzsche’s primary aims is to overcome the Christian mode of thinking that dominated Europe during his time. As Del Caro and Pippin point out, the central character in Nietzsche’s text, namely Zarathustra, functions as a prophet “calling people, modern European Christian people especially, to account for their failings and encouraging them to pursue a new way of life.” Importantly, though, through him Nietzsche does not seek to produce a replacement religion, but rather to establish a new way of thinking orientated around a far more affirmative way of living, which is couched within appreciation of the inexorable flow of time. In short, they sum up his use of the figure of Zarathustra – who originally established that the central struggle in human life was between good and evil¹⁴² – as a mechanism to teach people how to move *beyond* the dualism of good and evil established through Christian principles (2006: ix). A dualism that defined good in terms of moral repetition undertaken to achieve the temporal stasis of immortality, and evil as deviation from the related normativity into the realm of difference. Difference which entails, among other things, contestations of the legitimacy of speaking of an integral soul, in the face

“accept[ing] the destiny imposed on [him]...by cosmic reason” (Hadot 1995: 207), rather than shying away from it through the pursuit of pleasure.

¹⁴² Zarathustra is based on Zoroaster, an ancient figure who is thought to have lived in north-east Iran or northern Afghanistan at some time between 1700 and 1300 BCE (Schlerath 1977: 133-135). However, in *Germany and the Imagined East*, Lee Roberts reminds us that there are “clear boundaries between Zoroaster the historical figure and Nietzsche’s Zarathustra” (2009: 117).

of time, change, and music, which regularly reveal the emptiness of such an Apollonian illusion. That is, while for Christian morality, good versus evil was defined as “selflessness and benevolence” versus “egoism and self-interest,” it was Zarathustra’s task to break such static thinking, and to promote a far more dynamic form of life, “without sliding into a bovine contentment or a violent primitivism” (2006: ix). Deleuze lists the categories of Semitic/Christian morality according to Nietzsche, namely “ressentiment (it’s your fault), bad conscience (it’s my fault) and their common fruit (responsibility).” And what Nietzsche denounces here is “our deplorable mania for accusing, for seeking out those responsible outside, or even inside, ourselves,” replacing “interpretation by depreciation” (2001: 20-21). In effect then, in Christian thought – and in its associated bourgeois mediocrity – Nietzsche saw the absolute triumph of reactive, life denying forces, and accordingly criticized such triumph vehemently. Indeed, his position on the culture of his time that had embraced a reactive life, characterized by *ressentiment*, is best summed up in his description of it as “a mass of ponderous herd animals with uneasy consciences who commit themselves to promoting egoism,” which “reduces the greatness of life to a vengeful ‘loan’ of ‘happiness’” (in Murray 2015: 27).

This struggle by Nietzsche against Apollonian dominance of Dionysiac time was also subsequently reflected in his *Twilight of the Idols: Or How To Philosophize with a Hammer*, which strongly captures Nietzsche’s “fire and brimstone” condemnation of the limits placed on affirmative temporal living by the stabilizing discursive parameters of modern Western thought. Despite Nietzsche’s emphasis on laughter,¹⁴³ the sub-title of the book intimates that, for him, proceeding beyond any given limit is a traumatic, violent affair. Indeed, Nietzsche claimed that the book amounted to “the end of the old truth” (2005: 137),¹⁴⁴ and it accordingly comprised an opportunity for him to lash out at German and neighbouring cultures, which he perceived as regressive, decadent, and ultimately restrictive in their myopic eschewal of durational awareness. With regard to German culture, it was specifically its subscription to the “diseased” Socratic mode of thought, its attachment to Christianity, and

¹⁴³ As Walter Kaufman argues in *Basic Writings Nietzsche*, “for [him], laughter becomes less a physical phenomenon than a symbol of joyous affirmation of life and of the refusal to bow before the spirit of gravity” (2000: 153).

¹⁴⁴ This claim by Nietzsche refers back to Plato’s One Truth. In this regard, one should also consider the remarks of Alfred North Whitehead, who, in his *Process and Reality*, famously declared that Western philosophy can be described as a “series of footnotes to Plato” (1967: 63).

its association with Wagner, which elicited Nietzsche's strongest disdain.¹⁴⁵ And with a view to combatting these ills, Nietzsche proposed that we instead live affirmatively and creatively in relation to time – by pushing toward limit-experience in the face of such popular, negative appropriations of experience.¹⁴⁶ Admittedly, though, toward the end of the text, in “The Hammer Speaks,” the lines between affirmative laughter and a rather merciless attitude toward oneself for failing to remain sufficiently resolute, become increasingly blurred. This much is clear when Nietzsche laments: “Why so soft?...Why so soft, so submissive, so yielding? Why is there so much denial in your hearts? So little destiny in your gaze?” before he delivers the Draconian ultimatum: “If your hardness doesn't want to flash and cut and tear things apart: how will you ever be able to join me in – creating?” (2005: 229). On the one hand, the trauma associated with a limit-experience that involves exceeding the stability of Apollonian constraints can scarcely be missed. But on the other hand, such violence is only experienced where Apollonian clinging predominates, and where the flow of time is accordingly resisted – the most noticeable expression of which is a refusal of difference and, correlatively, a reification of sameness.

In contrast to such clinging and refusal, in *Nietzsche and Philosophy*, Deleuze explores possibilities for generating difference in relation to time, in a manner akin to Nietzsche himself. As Bogue writes of *Nietzsche and Philosophy*, “Deleuze exploits certain possibilities in Nietzsche's work (i.e. the eternal return) and attempts a creative reorientation of Nietzsche's thought in terms of those possibilities” (1989: 33). In this regard, when explaining the concept of eternal return (or eternal reoccurrence in the text),¹⁴⁷ Deleuze firstly breaks the concept down into a “physical doctrine” (2006: 43) and an “ethical doctrine” (2006: 63). That is, on the one hand, the “conception of the eternal return as the synthesis of forces which affirms becoming, multiplicity, and chance, Deleuze calls the physical doctrine

¹⁴⁵ Marina Cominos in “The Question of Nietzsche's Anti-Politics and Human Transfiguration” (2008: 95), along with R.J. Hollingdale in *Nietzsche: The Man and his Philosophy* (1999: 98), provide detailed discussion of Nietzsche's battles with German culture.

¹⁴⁶ In this regard, Nietzsche laments: “We, however, who consist of and are completely trapped in semblance, are compelled to feel this semblance to be that which truly it is not” (1999: 26).

¹⁴⁷ Nietzsche's conception of the eternal return is explained succinctly by Eugen Fink in *Nietzsche's Philosophy*. As a first point, Fink notes that with this concept, “Nietzsche questions the world in its entirety,” and moreover “conceives it temporally,” in that “the world as such is understood as the totality of time, as the eternity of time and as the eternal temporal existence of the world.” Against the backdrop of such understanding, “Nietzsche looks ahead,” and in doing so “opens himself towards the unsayable and still-nameless” (2003: 81). Robert Ackermann, in *Nietzsche: A Frenzied Look*, provides a further insight into Nietzsche's tragic insight of the eternal return when he clarifies that “the affirmation of the tourist, saying ‘wow’ to every new experience, is *not* Nietzschean affirmation.” Rather, Nietzschean “affirmation involves the simultaneous realization that what we confront will disappear (will to power) and will return forever (the Eternal Return).” As a result, it produces at the same time “the deepest despair and the highest joy” (1990: 154).

of the eternal return.” On the other hand, he maintains that “it is also an ethical doctrine, which provides a preliminary means for man – the essentially reactive animal – to transform himself or herself” through engendering “the affirmative will to power.” Additionally, “the *thought* of the eternal return, makes possible the elimination of all the half-desires and hesitant yearnings, the qualified excesses and provisional indulgences, of a cautious and calculating will,” which is the legacy of *ressentiment* against time (Bogue 1989: 31). In effect then, what Deleuze proposes is a *constant* becoming-active, that entails an *enduring* overcoming and involves a creative, affirmative life, based on “the transmutation of values, or transvaluation” (Deleuze 2006: 66) of the reactive forces that otherwise typically inform our limited and stabilizing understanding of the world and ourselves. In “To Choose To Choose,” Ronald Bogue carefully explains how the key departure from Nietzsche by Deleuze is in terms of the concept of the eternal return. He writes that “a key element of Deleuze’s ontology of difference is Nietzsche’s concept of the eternal return, which Deleuze presents as a perpetually repeated cosmic throw of the dice.” However, he argues that “in Deleuze’s ontology...this repetition is not purely chaotic,” because instead, “the series of dice throws is like a Markov chain, a formal model in which a discrete set of possibilities produces a second set of possibilities, which in turn produces a third.” Thus, while “each set in the chain of events [is] affected and partially determined by the preceding set,...each set’s potential for subsequent differentiation always [remains]...multiple and undeterminable” (2009: 120).

Similarly, in relation to such transvaluation, in *Difference and Repetition* Deleuze elaborates on his understanding of the fundamental durational aspect of difference, by identifying three orders of time. While the first order of time he associates with the philosophy of Descartes and the second order of time with the philosophy of Kant, he points out that the third order of time derives from Nietzsche’s philosophical contribution (Deleuze 2001: 88-91; 95-108; 135-136). And it is this third order of time that, according to Deleuze, engenders a spirit of radical creativity, which allows for both resistance against reactive ‘thoughtless’ desires and dynamics, and correlatively, the generation of difference. That is, the first order of time is repetitive and cyclic, based on seasonal change and guaranteed by God; it is a conception of time that encompasses all and which is construed as unfolding according to a divine plan. In other words, within such time everything takes place *as* time unfolds in a teleological fashion, the direction of which effectively disallows difference. And it is an order of time which both preceded Descartes’ philosophy, and within which the latter and certain subsequent philosophies of the seventeenth and early eighteenth century were

embedded (Deleuze 1994:88). The second order of time, associated with Kant, dramatically breaks with this thinking, fracturing such teleology by conceiving of time – along with space – as referential frames that are located within the mind of the individual subject, and which mediate and indeed facilitate all experience. However, although this conception allows for a significant reclaiming of time from the first order of Cartesian time, as it were, Deleuze argues that full reclamation was only achieved later, through the third order of time attributed to Nietzsche, based on the idea that time only *passes* through the creation of difference. An idea indissociable from the valorization of a creative and affirmative generation of difference as the only means of proceeding into the future, and correlatively, away from a dogmatic past of congealed thought (1994: 94-95).

Deleuze's insistence that difference is tied to duration in this way also has certain implications for the ego. That is, the fracturing of the I that began with the Kantian second order of destabilizing time, reaches its completion in the Nietzschean third order of time. In the latter regard, Deleuze maintains that "there is always a time at which the imagined act" of surmounting an obstacle "is supposed 'too big for me.'" But when one accepts the challenge and becomes "equal to the act," self transformation and the passing of time occur, with the consequence that when the future correlatively takes place, one is necessarily no longer the same person one was before taking up that task. And for Deleuze, the new person is "the man without name...the already Overman" (Deleuze 1994: 86-90). Through this, Deleuze "desire[s] to undermine what he often refers to as the three metaphysical certainties of God, the self (*le moi*) and the world" (Bogue: 2008: 152). That is, because "for Deleuze, persons are the interceptors of flows," or the "point of destination for numerous flows" and "the point of departure for the production of new flows" (Smith 2012: 169), the prevalent conception of an integral subject existing within time is flawed because it can never be as stable as it is presumed to be. Indeed, as Robert Williams in his *Gilles Deleuze's Difference and Repetition* further explains,

It makes sense to speak of individuals, things and everything when we think about principles but, in [Deleuze's] philosophy, this does not mean that the individuals are necessarily well defined human individuals. On the contrary, the individual is a thing where thought takes place as an event but not necessarily the conscious thought of a human being. (2001: 6)

That is, for Deleuze, “the individual is, rather, a series of processes that connect actual things, thoughts and sensations to the pure intensities and ideas implied by them,” and, as such “an individual is not a self-conscious ‘I,’” but instead “a location where thoughts may take place” (2001: 6). For the sake of clarification, Williams offers a reflection that succinctly expresses Deleuze’s idea of the individual, when he suggests that:

When you stand, daydreaming, looking out over your favourite land- or cityscape, or staring into another’s eyes or flesh, or allowing your body to become an automaton through repeated work and exercise, allowing thought and sensation to drift through you, you are closer to Deleuze’s idea of the individual than when you squeeze your head in your hand, reflect and consciously toil with a problem. (2001:6)

Proust, duration and Deleuze

Arguably, it was with a view to exploring the dynamics that underpin the emergence of difference as it is experienced by the individual – understood in the above qualified sense – that Deleuze engaged with the work of Marcel Proust. That is, couched within a thoroughly Nietzschean conception of what affirmative existence entails, Deleuze found in the work of Proust a highly nuanced memorial means of pursuing and achieving difference, which moreover served to undermine the conception of an integral and stable subjectivity; the metaphysical certainty of which Deleuze, as already discussed, regarded as an obstacle to thought.

In *Proust and Signs*, Deleuze refers to Marcel Proust’s classic *In Search of Lost Time* – published in seven volumes between 1913 and 1927 – as a text that produces “signs of different orders” (Deleuze 2000: ix). And he advances that four types of signs are to be found in the text, namely Worldly Signs, Signs of Love, Sensuous Material Signs, and Signs of Art. For Deleuze, each sign is linked to different temporal experiences, which range from those of limited and limiting parameters to those that engender and precipitate the creation of difference and, indeed, time. In this regard, Bogue writes that “to search for truth is to interpret signs, but the act of explicating the sign, of unfolding its hidden sense, is inseparable from the sign’s own unfolding,” and that in this sense, “the search for truth is always temporal” (2001: 5). And Patrick Ffrench concurs with this appraisal in “Time in the Pure State: Deleuze, Proust and the Image of Time,” when he argues that “different levels of

temporality are associated with [the] signs,” from the prosaic to the sublime (2000: 162). Similarly, Miguel de Beistetegui in *Proust as Philosopher: Art as Metaphor*, argues that the progression through what Deleuze calls an “apprenticeship in signs” involves a walk through “distinct but related kinds of time,” from “Saturnian, destructive time” through to “the creative, artistic, and redemptive time of eternity” (2007: 116-117). Accordingly, in relation to Deleuze’s order of signs, while one ‘loses time’ through acquiescence to Worldly Signs, and ‘wastes time’ by pursuing the deceptive Signs of Love, it is through encountering Sensuous Material Signs that one ‘regains time,’ and via their potential amplification in Signs of Art that one rediscovers the possibility of difference through the ‘recovery of time.’ Importantly, though, when Deleuze identifies these four types of signs, as well as their relation to time, he draws on the Nietzschean concepts of *ressentiment* and affirmation, discussed earlier, linking Worldly Signs and Signs of Love with the former, and Sensuous Material Signs and Signs of Art with the latter. Thus, in keeping with Deleuze’s schema in this regard, and with a view to rendering increasingly conspicuous the importance for Deleuze of duration for the generation of difference, in what follows, the features of the Worldly Signs and the deceptive Signs of Love will be explored in relation to *ressentiment*, before the features of the Sensuous Material Signs and the Sign of Art will be explored in relation to affirmation that is indissociable from the generation of difference. In each case, for the sake of clarity, relevant sections of Proust’s *In Search of Lost Time* will be referred to in order to illustrate the dynamics at play, and how they contrast with one another.

A good example of a Worldly Sign from Proust’s work is found in the Narrator’s observations concerning a discussion between his mother and father as to who should be invited to a dinner with the eminent Marquis de Norpois, because in this discussion the surfacing of petty moralities and their associated social conventions/restrictions quickly become apparent. In short, the discussion revolves around whether or not to invite the eccentric Swann, for fear that he may be seen as a “pestilent” fellow by the aforementioned important guest (2001: 419-420). On the basis of this principle, which endorses the undermining of those who are different and who consequently may not quite ‘fit in’ within normative social frameworks informed by bourgeois decorum, Deleuze characterizes Worldly Signs in pejorative terms. For Deleuze, a Worldly “sign appears as the replacement of an action or thought” and thus effectively “stands for action and for thought.” More precisely, “the worldly sign does not refer to something, it ‘stands for’ it,” and “claims to be equivalent to its meaning” (Deleuze 2000: 6). Consequently, this type of sign is characterized by its

limitation, insofar as it is a totalizing default position, involving the automatic articulation of experience in terms of established principles that are not challenged because they are construed as self-evidently valid. In Nietzschean terms, this sign would be informed by a subscription to Apollo involving a deference to conventional thinking for the sake of stability and the maintenance of appearances. As a further example of this, Deleuze makes reference to a moment in the narrative when during a get-together at the Verdurins' residence a joke is told, prompting an exchange of related signs despite the absence of humour. As he writes, "Cottard makes a sign that he is saying something funny, Mme Verdurin makes a sign that she is laughing; and her sign is so perfectly emitted that Mr Verdurin...seeks in his turn for an appropriate mimicry" (Deleuze 2000: 6). In this charade, no new experience is achieved and the generation of difference and the challenges this would give rise to are kept at bay, because of both an inability to rise to such a challenge, on account of weakness, and the correlative desire to refuse admission to those strong enough to do so – because of how their presence would make such weakness conspicuous. Accordingly, when Deleuze discusses Worldly Signs, he identifies the related tendency as informed by the passivity of *ressentiment* – when "one does not think and does not act, but [simply] makes signs" (Deleuze 2000: 6). And in thematizing this, "Deleuze...develop[s] in his studies of Proust...a highly unorthodox dualism of tumultuous, interfused bodies and inessential ideas, the latter constituting a realm of surface effects [and] simulacra" (Bogue 1989: 54).

Signs of Love differ from the above in that, unlike Worldly Signs with their strictly coded formulations and associated empty gestures, Signs of Love involve a "plurality of worlds." At first glance, these signs may consequently seem somewhat more dynamic, but they ultimately prove to be just as confining and orientated around *ressentiment*. A good example of such a sign is when the Narrator recalls an episode where Swann visits Odette late at night, only to be dispatched by the "peevish and on edge" Odette, who seems in no mood for his company. Returning home, Swann falls into a fit of uncertainty, entertaining the thought that perhaps Odette sent him home in order to spend the night with another man. Battling against these thoughts, Swann soon gives in to his jealousy and sets off to Odette's place to set his mind at ease. At her window, through which he can see movement and hear a male voice, his jealousy and suspicion are compounded, but upon knocking at her door, he discovers that he has come to the wrong house, and skulks off in burning shame (2001: 266 - 269). Shame which derives as much from his error, as from the extent to which – in an unequivocal display of *ressentiment* – he places the blame for his unhappiness and the

possibility of its amelioration entirely in the hands of something outside of himself, in the world, namely Odette's fidelity. As Deleuze argues, Signs of Love relate to the way in which "love is born from and nourished on silent interpretation," with "the beloved [expressing] a possible world unknown to us," which must then be "deciphered [or]...interpreted" (Deleuze 2000: 7). And it is within this interpretation that possible dangers lie. As Stephen Hawkins writes, "the signs of love are actions between bodies, but human beings construct, also, massively complex systems of strictly formal signs, which seem to have nothing to do with love" (Hawkins 2007: 1). This correlates with Deleuze's claim that the Signs of Love are necessarily "deceptive signs" (Deleuze 2000: 9). This is because, in trying to interpret the signs of the beloved, countless possibilities are imagined and acute jealousies are experienced, with these manifold interpretations often tied to a deeply problematic frame of reference – namely, those Worldly Signs that we acquiesce to. The negative and destructive nature of this type of thinking is neatly evinced in Proust, in relation to Swann's jealous behaviour toward his beloved, Odette, in the above example. The limiting nature of such thinking is perhaps best summed up in the following passage from the novel:

At every other period in his life, the little everyday activities of another person had always seemed meaningless to Swann...But in this strange phase of love the personality of another person becomes so enlarged, so deepened, that the curiosity which he now felt stirring inside him with regard to the smallest details of a woman's daily life, was the same thirst for knowledge with which he had once studied history. (2001: 268)

The deceptive Signs of Love thus lead one to refuse one's fate, insofar as one refuses to "affirm chance and the necessity of chance" (Deleuze 2006: 33), and instead to construct a vortex of possibilities in relation to one's beloved, and to torture and burden oneself in relation to them, because of the immense significance with which one has imbued them. In relation to this, Deleuze annotates the three main characteristics of *ressentiment*, namely, "the triumph of reaction or passivity," the "inability to admire, respect or love," and "the imputation of wrongs, the distribution of responsibility [and] perpetual accusation" (2001: 109-111) – all three of which thoroughly underpin deceptive Signs of Love and – for that matter – Worldly Signs. In short, while through the denial of the variation and complexity of life via Worldly Signs, one *loses* the time to be different, via the deceptive Signs of Love and the obsessive jealousy they precipitate, one *wastes* the time to be different.

However, in Proust, the possibility of escaping from such loss and wasting of time through *ressentiment* is also thematized; escape which involves the *regaining* of time through seeing beyond limiting and reactive modes of thought, and exceeding them. As Deleuze writes in *Nietzsche and Philosophy*, “in order to become active it is not sufficient for a force to go to the limit of what it can do, it must make what it can do an object of affirmation” (2006: 63), and in Proust this takes place in relation to Sensuous Material Signs and via their amplification through Signs of Art.

Deleuze writes that in Proust’s work, “the third world is that of sensuous impressions or qualities.” These Sensuous Material Signs lead to two experiences on the part of the person encountering them. Firstly, while these signs give us a “strange joy,” involving an enigmatic sense of happiness, they also transmit “a kind of imperative.” This is because when one first encounters such a sign, “a prodigious joy” is felt initially, but then followed by “a kind of obligation” in relation to the “necessity of a mental effort to understand the sign’s meaning.” Once this mental exertion has taken place, the meaning of the sign may appear more clearly to us, but this is not always the case, and a “new stage of interpretation, an ultimate stage,” may then be required. This type of encounter is well demonstrated in the famous scene in *Swann’s Way*, in which the Narrator’s memory is jogged after he eats a madeleine dipped in tea. Trying to recapture the memory of his childhood in Combray, beyond superficial and intellectually contrived images of this time, the Narrator struggles profoundly, declaring: “Each time the cowardice that deters us from every difficult task, every important enterprise, has urged me to leave this thing alone, to drink my tea and to think merely of the worries of today and my hope for tomorrow, which can be brooded over painlessly” (Proust 2001: 47). But it is in the midst of this reflective struggle against reactivity that the Narrator suddenly has a memory reveal itself to him. That is, the taste and smell of the madeleine dipped in his tea combine to open up for him “the vast structure of recollection” (2001: 48), bringing memories of Combray flooding back, so that he sees and understands his duration there like never before, in a process that involves the regaining of time. As such, although such signs may not yet in themselves be ‘adequate’ signs, in the sense that they may be partially opaque rather than well-defined, crucially, they are no longer “empty” Worldly Signs or “deceptive” Signs of Love that cause “factitious exaltation” or “make us suffer.” Rather, unlike the previous two signs examined, Sensuous Material Signs emerge as affirmative because they do not negate the experience of time through seeking to stabilize it by negating difference, but are rather open to the inexorable production of difference through time (Deleuze 2000:

11-13). Underscoring Nietzsche's lamentation in *Twilight of the Idols* against the senses being ignored as an area of focus and study by academic philosophy, Deleuze, through this category of signs, emphasizes the differential value of ever greater openness to sensual affect. And he indicates that this process can lead to an affirmative, active encounter with life in relation to time, which moves beyond the parameters of *ressentiment* set by the previous two limited and limiting signs. As Deleuze writes, "for Nietzsche, the capacity for being affected is not necessarily a passivity but an affectivity, a sensibility, a sensation" (2006: 58), and this is also the case for Proust.

However, while Sensuous Material Signs encourage openness to one's duration in a way that is opposed to the denial of such intuition through Worldly Signs and the deceptions of the Signs of Love, they are admittedly still tied to "a material base" (Deleuze 2000:13), namely "physical sensation" (Looz 2010:1). Consequently, beyond this, Deleuze introduces the Signs of Art, which he argues are the ultimate form of signs. For him, "these signs, as though dematerialized, find their meaning in an ideal essence," and in turn have an effect on all the other signs – "most notably on the sensuous signs" – insofar as "the world revealed by art...integrates them, colours them with an aesthetic meaning, and imbues what was still opaque about them" (Deleuze 2000: 13-14). In other words, if the Sensuous Material Signs are those that encourage a move away from unthinking or deceptive interactions with the self and others, and toward durational intuition and an accordingly affirmative *regaining* of time, the Signs of Art amplify this exponentially. The potential of art to produce difference was of paramount importance to Deleuze; as Coleman writes, "Deleuze's descriptions of art remind us that it is one of the primary mediums with which humans learn to communicate and respond to the world" (2005: 15). Signs of Art are thus the ultimate sign which can generate multiplicity in a way that combats the unthinking, deceptive, and material limitations of, respectively, Worldly Signs, Deceptive Signs of Love, and Sensuous Material Signs. As Gilda Looz reminds us, while each of these are "linked to a material base; the world, the lover, the physical sensation," it is "the signs of art [that] rise above the material and provide meaning to the apprentice" (Looz 2010:01). Yet Deleuze's insistence in *Proust and Signs*, that art has the potential to transform experience, is not a new claim but rather a continuation of his argument in *Nietzsche and Philosophy*. That is,

Deleuze employs 'art' as a category of 'critique,' taking on Nietzsche's observation that [while] the world is emotive and sensory...any analysis of this world is bound

by epistemological structures. For Deleuze, the descriptive nature of art lies with art's ability not merely to redescribe, [because]...art has a material capacity to evoke and to question through non-mimetic means by producing different affects. (Coleman 2005: 15)

Ansell-Pearson lends further support to this observation in "Time, Space, Forced Movement and the Death-Drive: Reading Proust with Deleuze," arguing that, for Deleuze, "the finality of art resides, in a phrase he borrows from Bergson, in an 'enlarged perception,'" or a perception "enlarged 'to the limits of the universe' and which requires creating art in such a way that perception breaks with the identity to which memory rivets it" (2004: 1). Bogue similarly sums up the power of such perception in *Deleuze's Way: Essays in Transverse Ethics and Aesthetics*, when he advances that "recovered time is the pure form of time, an unspecified temporal medium within which various temporal experiences may be actualized[;]...a floating time unmoored from any tense, person, or direction, an essence of temporality that serves as a generative medium" (2012: 56).

Bergson, duration and Deleuze

Deleuze not only borrows from Bergson the idea of an 'enlarged perception' – as indicated above – but also went on to employ much of Bergson's framework of time and memory, particularly in his works on cinema, which will be discussed shortly.¹⁴⁸ That is, published in 1966 – two years after completing *Proust and Signs* – Deleuze's *Bergsonism* thematizes and explores Bergson's concepts of the 'actual' and the 'virtual' in relation to duration, along with his concept of *Élan Vital*, as the memorial mechanisms that make Signs of Art – and indeed difference – possible. In this regard, while Elizabeth Grosz in her article "Bergson, Deleuze, and the Becoming of Unbecoming," identifies the major overlap between Deleuze and Bergson as revolving around "the production of difference by duration" (2005: 04), Rune Moelbak further notes in "A Deleuzian Reading of Bergson," that there is "a 'zone of indistinction'" between Deleuze's and Bergson's respective thoughts (2007: 353), a zone within which the crucial terms 'virtual' and 'actual' overlap. Furthermore, as Hugh Tomlinson and Barbara Habberjam advance in their "Translator's Introduction" to Deleuze's *Bergsonism*, "Deleuze and Bergson...have a number of important 'problems' in common,"

¹⁴⁸ Henri Bergson, whose work will be discussed in what follows, was a philosopher whose thought appealed to Deleuze because his philosophical project entailed a kindred promotion of sense, multiplicity and difference, at the expense of those habitual patterns of thinking utilized to render our experiences monotonously intelligible. Similarly positioned against the Hegelian dialectic that Deleuze so rallied against, Bergson, from the outset of Deleuze's studies, constituted one of his most important theoretical allies (Baugh 1993: 259).

with “Bergson’s work [providing] Deleuze with materials for his own toolbox, for the manufacture of his own concepts and his own war machines” (in Deleuze 1991: 9).

In light of the above overlap, it is important to contend with Bergson’s influence on Deleuze, an influence both adumbrated in *Proust and Signs* and evident in Deleuze’s philosophical project after *Bergsonism*, because this allows for a broader understanding of how Deleuze attempts to push the limits of thought in relation to time. And a brief consideration of three of Bergson’s works, namely *Time and Free Will: An Essay on the Immediate Data of Consciousness*, *Matter and Memory*, and *Creative Evolution*, along with his essay on “The Two Sources of Morality and Religion,” is helpful in this regard.¹⁴⁹ Albeit in different ways and to various degrees, in all of these works, as Suzanne Guerlac writes in *Thinking in Time: An Introduction to Henri Bergson*, for Bergson “duration becomes synonymous with existence – with life as perpetual change and invention of novelty” (2006: 6), understood as the given end result of intelligence which always at some point exceeds the static instinctual parameters of the ‘same.’

Bergson’s *Time and Free Will* is generally seen as a response to Immanuel Kant’s conception of space and time. In terms of this, as Moulard-Leonard explains in *Bergson-Deleuze Encounters: Transcendental Experience and the Thought of the Virtual*, “Bergson’s major contribution in *Time and Free Will* is the argument of “integral experience,” or the idea that the “conditions of experience are no longer external to it.” Through this insight, Bergson problematizes the “Kantian or traditional phenomenological framework” (2008: 3), in terms of which experience is viewed as something outside of the subject, on account of how “space and time serve as indispensable tools that arrange and systemize the images of the objects imported by our sensory organs” (Ben-Zvi 2005:1). Instead, for Bergson, ‘integral experience’ is linked to duration, and he carefully distinguishes between space and time, by discussing quantitative and qualitative multiplicities (1910: 45-47; 10-19). In this regard, he uses the activity of counting to demonstrate quantitative multiplicity (1910: 77), which he ties in with spatiality, and he argues that although, for example, a flock of sheep is seemingly homogenous, due to each member of the flock having a distinct spatial location, we can simultaneously identify each one, and subsequently enumerate the whole. In contrast, in terms of qualitative multiplicity, which is bound up with time or duration, Bergson discusses

¹⁴⁹ The dates for the books/essay are as follows: *Time and Free Will: An Essay on the Immediate Data of Consciousness* (1889), *Matter and Memory* (1896), *Creative Evolution* (1907) and “The Two Sources of Morality and Religion” (1932).

moral feeling – specifically the concept of sympathy – to demonstrate that heterogeneity does not automatically mean clear juxtaposition (1910: 18-19). As Lawlor explains in *Early Twentieth-century Continental Philosophy*, for Bergson, sympathy constitutes a heterogeneity of seemingly contradictory turns, such as “a transition from repugnance to fear, from fear to sympathy, and from sympathy itself to humility, [and yet] no one would be able to juxtapose them” (2012: 29-30). Indeed, rather than contradicting one another, these thoughts intermingle and intersect, with no one particular thought negating another in the constitution of moral feeling, with the consequence that in heterogeneity – or duration – there is no negation (Lawlor and Moulard-Leonard 2013:6).

However, while *Time and Free Will* might be said to operate in the realm of the psychological, as it were, in *Matter and Memory* Bergson expands his project by focusing on the philosophical problems deriving from the relation between body and spirit, and subsequently delves into issues of perception. Here Bergson focuses on memory as a means of clarifying the problem, and it is within this argument that the concepts of the ‘actual’ and ‘virtual’ first find enunciation. The first distinction that Bergson makes is between two types of memory: On the one hand, “habitual memory” serves a utilitarian function, and consists of a “set of intelligently constructed mechanisms” that allow us to adapt to the demands placed upon us in daily life (1991:151). On the other hand, in “pure memory” or “true memory,” we find a far more contemplative orientation rooted in the images of the past we encounter in the present, which extend into memories of the past that have *never* been present. In this regard, the Sensuous Material Signs identified by Deleuze in Proust’s work – such as the adult Narrator’s recollection, after eating the madeleine, of what it meant to live in Combray as a child – comprise a helpful example of this, as do the Signs of Art through which such memorial dynamics can be amplified (1991:151). In his discussion of such pure memory, Bergson introduces the diagram of the inverted memory cone (See Figure 1 below), which neatly represents the relation between the actual present which passes, and the virtual past which co-exists with or persists in the present (1991: 162).

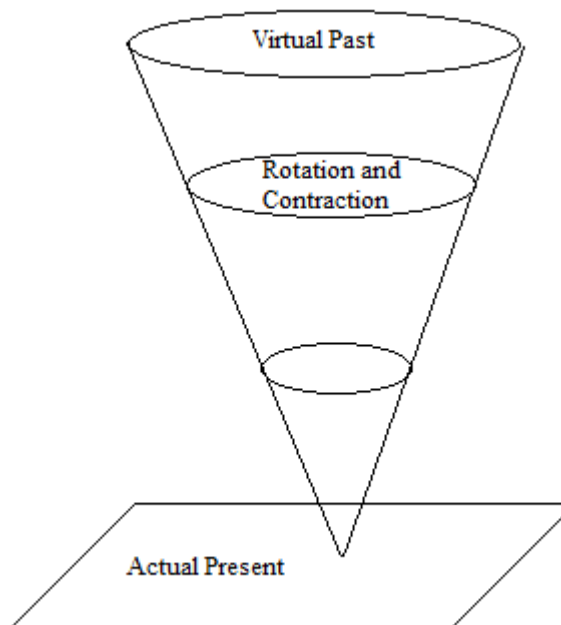


Figure 1: The Bergsonian Memory Cone

The mechanisms attached to the expanding virtual cone of memory are ‘rotation’ and ‘contraction/relaxation,’ and in *Creative Evolution* Bergson advances the telescope as the clearest metaphor through which to understand how they operate. Accordingly, rotation would refer to expansion and the relation of memories in a contiguous sense, as through the various rotations *adjoining* memories come into focus.¹⁵⁰ Similarly, the cone’s second mechanism, contraction, also allows for movement and reflection. In this example, as Lawlor and Moulard-Leonard explain, “we can see that the images of the constellation must be narrowed, brought down to the tube so that they will fit into the eyes. Here we have a movement from singular images to generalities, on which action can be based” (2013: 12-13). Yet, importantly, through the above, Bergson does not advance a reductive intellectual point of view that sees memory as a static image stored away to be referenced later. Rather, he maintains that memory is something fluid, mobile, and dynamic, and thus potentially liberating and affirmative, because of the creativity inherent in any given actual-virtual interface – not least because, as already indicated, it can entail memories of the past that have never been present.

¹⁵⁰ Lawlor and Moulard-Leonard further explain that “what we are supposed to visualize with the cone is a telescope that we are pointing up at the night sky...[W]hen I am trying to remember something, I at first see nothing all. But [when] I try to focus, as if I were rotating the rings that control the lenses in the ‘telescope’...then some singular images come into view” (2013: 12).

In the above regard, Bergson elaborates on this theme even further in *Creative Evolution* in relation to evolutionary time. That is, while acknowledging its crucial importance to life, Bergson was also cautious over the mechanistic and techno-scientific domination of habitual perception and experience. And by way of response, in *Creative Evolution*, he attempts to account for both “temporal movement informed by duration and retained in memory,” and “the practical necessities imposed on our body and accounting for our habitual mode of knowing in spatial terms” (Lawlor and Moulard-Leonard 2013: 13). That is, Bergson begins his book by challenging the theory of evolution made popular by Charles Darwin, which despite its central tenet of continual change, Bergson found to be too deterministic on account of its attributing of all change to instinct.¹⁵¹ Against this position, Bergson demonstrates the limitations of a deterministic view of evolution to account for the watershed decisions made at crucial moments in biological time, which ultimately gave rise to the immense biodiversity we now encounter.¹⁵² Indeed, he argues that it is because of biological science’s problematic relationship with time – and correlative denial of intelligence and emphasis instead on instinct – that “the very mobility of being escapes the hold of scientific knowledge.” To clarify, he contrasts the conception of time held by thinkers such as Galileo and Kepler, with the conception of time of ancient philosophers such as Plato, Aristotle, and Plotinus, but argues that even though in their respective conceptions “the difference is profound,” this difference is one of “degree rather than kind.” That is, whereas the ancients divided time into life phases, as it were, for a modern scientist like Kepler, for instance, time “has no natural articulations” so that we can “divide it as we please,” with no moment having “the right to set itself up as a moment that represents or dominates the others.” While this may seem like a radically different conception, it similarly fails to move past the problem of spatializing time. As Bergson writes, “a science...that considers one after the other, undivided periods of duration, sees nothing but succeeding phases, forms replacing forms,” and is accordingly content with a reductionist “*qualitative* description of objects, which it likens to organized beings.” In contrast, if one asks – as Bergson does – “what

¹⁵¹ As Gerhard Wichler notes, in *Charles Darwin: The Founder of the Theory of Evolution and Natural Selection*, the famed biologist took on a very “modern’ view” on the idea of instinct, because for Darwin, “an instinctive action never changes into an intelligent action.” And it is on this point that Bergson and Darwin clashed. To be fair to Darwin, though – and as Wichler also points out – Darwin did indeed disclaim that “it is not excluded that in a largely instinctive action a little dose of judgement or reason comes into play, even with animals low in the scale of nature” (1961: 121).

¹⁵² In this regard, Krishnamurthy writes that biodiversity, or more precisely “biological diversity;” is “an umbrella term referring to organisms found within the living world,” or “the number, variety, and variability of living organisms” (2003 : 1) Accordingly, it in effect entails the “condition of being different,” or as Darwin advanced, a show of “Life’s endless forms” (2003 :1). Yet it was on the subject of the generation of these endless variations of life form that Bergson and Darwin disagreed.

happens within one of these periods, at any moment of time,” one would be “aiming at something entirely different” that is resonant not only with Proust’s, but also with Nietzsche’s (and Deleuze’s) conception of time as memorial creativity. However, for Bergson, both ancient philosophy and modern science fall short in this regard, because while ancient thought “applied to *concepts*,” modern science in turn seeks only “to measure” and to discover “*laws*.” Bergson then demonstrates in a compelling manner the limitations of both approaches through recourse to geometry. In short, Bergson argues that while “the science of the ancients is static,” modern science “built up around the discoveries of Galileo and Kepler,” has as its problem the subscription to a model. With specific relation to geometry, once more, “for the ancients, geometry was a purely static science. Figures were given to it at once, completely finished, like the Platonic Ideas.” In contrast, “the essence of Cartesian geometry...was to regard every plane curve as defined by the movement of a point on a movable straight line;” a curve which can then be defined once “we can state the relation connecting the space traversed on the movable straight line to the time employed in traversing it.” While the ‘equation’ of modern science thus replaced the ‘figure’ of ancient thought, problematically, “the science of matter [nevertheless] proceeds like ordinary knowledge.” That is, although “it perfects this knowledge, increases its precision and scope,” it nevertheless still “works in the same direction and puts the same mechanism into play.” While modern science aspired “*to take time as an independent variable*,” it only succeeded in dividing a model of time up in ever more precise degrees, but in doing so, it effectively continued to consider moments to be immobilities – in a manner akin to ancient philosophy. And under the influence of such myopia, “real time, regarded as flux, or...the very mobility of being, [continues to] escape the hold of scientific knowledge,” as it did the hold of ancient philosophy (1944: 360-366). In short, only points within the flux are noted, but never the flux itself.

Indeed, for Bergson, this will to organize – with which Darwin’s conception of evolution is indissociable – is informed more by instinct than by intelligence, the heightened scientific and academic register in which it is articulated, notwithstanding. In relation to this, it is useful to consider Bergson’s “The Two Source of Morality and Religion,” as it offers further elaboration on the distinction between instinct and intelligence, “both of which operate as ‘forms of consciousness,’” but which represent “two divergent lines of evolution with societies at the extremities of each” (1949: 137-138). As Johan Normark points out in “Archaeological Haecceities,” both instinct and intelligence are “two solutions to the same

problem of confronting and manipulating matter” (2009: 2), and Bergson positions instinct – or the compulsion to organize, put into structure, and thus establish orthodoxy – against intelligence. Intelligence which by definition exceeds the boundaries of the past through memorial creativity – or the recollection of a past that has never been present – and embarks into the future in accordance with a related new trajectory. Importantly though, instinct and intelligence are not mutually exclusive, but rather imbricated, such that while one predominates in different societies, the other always remains as a possible avenue of recourse. In this regard, Bergson begins by examining the workings of hive insects (in particular, ants and bees), and notes that within these instinctual structures, “the individual is riveted to his task by his structure, and the organization is relatively invariable,” being open to change only in extreme situations – as in the intelligent adaptation of ants and bees to the modern world. In contrast, in human society, although we all function within systems of social obligation, there is indeed a dissociation between obligation and instinct. And the reason for this is our heightened capacity for intelligence. Bergson writes that “obligation as a whole *would have been* instinct if human societies were not, so to speak, ballasted with variability and intelligence.” Bergson then emphasizes the contrast when he suggests that, on the one hand, “the social instinct of an ant [or bee] – I mean the force by virtue of which the worker, for example, performs the task to which she is predestined by her structure – cannot differ radically from the cause.” But on the other hand, “a human being feels an obligation only if he is free.” Indeed, having started at the “primitive basis of obligation,” Bergson asks whether such obligation can “radiate, expand, and even come to be absorbed into something that transfigures it.” And this question leads Bergson to make a crucial distinction between the tendency to structure and organize – underpinned by primitive instinct – and the tendency toward intelligent openness. In relation to the latter, Bergson offers a historical account of such intelligent appeals, offering a number of examples of how humanity has always sought out figures who seemingly incarnate an associated morality. In his reflection he writes that, “before the saints of Christianity, mankind had known the sages of Greece, the prophets of Israel, the Arahats of Buddhism, and others beside.” From this, two inter-related ideas emerge, namely the “generality of the one [consisting] in the universal acceptance of a law,” on the one hand, and on the other hand, the “common imitation of a model” whose sentiments exceed the limits of their immediate social context. Here the instinctive social duty of animal *morality* is replaced by a concept that is both “broadened and weakened,” becoming “human duty” – a concept to aspire toward as it has been approximated by the various spiritual figures listed above. Thus, while the above instinctual exchange personifies the “closed soul,” or one

within which instinct predominates over intelligence, the “open soul,” characterized by such spiritual figures, is something intelligently different – with such difference informed by a deep durational intuition.

Bergson does, however, argue that one often becomes paralyzed when this duty has to be actualized; that is, even “a generous nature, eager to sacrifice itself, experiences a sudden chill at the idea that it is working ‘for mankind’”(1949: 140-144). Importantly, though, the open soul involves primarily an openness to aspire to such a disposition, rather than any proclamation on Bergson’s part of what people should, or even can, become. In this regard, he writes that “the [open soul] does not yield to the attraction of its object; it has shot beyond and reached humanity only by passing through humanity.” And such an orientation, involving a recognition of shared duration, is an “attitude [that] is acquired,” and which “calls for, has always called for, an effort.” Indeed, while the closed soul fixes “its feelings by the things with which they are associated,” the open soul is a “psychic attitude” or “physic motion” that does not attach feeling toward specific things, such that it acts in an exclusionary manner (1949: 145-147). Understandably, Bergson’s conception of such a morality, or an openness to the duration of all life, is also tied to his concept of *vital impulse* – or *élan vital* – in which he argues that all life has a common original impulse (1983: 87). One from which human beings have become estranged through passive submission to the habitual thought, or instinctual behaviour, on which all human knowledge – both that of ancient philosophy and modern science – is based (1983: 151). And it is in this regard that he criticizes the reductive scientific and technical language of Darwin’s theory of evolution, which emphasizes instinct in the continual changes exhibited by all life forms, as *itself* an expression of instinct, insofar as it evinces the tendency to organize, categorize, and ultimately establish orthodoxy. Orthodoxy which can eclipse the role played by intelligence in this process, or intuition into duration, which has allowed for radical biodiversity to emerge through *creative* evolution.

Elizabeth Grosz in “Bergson, Deleuze, and the Becoming of Unbecoming,” sums up Bergson’s philosophical project neatly when she argues that his project can be understood as “the transformation of the concept of being through the generation of an ontology of becoming, of the actual in terms of the elaboration of the virtual, and of intelligence through the intervention of intuition” (Grosz 2005: 10). Similarly, Deleuze writes in *Bergsonism* that “Duration, Memory [and]...*Élan Vital* mark the major stages of Bergson’s philosophy” (Deleuze 1988: 13), and the appeal of Bergson for Deleuze also becomes clear through this. After all, Bergson’s insistence on multiplicity, the affirmative power of creative memory, and

vital impulse, dovetail with Deleuze's attempt to engender intelligent difference in the face of an instinctually-driven pursuit of homogenous stable experience, informed by the *ressentiment* criticized by Nietzsche, and seen in the Worldly Signs and Deceptive Signs of Love within Proust's *In Search of Lost Time*. And the influence of Bergson's concept of memory and duration on Deleuze's work on cinema, is profound.

Deleuze and duration in *Cinema 1* and *Cinema 2*

In Deleuze's lengthy meditations on cinema, namely his *Cinema 1: The Movement-Image* and *Cinema 2: The Time-Image*, he sheds light on his view of the potential of this particular technology to precipitate difference through its reflection of and upon duration.

Indeed, in many respects, cinema for Deleuze comprises a site of both individual Proustian reflection upon time, and non-subjective Bergsonian reflection of duration, which together comprise the poles of a continuum of difference informed by the Nietzschean third order of time. And in relation to each pole, cinema also has the ability to provide, on the one hand, an *indirect* image of time passing through movement-images, and a *direct* image of the passing of time through time-images. To elaborate, David Rodowick in *Gilles Deleuze's Time Machine*, indicates that the post-war cinema of Deleuze's time proved an immense draw card to the philosopher. This was because, for Deleuze "image practices [comprise]...social and technological automata where each era thinks itself by producing its particular image of thought." This, in turn, allows philosophy the opportunity to "map this image in mental cartographies" that are not bound to restrictive, dogmatic, and representational conceptions of experience. And, "in its largest sense," Deleuze understands "historically specific cinematic practices as 'spiritual automata' or 'thought machines.'" In other words, for him, cinema is an "artificial intelligence" that functions as "a machine for the fabrication of concepts," and it is in relation to such creative space that "Deleuze claims an interest in film because it provides a complex moving picture of duration" (1997: 6-7). In short, cinema can afford us a profound picture of an actual-virtual interface that occurs through the power of *élan vital*, and which – as will be argued in what follows – manifests in images situated along a continuum of Proustian-Bergsonian reflections.

To begin with, in *Cinema 1: The Movement-Image*, Deleuze draws heavily on the work of Bergson, extracting "from Bergson's account of *Matter and Memory* three types of movement-image" (Bogue 2003: 35), and expropriating these movement-images for his own

reading of cinema.¹⁵³ These three images are those of perception, affection and action. Importantly, for Deleuze, recalling Bergson's assertion that images are an interval or "a kind of relay system" (Bogue 2003: 36), such images are not static but are rather subject to a movement that runs through the series. As Deleuze writes, "all Bergson asks for are movements and intervals between movements which serve as units," but then adds – in support of his appropriation of Bergson for cinematic purposes – that this "is also exactly what Dziga Vertov asked for in his materialist conception of the cinema" (1986: 61).¹⁵⁴ However, Bergson can be forgiven for his oversight because of the prevalent use of a stationary camera during his time, in terms of which the camera assumed the position of the theatre spectator so that the frame corresponded more or less to the proscenium view of traditional stage productions (Douglas 1999: 213).¹⁵⁵ But with the mobility of the camera – which first began to emerge around 1917 (Nelmes 2012: 119) – the point-of-view shot allowed the audiences to see what the characters were ostensibly seeing. The adage that a picture says a thousand words applies here, since the many thousands of words of acutely detailed descriptions of the nuances of everyday objects and phenomena found in Proust's work, now found expression in the point-of-view shot, through which any aspect of the world is focused upon. Accordingly, if what "actualizes virtual movement-images is the 'center of indetermination' of a living image, [or] an *interval* or gap in the universal interaction of matter flows," then "a 'perception-image' is the first side of the interval," whereby we

¹⁵³ It must be noted here that Bergson himself was critical of cinema, even dedicating his final chapter of *Creative Evolution* to a damning critique of the medium. Paul Douglass notes in "Bergson and Cinema: Friends or Foes," that Bergson "damned the cinematographical mechanism of thought as the apotheosis of spatialisation which must be overcome." However, as Douglas also points out, already "in 1918, Marcel L'Herbier argued that Bergson's critique of the camera in no way undermined his profoundly cinematic conception of time and experience," and he furthermore emphasizes that "Deleuze has repeated the argument that Bergson's critique of cinema was 'overhasty' and poses no obstacle to a marriage of Bergsonism and film semiotics" (in Mullarkey 1999: 209).

¹⁵⁴ David Abelevich Kaufman, or Dziga Vertov, was a pioneering documentary film maker and cinema theorist, who was active between 1917 and 1954, and best known for his "creative transformation of newsreel into the new form of documentary film" (Hicks 2007: 1). Indeed, as Yuri Tsivian explains in *Lines of Resistance: Dziga Vertov and the Twenties*, Vertov declared film to be "an experiment in cinematic communication," and quite radically – especially for his time – further argued that film can "speak to the viewer without the aid of sets or actors, without a scenario, and...without the aid of inter-titles" (2004: 2). In this regard, well before Deleuze, Vertov saw the potential of film to capture experience outside of the orthodoxies imposed upon cinematic representation and narrative. In particular, one of his major contributions to film theory was his concept of the "Kino-Eye." Johnson et al. in *China's iGeneration: Cinema and Moving Image Culture for the Twenty First Century*, sum up this concept neatly when they advance the "movie camera as the machine eye," and present the notion that "the apparatus of the movie camera can be seen as an extension of the human body and, in fact, human life" (2014: 131).

¹⁵⁵ Rodowick makes an illuminating observation on this point when he explains that "Bergson notes in the last chapter of *Creative Evolution* that his ideas concerning the 'cinematographic illusion' were developed during his 1902-3 course on the idea of time at the Collège de France." As such, "whatever commercial films he may be referring to would thus fall within the period of 'primitive cinema'" (1997: 213).

selectively register “incoming movements” – taking in certain features while filtering out the rest. And in terms of cinema, the perception-image indirectly represents to the viewer how time passes for the characters within a film, by revealing to the viewer what the character in question sees. However, a character is also always affected by what they are exposed to, and cinematic representation of this – via facial expressions, a change in posture, gestures, etc. – forms part of the ‘affection-image,’ or the alternate side of the interval. That is, something resonant with Bergson, for whom “sensations, and ‘bodily feelings’ in general, or ‘affections,’ are qualitatively distinct from perceptions, though sensation/affection bears a necessary relationship to perception and...always accompanies it.” Thus, what we call perception is, in fact, “a mixture of external perception and internal affection” (Bogue 2003: 36), with the affection-image “surg[ing] in the centre of indetermination, that is to say in the subject, between a perception which is troubling in certain respects and a hesitant action” (1986: 65). Again, the immense Proustian sensibility to shifts in mood and disposition, betrayed at times through barely detectable adjustments in posture, or the stiffening of facial features, etc., find their parallel in affection-images (Arnheim 1957: 127-132; 183). Finally, in relation to such perception and affection, the ‘action-image’ demonstrates how characters respond to what they see and feel. Describing the action-image, Deleuze writes that “one passes imperceptibly from perception to action,” and that “the operation under consideration is no longer elimination, selection or framing.” Rather, it entails “the incurving of the universe, which simultaneously causes the virtual action of things on us and our possible action on things” (1986: 65). Accordingly, while it is the gap or interval between “the perceptive and the active” that affection occupies, it is through the active that the indirect passing of time is most saliently evinced – with a slow pace occurring through repetitive actions of everyday life, and a rapid pace occurring in the face of challenges which, when triumphed over, entail a fracturing of the subject in accordance with the Nietzschean third order of time. That is, when a subject finds itself exceeding the limits of what it previously believed its capacity to be (Deleuze 1994: 86-90). This rapid personal ‘growth’ – or passing of time – is neatly reflected in the accelerated montage, or montage of tempo, referred to by Eisenstein as the primary feature of American cinema (Goodwin 1993: 114). Here, an intercutting between, for example, the damsel in distress, the villains who seek to harm her, and the hero as he rushes to save her, becomes increasingly rapid as they move toward the same point in space, until all three meet in the same frame. And the excitement of such scenes derives not simply from the desire to see bourgeois order restored – as Eisenstein would have it (Eisenstein 1977: 235, 244) – but also from the intuition that deep and

irrevocable transformation within the characters is taking place, which we can glimpse through the indirect images of time passing that appear on the screen before us.

Yet, such Proustian perception/affection/action-images are only one pole of the continuum, which corresponds to the “signs of composition” in Deleuze’s taxonomy (Bogue 2003: 70).¹⁵⁶ In terms of the other pole, cinema is equally important for Deleuze because the camera also affords us a non-human perspective, which allows for escape from our subjective position through presenting a non-subjective reflection of Bergsonian duration, one that corresponds to the “signs of genesis” in Deleuze’s taxonomy (Bogue 2003: 70).¹⁵⁷ As Rodowick explains, for Deleuze – working against the background of Bergsonian insights – “what movement expresses is qualitative change [or]...change in duration or in the whole; therefore, real movement involves temporal rather than spatial relations” (1997: 37). Indeed, in camera-consciousness, or the non-human perspective afforded by the mobile camera, Deleuze finds a means of encountering time not afforded to Bergson, due to his limited exposure to primitive cinema as a result of his historical context. In this regard, Deleuze explicitly advances that “the essence of the cinematographic movement-image lies in extracting from vehicles or moving bodies the movement which is their common substance,” or “extracting from movements the mobility which is their essence” (Deleuze 1986: 23). That is, through various mechanical means, cameras provide perspectives that are alien to the dimensions of the human sensory-motor schema, discussed previously, because while they similarly operate in terms of perception, affection, and action, they can also do so from radically different viewpoints instead of a character’s point of view. And although “diverse

¹⁵⁶ Roger Dawkins in “Deleuze, Pierce, and the Cinematic Sign,” explains this most succinctly when he writes that “Deleuze begins by noting only two aspects of the cinematic sign. He calls these Genesis and Composition.” That is, “in the first stage of expression, attributes are constituted” in that “they are the basic forms from which life is developed and they are potentially infinite in number.” And it is “for this reason [that] Deleuze identifies attributes with genesis, calling them genetic elements.” In contrast, “the second stage is based on the expression of an essence in the attributes by a particular thing, which Deleuze refers to generally as a body (a plant, animal and rock are all bodies).” And Deleuze furthermore “notes that a body expresses a genetic element of substance (attribute) through the “composite or complex relations of its parts” (2005: 3). In relation to cinema, we could assert that signs of composition relate to a more Proustian reflection on duration, whereas signs of genesis tend to offer a more Bergsonian reflection of duration.

¹⁵⁷ Please see footnote above. Additionally, although not within the scope of this chapter to discuss it, David Martin-Jones, in his *Deleuze and World Cinemas*, makes an interesting point with regard to Deleuze’s taxonomy of images, and in particular his historical portrayal of the move from movement-images to time-images through the crisis of the action-image, brought on by the horrors of the Second World War. He advances that “Deleuze’s rather brief mention of World War Two as a defining moment suggests that this may have been somewhat incidental to his thinking, which may well have been more absorbed in the construction of his taxonomy of images.” And he further argues that “other parts of the world have their own defining moments, distinct from World War Two that are equally disruptive to their cinemas (dictatorships, economic crises, geopolitical transformations under globalization, etc.). For this reason I would argue that Deleuze’s categories of the movement- and the time-image are a product of his selection of certain films for discussion, and his lack of...certain others. Not least of these was popular Indian cinema” (2011: 206).

methods may be used to rationalize and normalize camera movements within commonsense [human] spatio-temporal schemas, the mobile camera tends to extract pure movement from bodies” (Bogue 2003: 46). Considered in this light, as Deleuze notes, “the sole cinematographic consciousness is not us, the spectator, nor the hero; it is the camera – sometimes human,” but also “sometimes inhuman or superhuman” (1986: 20) in its ability to provide multiple and interlinked snapshots of duration that exceed the perspective of any one person. In this regard, it is not only the footage of the mobile camera but also the arrangements of such footage through editing processes which give rise to such movement-images. As Bogue notes, for Jean Epstein,¹⁵⁸ in every film “all the surfaces divide, truncate, decompose, [and] break apart,” with the result that “each of these splintered surfaces provides its own perspective on the world.” In this respect, “every film divides in time into multiple *plans*, each with its own incommensurable perspective,” with each *plan* being “a particular slice of movement, and hence [providing] a specific view of time, or temporal perspective.” Furthermore, not only is “each perspective...itself dynamic, [and] in constant variation;” in addition, all these multiple perspectives joined together to form the cinematic piece are also not captured by a human consciousness, but rather by a tool that takes on, at certain moments, “non-human functions or qualities” – namely the camera (2003: 47).

This encounter with time, albeit an indirect encounter, is dealt with differently by film-makers from various schools, and Deleuze identifies four montage practices, namely the American organic, the Soviet dialectical, the French quantitative, and the German intensive montage (Deleuze 1986: 29-40), each of which in different ways entails a superhuman perspective. For instance, D.W. Griffith’s *Intolerance* (1916), considered a masterpiece of American organic montage, allows the viewer access to four parallel story lines occurring in very different eras in history, while the eras remain thematically linked by a shot of a figure rocking a cradle. Presented in a non-linear way, the film thus provides the viewer with a glimpse into the same struggles occurring side by side, but within completely different moments in time (Hicks 2007: 163). In turn, in terms of Soviet dialectical montage, Sergei Eisenstein’s *Strike* (1925), for example, in its presentation of workers’ rising up against the unjust conditions imposed upon them by the Tsarist regime, not only condenses the Marxist dialectical process of history into a series of montage cells. In addition – and while doing so – it also presents an array of events across Russia at the same moment in history which no one

¹⁵⁸ Jean Epstein was a French film-maker and theorist who was active from 1922 onwards. Christophe Wall-Romana, in his preface to Epstein’s *The Intelligence of a Machine*, writes that his theoretical work “greatly influenced later generations of cinema philosophers, notably Gilles Deleuze and Jacques Ranciere” (2014: i).

human could ever have been privy to, from the massacre of workers on the outskirts of the city to a butcher going about his work in Moscow at the same time. In this way, through a series of explosive juxtapositions, the film presents an emotive, visceral and politically orthodox – at least at the time – message to audiences who would have experienced the various excesses of the Tsarist regime, while at the same time capturing the transformation underway with the greater whole of duration (Briley 1996: 525-535; Salvaggio 1979: 289-297). With regard to French quantitative montage and its presentation of a non-human/superhuman perspective, Colin Crisp in *The Rediscovery of editing in the French Cinema, 1930-1945*, offers some compelling insights. He writes that while 1920s French cinema was characterized by “intense editing,” which featured the use of more fragmented, quick shots that were filled with symbolism, this editing rate also increased significantly from 1932 onwards. Moreover, “whole scenes tend[ed] to be fragmented into a series of glances – hypothetically, those of an interested on-looker” but also potentially the perspective from empty space (1987:203, 209-210). Accordingly, what both camera/editing practices signalled is emphasis on a perspective not afforded to humans in their everyday experience of duration that is occurring around them while they are concerned with other things. Finally, for Deleuze, German intensive montage practice, with its focus on the interplay between darkness and light, as found in the films of “the great masters of expressionist cinema such as Murnau, Lang, [and] Pabst,” captures “a dynamic rather than a mathematical sublime.” This is because such “cinema [is] not of metrical relations of movement reaching the incalculable,” like French montage, but “rather one of intensive magnitude” in which “light and dark are conceived as infinite forces.” And through them the viewer encounters an “assemblage of movements and durations” that furthermore jeopardizes any “oppositional distinction between the ‘organic’ and the mechanical or the technological” (2015: 119); something that collapses the reference points through which an integral human perspective is otherwise maintained, in a way that opens the spectator up to the duration of the Whole.

But such montage practices are situated only halfway along the Proustian-Bergsonian continuum of movement-images, insofar as, while they exceeded a human perspective in various ways and to different degrees, they do not break entirely from it. For such images, one must proceed into the realm of other experimental cinema, which Deleuze categorized under the ‘signs of genesis’ in his taxonomy of movement-images. And in this regard Deleuze turns to the likes of Dziga Vertov, who in his 1929 *Man with a Movie Camera* discovered the “genetic element of the image, or the differential element of movement.”

Indeed, in the “Vertovian photogramme,” one such example of which are the intercutting shots of an editor splicing other images (an old woman, a young factory worker, three children at a magic show, etc.) he had taken to life, as it were, “cinema goes beyond human perception toward another perception,” because it captures its “genetic element” (Bogue 2003: 75). As Nicole Brenez notes in “Recycling, Visual Study, Expanded Theory,” in many respects the “Vertovian Gramme appears at a decisive point: it is the genetic element of the perception-image,” which allows “the invention of a new kind of entity: cinema’s originary molecule” (2011: 159). Thus, in such movement-images, we are no longer encountering signs of composition, in a Proustian manner, but rather, signs of genesis that entail a Bergsonian reflection on duration – changes in the Whole seen from the ‘perception of things.’

In terms of Deleuze’s historical overview of cinema, the movement-image entered a state of crisis after the Second World War, but it was out of this that time-images were ultimately to emerge. As Deleuze maintains, “the crisis which...[shook] the action-image... depended on many factors which only had their full effect after the war.” Of course, this is not to say that the experiences of the war and the resultant crisis of the action-image fundamentally altered *all* film production. Rather, as Deleuze himself points out, “the greatest commercial successes” have not altered their orientation whatsoever. However, importantly, he adds that “the soul of the cinema demand[ed] increasing thought,” and such “thought beg[an] by undoing the system of actions, perceptions and affections on which cinema had fed up to that point” (Deleuze 2005: 210). In this regard, Deleuze focuses quite heavily on the European cinematic response, and thematizes in particular the dynamics of Italian neo-realism, which for him entailed the birth of “a new kind of image...outside [of] Hollywood;” one that would precipitate “the upsurge of the new thinking image...beyond movement” (Deleuze 2005: 219).

Born out of the ashes of the Second World War, the film movement that became known as Italian neo-realism entailed an attempt to break from the cultural heritage of Fascism which had dominated Italy under Mussolini’s regime. Accordingly, the movement, with its focus on authenticity as opposed to clichéd representations of good, clean living – characteristic of the propaganda films invested in by the aforementioned dictatorship – is exemplified in the cinema of Roberto Rossellini, Vittorio De Sica, and Federico Fellini, among others.¹⁵⁹ Deleuze begins his discussion of Italian neo-realism by pointing out that, in

¹⁵⁹ This turnaround in orientation, on the part of Italian film-makers, from the cliché of propaganda to the ‘authentic’ thematization of social problems in the 1940s, is even more interesting if one considers their

relation to the after-effects of the war, Italy – unlike France or Germany – could neither “claim the rank of victor,” nor could it be completely dismissed as an uncritical Fascist collaborator due to “a resistance and a popular life underlying oppression.” As such, it was caught in an ‘in-between’ space, as it were, which allowed “the Italians...an intuitive consciousness of the new image in the course of being born.” Indeed, it was the Italian directors, Deleuze claims, who forged the characteristics experimented with later in certain types of post-war American cinema, which, in turn, inspired movements such as the French *New Wave*. In this regard, Deleuze provides a number of examples, pointing to Rossellini’s *Rome, Open City* (1945) as capturing a “dispersive and lacunary reality,” and to his *Paisà* (1946) as presenting “a series of fragmentary, chopped up encounters.” Similarly, Deleuze points to the work of De Sica, who in films such as *The Bicycle Thief* (1948) and *Umberto D* (1952), presents no “vector or line of the universe which extends and links up events,” and who shows how even “insignificant events...have a vital importance for the protagonists.” According to Deleuze, Fellini takes this even further in *I Vitelloni* (1953), in which his portrayal of five young men drifting through life in a small provincial town not only explores “the insignificance of events,” but also testifies both “to the uncertainty of the links between...[events]” and to “their non-belonging to those who experience them in this new form of voyage.” Clearly, all this stands in marked contrast to the resoluteness and sense of purpose and agency that characterized the four pre-war American, Soviet, French and German montage schools, discussed earlier, because what now proliferates are open encounters with no set resolution or direction, which occur moreover within the “any-space whatevers” of the films (2005: 216).

Elaborating on the impact of the above on cinema, Deleuze advances that certain directors classified as part of the French New Wave, such as Jean-Luc Godard, reflected further on how to creatively respond to the void left by the crisis of the action-image. And he notes in particular that in Godard we can find “formulas which express the problem: if images have become clichés, how can an Image be extracted from all those clichés, ‘just an image,’ an

previous association with cinema during the Mussolini era. For instance, Peter Bondanella in *The Films of Roberto Rossellini*, points out that one of the most contentious issues when dealing with Rossellini’s legacy is his “relationship to...Fascist cinema and to important Fascists associated with the cinema” (1993: 3). Similarly, in *The Films of Federico Fellini*, Bondanella notes that a young Fellini, in 1937, “published his first drawings in a magazine issued by the Opera Balilla, [a] Fascist youth organization” (2002: 11). Yet it has been argued that the earlier associations of these two great directors should not be seen as evidence of their collaboration or support for the Fascist regime, but rather as a reality endured by them, and one which informed the sensibility present in Italian neo-realism. Indeed, this is neatly summed up in the post-war critique of Cesare Zavattini, who declared that “the two decades under Fascist rule had not produced ‘a single film...that was worth discussion’” (1993: 3).

autonomous mental image?” Indeed, he even muses, “where does the cliché end and the image begin?” (2005:214-15).¹⁶⁰ Moreover, in terms of the American cinematic response to the crisis of the action-image, Deleuze finds in certain post-World War Two American films a similar recurring concern over cliché. Firstly, referencing films such as Robert Altman’s *Nashville* (1975) and *A Wedding* (1978), he argues that in them “globalising or synthetic” situations have been replaced by an image that “is dispersive.” Accordingly, this is achieved by Altman in his portrayal of multiple characters, multiple sound-tracks, and the use of an anamorphic screen (2005: 211).¹⁶¹ Secondly, and in relation to Altman’s *Quintet* (1979), Deleuze argues that here “the line or the fibre of the [film] universe which prolonged events into one another” is replaced by “linkages, connections, or liaisons [which are] deliberately weak.” Thirdly, he maintains that this type of orientation toward time in cinema is augmented by “the sensory-motor action or situation” being replaced “by the stroll, the voyage and the continual return journey.”¹⁶² While this new American cinema thus operated under a new image, characterized by “the dispersive situation, the deliberately weak links, the voyage form...[and] the condemnation of plot” (2005: 214), it was nevertheless still problematized by its relation to cliché. And it is in relation to this issue that Deleuze argues “the American cinema finds its limits” (2005: 215), because that which binds the films “are clichés, and nothing else” – be they “physical, optical, auditory [or] psychic” (2005: 212-213). However, it

¹⁶⁰ Wheeler Winston Dixon in *The Films of Jean-Luc Godard*, provides a further example of the director’s battle with cliché. Citing Godard’s 1963 film *Les Carabiniers*, he explains it as “an ugly film about a world bereft of beauty, in which meaningless conquests are followed by equally arbitrary betrayals.” The two main characters are in essence “nonpersonages” and operate against a background of “high-contrast imagery...[and] a series of visual and narratological clichés.” In doing so, Godard’s aim is to turn “the photographic process back upon itself.” And against criticism of the film – such as when Michel Cournot called it a “badly made, badly lit, badly everything film” – Godard responded by saying, “I consider these lines as praise indeed” (1997: 36-38).

¹⁶¹ An anamorphic screen, which was refined and popularized in the 1950s, allows for a stretching of images, so that more may be displayed in the frame; i.e. the audience experiences a feeling of depth or texture to the shot (Malkiewicz, Mullen 2005: 65). Directors like Altman used this to great effect, as Joe McElhaney points out in *A Companion to Robert Altman*. He writes, “if the frame is centripetal” and the “screen is centrifugal,” then “Altman’s fondness during the 1970s for the anamorphic widescreen possibilities of Panavision, and his use of an almost constantly mobile frame, are symptomatic of this centrifugal impulse.” The effect of this on the viewer, along with the creative deployment of non-synchronous sound, amounts to a profoundly unsettling and destabilizing experience. Indeed, in Altman’s films, people appear more as “chromatic vibrations,” with the foreground and background equally significant (2015: 148).

¹⁶² By way of example, he references Scorsese’s *Taxi Driver* (1976) and Lumet’s *Serpico* (1973), in which the respective protagonists display little deliberate agency, being portrayed instead as subject to an unpredictable constellation of forces affecting them. For instance, the driver in *Taxi Driver* “wavers between killing himself and committing a political murder and, replacing these projects by the final slaughter [of a pimp and his associates] is astonished by himself.” Similarly, in Lumet’s film, “everything happens in continual trips and return journeys, at ground level, in aimless movements” – and it is such depiction of experience in time that Deleuze argues “is in fact the clearest aspect of the modern journey,” in that it happens in “any-space-whatever,” in a way that places certain post-war films “in opposition to [the] action which most often unfolded in the qualified space-time of the old realism” (2005: 212).

is the critical American film-makers' response to such cliché which he finds problematic; according to him, their fatal flaw is that, within them,

all the aesthetic or even political qualities...remain narrowly critical and in this way even less 'dangerous' than if they were being made use of in a project of positive creation. Then, either the critique swerves abruptly and attacks only misuse of apparatuses and institutions, in striving to save the remains of the American Dream, as in Lumet; or it extends itself, but becomes empty and starts to grate, as in Altman, content to parody the cliché instead of giving birth to a new image. (2005: 215)

Consequently, the great post-war American genres – such as *film noir* – “collapse[d] and yet maintain[ed] their empty frame,” and this is why Deleuze turns his attention instead to Italy, and to a lesser extent, to France, as the cinematic terrain in which “the great crisis of the action-image took place” (2005: 215), and was responded to in a way that precipitated the birth of a new image. Indeed, in relation to such post-war cinema, Deleuze maintains that “far from being satisfied with a negative or parodic critical consciousness, [such] cinema is engaged in its highest reflection,” which it “constantly deepened and developed” in relation to time (2005: 216).

Ronald Bogue in *Deleuze's Way* provides a helpful description of the changes in cinema which eventually led to the production of time-images. Accordingly, Deleuze's division of the history of film into two basic phases – namely classic cinema and modern cinema – demonstrates two distinct methods of organizing space and time within film. Whereas classic cinema “is dominated by an organization of space and time according to a rational, commonsense, Newtonian/Cartesian ‘sensory-motor schema,’” modern cinema is marked by “a breakdown of the sensory-motor schema and the creation of images that no longer conform to a single unified spatio-temporal structure.” Crucially, these images are not only “disconnected” from their “orthodox, commonsense chains of association,” but are also “re-link[ed]” so that a “productive difference emerges between images” (2007: 64).¹⁶³ In this distinction, the variance between the Cartesian first order of time and the Nietzschean third-

¹⁶³ In *Cinema 2*, with particular reference to Godard's method specifically, and through alluding to his 1976 collaboration with Anne-Marie Mieville, *Here and Elsewhere*, Deleuze makes clear the importance of modern directors' relinking of images. He writes, namely “Given one image, another image has to be chosen which will induce an interstice between the two. This is not an operation of association, but of differentiation, as mathematicians say, or of disparation, as physicists say: given one potential, another one has to be chosen, not any whatever, but in such a way that a difference of potential is established between the two, which will be productive of a third or something new” (2005: 179-180).

order of time, thematized by Deleuze in *Difference and Repetition* and discussed earlier, is clearly reflected, along with the creative capacity of the latter, to usher in difference.

In effect, “guided by maximum interaction...the sequences [of time-images] are not readily assimilable with standard interpretive schemas” (2007: 65), and this is precisely the point for Deleuze. Time-images do not reflect the old interaction between perception, affection, and action, but rather a different kind of interface, one in which there is constant interaction between new and different configurations, at the level of both the actual present and the virtual past which co-exists with it. And through such means, cinema is capable of presenting a direct image of time passing. In this regard, while cinema that is primarily orientated around the movement-image – and thus informed by the organic regime – might be understood through the metaphor of “a window,” the crystalline regime, or the utilization of time-images in post-war cinema, is better understood through the metaphor of “a mirror.” In terms of this, the former “affords the viewer a vision of the world that...is still recognizable as a possible domain of existence...governed by relatively stable sensory-motor schemata and causal/logical linkages [that enable] effective action.” In contrast, in the latter, “the characters of a film are observed concomitantly losing and finding themselves...in such cinema, the viewer does not always encounter actual – or even possible – domains of existence,” and these encounters do not always follow “the imperatives of any sensory-motor schemata.” Rather – and representing a fundamental shift in orientation away from the agency underpinning movement-images – cinema that utilizes time-images tends to envision not “the transformation of the world through effective action, but rather the transformation of the characters’ (and...the viewer’s) subjectivity” (Konik 2011: 17).

Arguably, though, such transformation – like with movement-images – similarly takes place along a continuum between discrete Proustian reflections on the virtual-actual interface, on the one hand, and broad non-subjective reflections of Bergsonian duration, on the other hand. And Deleuze discusses four dynamics that operate within this crystalline regime, which bear some resemblance to the four signs he identified in Proust’s work,¹⁶⁴ and which each demonstrate a different type of interplay between the actual and the virtual. As a first point, though, it is helpful to return to Deleuze’s dictum – based on his Bergsonian understanding of time – that “the crystal-image may well have many distinct elements, but its irreducibility consists in the indivisible unity of an actual image and its virtual image” (1989: 78). This is

¹⁶⁴ As discussed, the four signs identified in Deleuze’s *Proust and Signs* are the Worldly Signs, the Deceptive Signs of Love, Sensuous Material Signs, and the Signs of Art.

because the following four dynamics adhere, albeit in different ways, to such ‘indivisible unity,’ even though they range from highly restrictive to openly generative of difference. To begin with, and in relation to the first crystal, Deleuze writes that,

our actual existence...duplicates itself along with a virtual existence, a mirror-image. Every moment of our life presents the two aspects, it is actual and virtual, perception on the one side and recollection on the other. Whoever becomes conscious of the continual duplicating of his present into perception and recollection will compare himself to an actor playing his [role] automatically, listening to himself and beholding himself playing. (1989: 79)

But Deleuze also provides cinematic examples of the loss of the actual in the virtual – or the subordination of the actual to the hegemony of the virtual – in the films of Max Ophüls. A poignant example of this is found in the first story of his *Le Plaisir* (1952), a cinematic representation of three short stories by Guy de Maupassant, where an old man is so obsessed with, and hence dominated by, recollection of his youthful enjoyment of dancing, that he cannot help but try to mimic them in what amounts to a grotesque parody of his former self; something which he undertakes even though the exertion of dancing will surely kill him. In this case, Ophüls’s film presents to us an actual man who is effectively imprisoned by the virtual, and this theme continues through the remainder of the film as Ophüls plays with different configurations of this dynamic, through presenting an array of characters who are trapped by their memories, and unable to actualize difference against the virtual backdrop which continues to dominate them (1989: 83-84). The second crystal, Deleuze maintains, is visible in the works of Jean Renoir. Here, the virtual hegemony thematized in Ophüls’s films is destabilized to some extent, because “in Renoir, the crystal is never pure and perfect, it has a failing, a point of flight, a ‘flaw.’” In short, “it is always cracked” and “what depth of field reveals” is that “something is going to slip away in the background, in depth...through the crack” (1989: 85). In *Grand Illusion* (1937) for example, although the main characters – two captured French officers – are subjected to the near-hegemonic virtual components of German nationalism, they are not entirely enveloped by this virtual field, but rather, through personal orientations and pre-dispositions, as well as surprising encounters, are finally able to escape it (1989: 87). In the works of Luchino Visconti, however, Deleuze identifies the third crystal, in terms of which the erosion of the virtual tends to be gradual, occurring most often through decay, which Deleuze describes as “the crystal in the process of decomposition” (1989: 94). As an example of this, he looks at *Ludwig* (1972), in which the king distances

himself from the world through his obsessive devotion to aestheticism. However, while squandering his wealth, he fails to notice the changing political climate around him, and his impending overthrow is represented by the rotting of his teeth. In this instance, the virtual crystal established by the main character – a kingdom of art above the actual political and military forces of his day – is steadily eroded, until the latter breaks free from the hegemony of the former, when Ludwig is eventually dethroned. Finally, it is in the work of Federico Fellini that Deleuze identifies the fourth crystal, which entails a wonderfully creative virtual-actual exchange. That is, Deleuze argues that, rather than representing virtual domination of the actual, or either representing an eventual crack in the virtual mirror in question, or the decay of its hegemony to the point where the actual becomes free, Fellini manages to capture the constant birth of new time through a virtual-actual flow. Indeed, he argues that in Fellini's films, "the crystal [is] caught in its formation and growth, related to the 'seeds' which make it up...[and] which incorporate...the environment and force it to crystallize" into new configurations (1989: 88-89). In *Roma* (1972), for example, a creative and dynamic representation of the virtual-actual interface occurs when a group of schoolboys and their teacher cross the Rubicon River. As they do so, not only do they re-member, as it were, the historical event of Julius Caesar's crossing of the very same river, but in addition this memory is also conflated with many other memories of the city of Rome. In this way, their actual environment undergoes a transformation, but at the same time Rome emerges as multi-faceted, complex and impossible to capture in any totalizing manner. Here, the power of memory to transform the present – and the affirmative nature of such transformation through a creative virtual-actual exchange – is powerfully communicated.

However, time-images are by no means limited to such Proustian production of 'Signs of Art,' but can also range between the related signs of composition and the other pole of the continuum, namely non-subjective signs of genesis through which Bergsonian reflection of duration is achieved. And images which constitute such genetic signs occur, for example, in the films of the Daniele Straub and Jean-Marie Huillet. In this regard, Bogue provides an excellent description of the power of their film-making techniques when he advances that, "frequently, Straub/Huillet offer long, slow pans of fields, pastures, deserts, and landscapes that have been the sites of massacres, battles, sacrifices, and executions." And these "buried histories of bloodshed are obliquely alluded to by voices and by shots of written texts or monuments." Importantly, however, "the landscapes remain insistently resistant to their histories," and appear like "geological faults displaying enigmatic layers in need of

explication” (2003: 189). Furthermore, key objects or crucial actions are often not shown, and thus the audience is compelled to imagine them in a creative engagement with the text (2003: 190-194). Moreover, through employing such technique, not only does the duo’s very Bergsonian reflection on the nature of the interface between virtual and actual emerge with clarity. In addition, as Barton Byg notes in *Landscapes of Resistance: The Films of Daniele Huillet and Jean-Marie Straub*, even in their most nihilistic films, the duo both “refuse to accept limitations” and display a “profound optimism” (1995: 29), because of their recognition of an irrepressible *élan vital* within the virtual-actual exchanges they thematize.

In sum, then, Deleuze, in an echo of his work with Guattari on the writings of Kafka, maintains that “art, and especially cinematographic art, must take part in this task: not that of addressing a people...but of contributing to the invention of a people.” And he argues that it can do so because it is “no longer constituted on the basis of a possibility of evolution and revolution, like the classical cinema, but on impossibilities” (1989: 209-211). Impossibilities that are facilitated by a dynamic understanding of how everything is constituted by time; of how we – and indeed the world around us from which we are indissociable – are expressions of duration, of an actual present which never ceases to pass, and a virtual past which co-exists with the present, but which can only ever be remembered differently.

Analog duration versus digital information

While Deleuze readily extended his philosophy of difference to the technological phylum of analog cinema, the increasing domination of digital technologies from the early 1990s onward brought about a host of theoretical problems concerning the generation of difference through cinema that is shot, produced, and distributed via digital means. As already discussed, in his “Postscript on Control Societies,” Deleuze advanced that the digital Information Age heralded a distressing turn toward ever more invasive and pervasive forces of control, which he understood as severely problematizing the generation of difference. And following on from Deleuze’s pronouncements in this regard, arguments have been made that creative digital works, be they musical compositions, photographic images, or indeed cinematic works, have – on account of their reliance on binary code – lost an important component which previously linked them to the past, and with this have been transformed from durational into informational artefacts.

That is, in *Gilles Deleuze’s Time Machine*, Rodowick acknowledges Deleuze’s fascination with analog cinema, and its radical potential through movement-images and time-

images to reflect and precipitate durational intuition. But this potential, according to Rodowick, has also become problematized with the emergence, and ultimately the rise to dominance of, digital technology, as the primary means of film production, storage and distribution. Rodowick begins his argument by indicating why the cinema of Deleuze's time (post-war cinema) proved such a draw card to the philosopher. As already indicated, he writes that "Deleuze depicts image practices as social and technological automata where each era thinks itself by producing its particular image of thought." And this, in turn, allows philosophy the opportunity to "map this image in mental cartographies" that are not bound to restrictive, dogmatic, and representational conceptions of experience. Indeed, "in its largest sense, then, the image describes historically specific cinematic practices as 'spiritual automata' or 'thought machines,'" and in many respects, Deleuze considers cinema to be a form of "artificial intelligence" that functions as "a machine for the fabrication of concepts." But he was particularly interested in it "because it provides a complex moving picture of duration" (1997: 6-7).

However, Rodowick also poses the question – which resonates with Deleuze's reservations regarding the digital – of whether or not the capacity of film to provide such an experience is severely compromised in the digital era, specifically on account of the switch to digital modes of production.¹⁶⁵ That is, in his later work, *The Virtual Life of Film*, Rodowick centres much of his exploration of the above issue on a question asked by Babette Mangolte in her essay "Afterward: A Matter of Time." The question posed is as follows: "Why is it difficult for the digital image to communicate duration?" And in relation to it, Mangolte expresses her concern over the digital image's inability "to establish and construct an experiential sense of time passing," and her correlative wonder over how "the projected film image [did so] effortlessly in the past and still can." Rodowick similarly admits that while he continues to "feel engaged by many contemporary movies," he also feels "a deep sense,

¹⁶⁵ Relatedly, in "The World, Time," Rodowick points out that "the turn to film as an important site of ethical interrogation is...curious." And he notes that "if there is something that can be called 'film philosophy' today...undoubtedly, this is due to the influence of Stanley Cavell as the contemporary philosopher most centrally concerned with the problem of ethics in film and philosophy," specifically through "his characterization of an Emersonian moral perfectionism." In reading Cavell, Rodowick picks up on a strange resonance with Deleuze, insofar as "in Cavell's Emersonian ethics, there are also curious and powerful echoes with Gilles Deleuze's Nietzschean and Bergsonian perspectives on cinema, wherein concepts of movement and time are related as the expression of belief in the world and its powers of transformation." And in this regard, in relation to the 'non-cross-over' between Cavell and Deleuze, he writes: "But I am haunted by the idea of a dialogue, as if in a real conversation, but between partners who seem only dimly aware of one another;" something which is all the more evocative because, while "Deleuze's cinema books, published in 1983 and 1985, respond to Cavell's *The World Viewed* (1971) and *Pursuits of Happiness* (1981)," Cavell's *Contesting Tears* (1996) and *Cities of Words* (2004) echo some of the most provocative thinking in *The Movement-Image* and *The Time-Image*" (Rodowick 2009: 98-99).

which is very hard to describe or qualify, of time lost.” Accordingly, Mangolte’s question thus constitutes for him both a sympathetic intuition of this sense, and a key through which to explore the ontology of the digital image – one which, for Rodowick, is fundamentally different to that of the analog cinema. By way of example, Rodowick compares two film projects – one analog and the other digital – to illustrate his point. That is, on the one hand, he recalls a 1971 film by Jean Eustache called *Numero zero*, and explains its importance:

Before his first feature was released to theatres, Jean Eustache shot a long film that he called, significantly, *Numéro zéro*. Shown only once in abridged form on French television, the film disappeared for more than thirty years before being rediscovered and returned to its original form for a 2003 release in France. For me it is uncannily important that this work should reappear so long after it was shot, as if to remind us what cinema was and wherein film’s powers lay in the pre-digital era. (2007:80)

He further elaborates that this film was one hundred and ten minutes long, and examined a particular filmic automatism; that is, “the utopia of filming continuous duration.” In short, the film is set in the apartment of Eustache’s grandmother, Odette Robert, and features her recounting her life “across six generations of French history” to Eustache. The entire film is recorded in “one take filmed from two static camera positions,” one which frames Eustache, and the other which frames Robert. Furthermore, Eustache “marks the slate in what seems to be the middle of the shot. In this manner we come to realize that the run times of the two cameras are staggered so that the magazine of one can be changed while the other continues to film,” with the film eventually ending when the raw stock is used up. In this attempt at capturing time without loss, Eustache thus creates a film about both “passing time and the powers of time’s passing.” Indeed, as Robert recounts her memories (importantly, a unique account of one person’s duration within six decades worth of time), we witness the light streaming in from the window changing, we see the cigarettes pile up in the ashtray, slowly burning out, bottles and glasses gradually empty, and so forth (2007: 80-82). And what this deeply personal film accordingly allows is a deep reflection on our own duration, as something that never ceases to pass, and that with each passing instance distances us from the moment of Eustache and Robert’s conversation (about passing time). Moreover, the durational image – burned into the light sensitive material of the film – remains for us a haunting material memory not least because of the fragility of the medium that, like Eustache and Robert, will inexorably be overcome by time. With regard to this, Rodowick poignantly notes:

This conceit or folly of wanting to film uninterrupted duration is a way of showing that (real) time is neither homogeneous nor continuous. Certainly, the film documents a presence and a memory conveyed through voice; but it also documents passing time as embedded in a space – the precious conservation of time and memory in small and fragile fragments of space that time will always overwhelm, for both Odette and Eustache are dead. (2007: 82)

On the other hand, referencing Alexander Sokurov's 2002 film *Russian Ark*, a weighty reflection on Russian history, Rodowick points to a featurette included in the DVD, entitled *Film in One Breath*, in which the film's producer, Jens Meurer, offers a revealing statement that gets to the heart of cinema production within the digital era. Meurer indicates that *Russian Ark* is a "work that includes more than 30, 000 'digital events,'" and it is this term that allows Rodowick to begin to articulate his intuitive feeling regarding digital cinema's inability to capture time. He begins by contrasting the digital event with analog modes of production, advancing that "digital capture, synthesis, and compositing are the three principle operations of digital cinema," and that of these three, the first – capture – has been considered as being very similar to analog camera capture. Yet he argues that it is because the digital image is split into "a discrete mosaic of picture elements," each of which take on "distinct mathematical values," that it is separated from the films of the analog era. In effect, captured images converted to digital format become fragmented "mathematically discrete and modular elements," open to "any number of programmable transformations," and such openness to post-shot manipulation is not without implication. Indeed, in its control of information, the digital breaks "the continuity of automatic analogical causation," and in doing so, entails a different ontology. In this regard, it is no longer concerned with "overcome[ing] our temporal alienation from the past," but is rather focused on "the present" and on the "control of information" in that present. Put differently, "cinema has become more like language than image, with discrete and definable minimal units (pixels) open to transformations of value and syntactic recombination" (2007: 163-166). Rodowick also takes this issue of the reduction of captured duration into informational units further, through his reference to Lev Manovich's provocative formula on digital film. Manovich writes that:

Since a computer breaks down every frame into pixels, a complete film can be defined as a function that, given the horizontal, vertical, and time location of each pixel, returns its colour. This is exactly how a computer represents a film...For a

computer, a film is an abstract arrangement of colours changing in time, rather than something structured by ‘shots,’ ‘narrative,’ ‘actors,’ and so on. (in Rodowick 2007: 166)

As a consequence, “the experience of duration has lost its precariousness [and]...causal links to physical reality have become weakened.” Correlatively, “new relations with space and with time are developing that involve expectations of interactivity and control.” And it is accordingly “important to understand that digital information expresses another will to power in relation to the world.” A will that “is neither better nor inferior” to analog technology, “but...different both in its values and its modalities of expression” (2007: 174-175, 179).

Digitality and difference

Moving beyond the effect of the digital era on cinema, Rodowick extends such critique to other forms of contemporary visual culture that make use of digital images. Specifically, he turns his attention to computer gaming, and in relation to this ever-more popular medium – particularly in terms of its representation of movement and time – he writes that “nothing moves, nothing endures in a digitally composed world. The impression of movement is really just an impression” involving “the numerical rotation and transformation of geometrical elements.” As such, “the sense of time as *la duree* gives way to simple duration or to the ‘real time’ of a continuous present” (2007: 167-169). However, here Rodowick nevertheless leaves space for various possibilities and experimentations, and in no way suggests that the digital era has nothing to offer in terms of the promotion of difference. The distinction made is between first-person gaming and the game *Myst* (1993), a graphic adventure puzzle game played through a first-person perspective. In this regard, Rodowick writes that although “the real-time interactivity of first-person games is...linear and teleological,” games such as *Myst* offer “the possibility of a different kind of immersion in digital time, one characterized more by memory and thoughtfulness as well as by movements whose objectives are more oblique and less delineated.” Indeed, Rodowick even suggests that the virtual worlds housed in games such as these represent different “dimensions, frontiers, and parallel worlds,” and in doing so build up narratives that are “both spatially elaborate and temporally complex.” Yet he cautions that, even though the outputs of contemporary visual culture have potential, it is a *different* potential to that found in analog production in that it relies on “a manipulation of layers of the modularized image subject to a variety of algorithmic transformations,” as opposed to being “an expression of time and duration” (2007: 170-173). In other words, the

ontology of the digital image entails a will “to control information and to shape ourselves through the medium of information.” That is, “forged in the logic of information, the [related] ethics of perceptual realism is based on a vision of a world that is entirely mathematical in nature,” or at least “a nature that is mathematical before it is or could be imagined as physical.” Accordingly, “if we feel duration less in the numerical image, this may be because through [digital] symbolic expressions we want to control time – not to preserve an image against the flow of time” (2007: 175). The will described above – and annotated as a “database complex” by Manovich – has elicited different reactions. While for Manovich, the will to information is a process that is one of “peace and comfort,” for Rodowick, the process expresses “a profound intensification of time” that, because of its “deep immersion in the present,” impinges on our capacity to produce difference through durational reflection.

Yet despite such anxiety, Rodowick also finds potentially redeeming qualities in the ontology of the digital image. For instance, he writes that the “will to share, copy, and transmit [information] relies less on a notion of the individual...than in the always virtual presence in time of a collective monad or a collectively of monads,” which he defines as “highly volatile and ever-evolving communities linked by common interests.” Ultimately, though, he leaves the discussion open by suggesting that, although “digital expressions are finding it difficult...to become something other than information,” for “future minds,” they may well “become philosophical.” And in relation to this, he points to “the more powerful expression of digital automatism in other creative acts: in videogames and the varieties of online interactions,” as contemporary visual experiences in which “something new [could be] felt in relation to digital screens” (2007: 175-180). With regard to such sentiment, Brian Massumi, in his exploration of digital space in relation to duration, in *Movement, Affect, Sensation: Parables for the Virtual*, provides a significant theoretical expansion on Rodowick’s understanding of the digital. In this regard, it is Massumi’s assertion that “digital technologies have a connection to the potential and the virtual *only through the analog*” (2002: 138). This is because, for Massumi, digital code in itself has no significance, unless it is transformed into thought through analog process, and to demonstrate his point he uses the example of word processing.

All of the possible combinations of letters and words are enveloped in the zeros and ones of ASCII code. You could say that entire language systems are enveloped in it. But what is processed inside the computer is code, not words. The words appear on screen, in being read. Reading is the qualitative transformation of alphabetical

figures into figures of speech and thought. This is an analog process. Outside its appearance, the digital is electronic nothingness, pure systemic possibility. Its appearance from electronic limbo is one with its analog transformation. (Massumi 2002: 138).

This example serves as a key insight into how Massumi views the interplay between the virtual and the actual through digital interface. For Massumi, “the virtual is best approached *topologically*,” because in using topology – which he understands as “a purely qualitative science” that represents “the science of self-varying deformation” – one views a topological figure as one which is defined as “the continuous self-transformation of one geometrical figure into another.” By way of example, he turns to a pliable coffee cup; while one can twist this figure into any number of configurations, essentially, the figure itself remains the same, albeit one that has been mutated into differing versions of itself. Applied to the computer code that constitutes production through digital technology, a topological reading reveals that the capacity for the production of difference is not lost. Rather, while the digital code remains, relations to it shift continuously, and are crucially analog.

Massumi complicates the matter further when he states that digital interfaces do not operate strictly via a virtual-actual interplay. Instead, he argues that “the actual occurs at the point of intersection of the possible, the potential, and the virtual [which constitute] three modes of thought.” Furthermore, “the actual is the effect of their momentous meeting, mixing, and re-separation,” and it is the “meeting and mixing that is sensation.” Accordingly, for him, “sensation [is] always on arrival a transformative feeling of the outside, a feeling of thought” which is “the being of the analog.” In effect, sensation felt in relation to any external stimulus, regardless of the medium from which this stimulus is derived, is always analog in nature.

Discussing the three modes of thought introduced above, Massumi explains that, firstly, “possibility, for its part, can be approached quantitatively,” and he sees probability as one of the forms “the possible’s quantitative expression may take.” Defining probabilities as “weightings of possibilities according to the regularity with which they might be expected to appear,” he argues that such an approach is necessarily limited, in that, “since probability approaches possibilities en masse, it [only] approximates potential.” In effect, it can only target any event at “the general level,” and thus “appl[ies] not to the event but only to an averaging of the mass of events.” Secondly, for its part, “potential doesn’t ‘apply’ to the event either.” This is because, as “a multiplicity of possibilities materially present to one

another, in resonance and interference,” he argues, “their coming-together is singularity, compulsively felt, so intensely that the sensation cannot be exhausted in one go.” And thirdly, potential functions in relation to the virtual, in that “the virtual centre is like a reserve of differentiation or qualitative transformation in every event” that never “appears as such [because] it is insensate [and] it cannot be felt.” Indeed, “it appears only in the potentials it drives and the possibilities that unfold from their driving.”

In terms of the digital, which relies on “a numerically based form of codification (zeros and ones),” it becomes evident that the digital – as “a numeric way of arraying alternative states so that they can be sequenced into a set of alternative routines” – cannot involve the virtual-potential interplay in its operation. In this regard, Massumi is unequivocal in his statement that “the medium of the digital is possibility, not virtuality, and not even potential. It doesn’t bother approximating potential, as does probability. Digital coding per se is possibilistic to the limit.” As such, for him, “nothing is more destructive for the thinking and imaging of the virtual than equating it with the digital,” because “digital technologies in fact have a remarkably weak connection to the virtual, by virtue of the enormous power of their systemization of the possible” (2002:135-138). However, Massumi does note that “all arts and technologies, as series of qualitative transformations” – or in Deleuzoguattarian terms “machinic phylums” – “envelop the virtual in one way or another.” As such, digital technologies “may yet develop a privileged connection to [the virtual] far stronger than that of any preceding phylum” (2002: 137).

Indeed then, rather than equating the digital with the virtual, we should see digital technologies as having a connection to the virtual (or the potential), and then only through analog means. And Massumi at this point adds to his earlier word processing example by explaining that digitality is primarily accessed through analog sensibilities. His first example in this regard is hypertext. This electronic document text, connected to other related sections of text or graphic material has, according to Massumi, been characterized by some critics as “not...liberating but downright totalitarian,” because “all possible links in the system are programmatically prearrayed in its architecture.” However, while such a definition is valid in its outlining of the parameters of what is possible for digital infrastructure, “what it fails to appreciate is that the coding is not the whole story: that the digital always circuits into the analog.” That is, while the digital infrastructure that is hypertext might be bound by the restrictions of its coding, the user is not forced to operate by the same principles. Indeed, “hypertext reader[s] do] something that the co-presence of alternative states in code cannot

ever do,” in that they “serially experience effects, accumulate them in an unprogrammed way, [and] in a way that intensifies, creating resonances and interference patterns.” Thus, again, it is the analog that dictates the experience of the digital, and not the other way around. And Massumi opens up such reflection further when he discusses “structurally open” hypertext environments, such as the World Wide Web.¹⁶⁶ While again he concedes that it is true that all material online is pre-programmed, “the notion of a dictatorship of the link” carries little weight. Indeed, “search engines allow un-prearrayed linking, and the sheer size of the Web means that it is always changing.” As such, this open architecture “lends itself to the accumulation of analog effects,” while in conjunction with this, “image and sound content alongside text provides more opportunities for resonance and interference, between thought, sensation, and perception” (2002: 138-140).

In closing, Massumi repeats his assertion that, with regard to digital technology as phylum, “whatever inventiveness comes about, it is a result not of the coding itself but of its detour into the analog;” put differently, “*the processing may be digital – but the analog is the process*” (2002: 141-142).

In turn, Ronald Bogue in *Deleuze on Cinema*, contributes a further point for consideration with regard to digital images and duration. He notes, in relation to a discussion of television, that this medium operates via the “electronic image,” with this image being created through “a rapid scanning of lines of pixels by a beam of electrons.” With regard to this, he references the video artist Nam June Paik, who observes that “the essential concept, in regard to television, is time,” and Bogue interprets this as “the time of an oscillating electron beam passing over an interwoven mesh of pixels.” The result of this is that “the television image as constant scanning of lines is fundamentally a type of time-image.” Additionally, as an electronic image, it also “lends itself to digitalization,” and with this, lends itself to an “essential mutability,” something which opens up an interesting avenue of consideration. In this regard, Bogue cites Edmond Couchot, who construes digital images as “transformable emissions of ‘immedia’ without clear origin or final destination.” Such thinking in relation to the digital is resonant with Massumi’s earlier suggestion that the analog experience of a digital image could constitute an open and creative exchange, while the mutability of the digital image also suggests further implications. In terms of this, Bogue writes that such flexibility and variability, in a technical sense, “undermines the screen

¹⁶⁶These are “structurally open” in contrast to “closed architectures like hypertext novels on CD-ROM or DVD or the commercial reference packages included in many computer purchases” (2002: 140).

dimensions of up and down, right and left, rendering the screen less a window on the world than the site of transferable data.” As such, “the video screen becomes a ‘table of information,’” representing in its form “an opaque surface on which ‘data’ are inscribed.” Thus, while such technological development alters dramatically the landscape of that which is possible to represent, Bogue presents an important caveat. He writes that “without a ‘powerful will to art’ no technological innovation leads to genuine artistic creativity.” That is, while new technologies, be they television or information technology, “in general provide external conditions of possibility for creativity in the cinema (and in other arts),” it is always a different, internal set of conditions which makes possible the production of new images of thought. In other words, new thought remains dependent on an aesthetic dynamic before any dependency on technological means through which the aesthetic is pursued (2003: 196). Garret Stewart in “Cinemonics versus Digitime,” makes an interesting related point when he asks why, “even when contextualized in a youth culture saturated by commercial electronics at every turn,...so many recent films, despite their obvious digital enhancement at the level of technique, [are] concerned in their plots with a non-electronic virtuality?” (2009: 328). Similarly, Bogue uses an example from cinema in order to illustrate this. Referencing the director Alain Resnais, he argues that this director’s “memory space is consonant with the brain world of free-flowing digital information-images, but computers and video screens do not induce his cinematic images.” In this regard, the constant memorial modulation of his *Last Year in Marienbad* (1961) do indeed resonate with the digital manipulation of past-events to the point where what actually happened is effaced, or recognized as unattainable. But such technologies simply provide the “general external context” within which Resnais conducts his various contortions (2003: 195-196). In short, this director makes use of the power of his art – cinema – in the construction of challenging, difference-promoting images of thought, while the technological means accessed in the production of such imagery remain decidedly secondary.¹⁶⁷

Conclusion

In *Cinema 1: The Movement Image* and in *Cinema 2: The Time Image*, Deleuze identifies analog cinema as a powerful medium through which people can experience indirect, and – following the Second World War – direct images of time. And the ability of such cinema to capture duration from multiple perspectives is for Deleuze a remarkable feat of this particular

¹⁶⁷ Although often remembered for his *Last Year in Marienbad* (1961), it should also be remembered that his last film *Aimer, Boire et Chanter* (2014) – or *Life of Riley* – was shot in digital (IMDB, 2016).

technological phylum, and one with important consequences in terms of the promotion of difference. Yet, with the emergence of the new digital technological framework that has displaced the analog as the primary means of producing visual material, Rodowick is certainly justified in his argument that the digital operates via a different ontology to the analog; one that can function exclusively in terms of a will to power over information in a way that negates duration, and with it, the generation of difference so important for Deleuze. However, as Massumi and Bogue (and Stewart) demonstrate, this does not necessarily preclude the experience of duration in relation to digitality. Indeed, while Massumi shows that the digital is literally nothingness without our analog-based appropriation of it, Bogue demonstrates that the mutability of this mode of capture and organization makes it an exciting medium through which difference can be generated, provided that those who employ it in their quest to produce difference privilege a 'powerful will to art' over a technophilia that could potentially reduce image production to mere manipulation of information.

Accordingly, as will be discussed in the next chapter, it is also possible to suggest that indeed a new type of durationality has emerged as a result of the dominance of digital technology – a durational digitality. While perhaps not precisely the same as the durationality contended with through the analog technology dealt with in *Cinema 1* and *Cinema 2*, it nevertheless has the potential to be effective – and affecting – in its ability to promote difference in relation to those who encounter its creations. Creations which, as will be explored, present new and fascinating possibilities for becoming-animal.

Chapter Six – Emerging connections to the environment: Hybrid digital durationalities

Introduction

As discussed in the previous chapter, for Rodowick, the ontology of digitality as a technology can be construed as different from the ontology which underpinned both the analog technology of the movement- and time-images valorized by Deleuze, and for that matter, the Nietzschean-Proustian-Bergsonian philosophical complex which informed Deleuze's approach to cinema. But, in light of the assertions of Massumi and Bogue – and to some extent Rodowick – it may nevertheless be possible to generate durational awareness through digital means because its different ontology does not preclude its use in this regard, on account of the analog dimensions of our experience, and the priority of aesthetic dynamics in the production of new thought. Accordingly, and under the auspices of Deleuze's counter-information – elaborated upon earlier in relation to Guattari's post-media – the digital can be utilized to positively affect people's relationship to nature, insofar as an encounter with nature represented in digital form can conceivably precipitate durational intuition and thus positively affect the user's sensibility toward their connection with the environment.

With a view to exploring this issue, in what follows the focus will fall on certain digital artefacts that have the potential to render their users aware of how they are linked with other non-human beings in duration. Thus, in the digital artefacts selected, the 'other' is some kind of representation of animal. In this regard, the first artefact identified is the popular 1990s device, the Tamagotchi, which constitutes an example of a digital animal extending its dominion over humans on the basis of its limited duration and the needs it experienced during this time. And this will be categorized as an example of first-order hybrid durationality. In turn, the second artefact identified is the 2012 point-and-click adventure game, *Botanicula*, which constitutes an example of a somewhat more open human-animal digital exchange, in which the digital framework acts as a conduit for an affirmative encounter with nature within which human duration – understood in terms of memory and creative exploration – interfaces with the duration of nature and the lives and time of animals therein. And this will be categorized as an example of second-order hybrid durationality. Finally, the third artefact identified is the mobile application, *Shark Net* in association with *Ocearch*, which constitutes examples of an open and dynamic human-animal digital durational interface, which through the use of an open variable – tagged and tracked sharks – within their digital framework,

move beyond the hybrid durationality of games like *Botanicula*, and instead offer a potentially profound durational human-animal encounter. Accordingly, they will be categorized as examples of third-order hybrid durationalities.

First-order hybrid durationality: The Tamagotchi

While there are a fair amount of artefacts to choose from in relation to digital representations of animals,¹⁶⁸ a good place to start – due to its immense popularity and world-wide cultural impact – would be the hand-held ‘pet’ known as the Tamagotchi, first released in 1996 in Japan. What is most interesting about this phenomenon is that, although the little portable device was relatively unsophisticated, both in terms of the range of commands programmed into it, and in terms of its ability to represent in any visually realistic way a ‘pet,’ it nevertheless gained global popularity, particularly among children.

David Bell in *An Introduction to Cybercultures*, provides an explanation of how this device originated and functioned. That is, he recalls that the device was produced by a Japanese company called Bandai, and that according to popular lore concerning its origins, it came about when a Japanese mother who did not have space in her home for a live pet, conceived of a virtual pet to satisfy her children’s desire for animal companionship. In terms of how it worked precisely, Bell describes the device as something akin to a “digital watch” in appearance, insofar as it came “in the form of a small plastic casing with a LCD display in the centre and tiny push buttons on the sides.” Once the device was activated for the first time, a “cartoon egg on the screen hatch[ed] out” and, in this way, “the Tamagotchi [was] born as a simple digital image, vaguely animal-shaped.” Once digitally *born*, though, the onus was on the owner of the Tamagotchi to enter commands – for feeding, cleaning, disciplining, etc. their pet – via the inputs. And if the owner neglected to do this, the pet quickly died, and the aim of the game was thus to constantly monitor it so as to preserve it, healthy and happy (with indicators for these on-screen), for as long as possible. In this regard, the owner observed, much like one would with a living pet, “a series of transformations in its limited life course” (2001: 49). And in the earliest versions of the device, as Kathleen Richardson points out in *An Anthropology of Robots and AI: Annihilation, Anxiety and Machines*, once the virtual creature died, the device itself “terminated completely.” This complete shutdown was however reversed in later versions, both because of traumatised

¹⁶⁸ Other examples are games such as *Freddi Fish*, *Living Legends*, *Tiger Trial*, and *Elephant Odyssey*, along with the game-boy phenomenon of the 1990s and early 2000s, *Pokémon*.

children,¹⁶⁹ and because of the fury of adults who were accordingly obliged to buy new devices with varying levels of frequency – depending on the success of their children’s care of their virtual pets. As such, in later versions, one could reset the device and re-use it once the pet expired. Describing the Tamagotchi as a “fascinating instance...of the production and consumption of computer technology in a play context,” Bell also borrows from Sherry Turkle when he rightly terms such manifestations of digital technology as “computational objects” (2001: 49).

Beyond such general descriptions, both Richardson and Bell provide astute observations on the interactions enabled by the device, and because this was truly a world-wide cultural digital phenomenon,¹⁷⁰ one can read these as observations of a seminal moment in human-digital interaction. For her part, Richardson notes that it was not the user who issued commands to the Tamagotchi, but rather that users followed commands from the Tamagotchi (2015: 70). Indeed, “in this context, the Tamagotchi revealed the extent to which its users were obligated to a machine to keep it virtually living” (2015: 70). And in relation to this, it is worth noting, as Bell does, that it was children who were most affected by the device – with a number of consequences worth considering. Firstly, he argues that while “adults, predictably, were perplexed by the Tamagotchi, [and] unable to understand their appeal,” it was children who took it on with enthusiasm, and this is because “children have often led the way when it comes to using ‘computational objects’ to think with, settling into ways of relating to them that differ radically from the ways the grown-ups experience them.” Secondly, in this particular human-digital exchange, the major difference between the young and the old was that for the former, Tamagotchis were devices to be “enjoy[ed]” as “boundary objects blurring the distinctions of what counts as ‘alive’” (2001: 50). In this regard, Anne Allison in *Millennial Monsters: Japanese Toys and the Global Imagination*,

¹⁶⁹ Richardson notes some examples of “young owners taking the ‘dead’ objects to Tamagotchi burial grounds” (2015:70), as an indicator of how attached some users became to these devices. And Anne Allison, in her work on imagination and electronic toys, provides some further insight into such attachment. She writes: “There have been a host of virtual memorials...printed mainly over the Web but even in obituaries published in regular newspapers. There are reports, as well, of Tamagotchi mourning counsellors.” She furthermore notes that the treatment or mistreatment of the device has prompted similarly passionate responses, explaining that “some users purposefully try to kill off their Tamagotchi, a practice that has sprouted chat rooms, Web sites, and user groups devoted (both for and against) to the issue of sadism against Tamagotchi” (2006: 176). This level of seriousness can further be attested to by noting that, at the height of the craze, a number of books on how precisely to care for your virtual pet found enough commercial interest for publication; see Doris Betz’s *Tamagotchi: The Official Care Guide and Record Book* (1997) and Tracey West’s *Electronic Pet Care* (also 1997), among others.

¹⁷⁰ The most commonly cited number of units sold is 40 million (Bell 2001: 50; Vogt 2014). However, estimates vary, and it is noted that by 2010, 80 million units had been purchased – with revisions of the device still being produced and sold, although not with similar momentum to the original devices (Thornhill, 2013).

argues that “the way in which the Tamagotchi plays with the boundaries of the imaginary is symptomatic of the social reality we inhabit.” And, she describes such social reality as one in which “virtuality is becoming increasingly integrated into [the] everyday life and movement, of both people and things,” via a process of integration that is “rapid and intense” (2006:177). In certain respects, this line of argument echoes Deleuze and Guattari’s idea from their work on Kafka of *a people yet to come*. That is, facilitated by digital exchange, and in response to the impasses of the contemporary era – ranging from limited space in the case of the Japanese mother who invented the Tamagotchi, and limited time in neoliberal societies which precludes the possibility of having a little pet, along with the impossibility of freeing oneself from the desire for animal companionship – we see the emergence of those who intuitively relate differently to the digital artefacts produced by the information age. However, as Deleuze also notes, not all lines of flight end well (1987: 229), and in this particular example – returning to Richardson’s concerning observation – it would seem that the related digital-human exchange is far from positive, in the sense of generating creative difference. Rather, through the Tamagotchi a generation of children became desensitized to compulsively following the prompts of a computer programme, encased within the appearance of a genteel, domestic animal. Accordingly, the device entailed the explication of a Fascist/Cancerous Body without Organs, especially insofar as – much like the time-images found in Max Ophüls films – it held up a virtual mirror in which many children actually became lost, on account of the virtual hegemony it wielded in conjunction with the related marketing campaigns. In this regard, it is important to note that the generation that encountered and grew up with the Tamagotchi were also quick to adapt to the various information technology-based phenomena of the twenty-first century – the social media networks, the smart phones, etc. That is, the little device may well have functioned as a gateway to ever closer relations with the digital, to the point where its presence – and subordination to its dictates – has become normalized.

This is reflected in many of the popular reactions to the Tamagotchi, as expressed in the mass media, which often concerned its effect on children. While, as indicated above, youngsters took to the device with fervour, and while this certainly reflected a *new* orientation toward the digital, the worries of older generations – disconcerted by the ubiquity and potentially negative effects of the device – remains important because thematization of them exposes the epistemic and axiological rupture between them and their children. In particular, in articles on the subject, it is *time* that emerges as the most focused upon talking

point. Melissa Batchelor Warnke, in a 2015 VICE news article entitled “Why we are addicted to our Tamagotchis,” provides a comprehensive overview in this regard – and divides her discussion into exploring two inter-related aspects of the device’s appeal, namely connection and time. In terms of the first aspect, she quotes new media academic Adrian David Cheok, who makes the observation that the connection provided by the device is partial realization of an often held fantasy for children throughout history. He tells Warnke that the Tamagotchi “was the right toy at the right time,” and explains this by arguing: “I’m sure even in ancient Greece, the children wished their dolls were alive. It’s a human dream.” However, in his estimation, “until the technology caught up that couldn’t happen;” accordingly, the release of the Tamagotchi “was the intersection of what children have desired for millennia, and what technology could provide” (Warnke, 2015). But while the appeal of the device on this level is perhaps unsurprising, on account of such interest and enjoyment being a normal stage in one’s development, the second aspect of how time is experienced in relation to the device begs a range of questions. After all, stuffed animals, dolls, and other such conduits for the expression of imagination and play cannot, unlike the Tamagotchi, make demands on a child’s time. And Warnke provides a number of thoughts in this regard. Firstly, she remarks that due to its mobility – “they were on a keychain” after all – the device remained ever-present, unlike the toys of old which tended to be located in one place, and accordingly only accessed at certain times. Secondly, while they may have been tethered to, and thus in near-continuous proximity to, their owners, “the Tamagotchi never promised forever.” Rather, “one of the Tamagotchis distinguishing features is its unwillingness to shield users from life’s most difficult reality,” namely death (Warnke, 2015). Paradoxically then, in its ability to die, combined with its neediness (or prompting of users to satisfy its various requirements), the Tamagotchi came to life. As such, this particular digital device produced a strange constellation of dynamics around it, dynamics that operated in relation to both the age-old need for companionship, and a very new ability to demand time set aside for it through code that was timed to require certain inputs at certain times, paired with coded random events that impacted on one’s virtual creature. For her part, Warnke closes by asking what made the advent of the Tamagotchi such a “memorable moment in time,” and decides that part of the answer would be the possibility of “fervent caring, combined with the illusion of control,” that together made “a strong imprint on the young mind.” She adds to this by evocatively closing with a quote from Saint-Exupery’s famous children’s book *The Little Prince*, where it is written that “you become responsible, forever, for what you have tamed” (Warnke, 2015).

Yet, for the most part, the power relationship between the user and their virtual pet was not ‘user-to-device’ but rather ‘device-to-user,’ and this furthermore had the greatest impact on the time of those users. Accordingly, it was this relationship of command, and its correlative effect on children’s time, that saw anxious reflection on the part of parents and writers in various media entries on the subject during the late 1990s. And two articles published in 1997 on the matter exemplify these concerns, namely Ryan Weinstein’s “We Gotta Have a Tamagotchi, Children Squeal,” published in the *Sun Sentinel*, and Julie Deardorff’s “Parent’s Finding New Pet Peeve Is Virtual Insanity,” published in the *Chicago Tribune*. In his article, Weinstein interviews a number of children obsessed with their new digital pets, among them, nine year old Jessica Levine, who reveals to him that “beeping Tamagotchis became so popular in her class...that her teacher threatened to confiscate them.” While schools struggled to compete with the virtual demands placed upon the young users of the Tamagotchi, parents equally felt the brunt of the demands of the virtual creature at home. Weinstein interviews Jessica’s mother, Linda Levine, who tells him that her daughter’s Tamagotchi kept beeping in the middle of the night and, as such, she saw the devices as “worse than new-borns” (Weinstein, 1997). This concern was also reiterated by the parents Deardorff interviewed. And while Weinstein discusses the complaints of educators and parents separately, Deardorff uncovers a more nuanced dynamic at play. She writes that because “many elementary and middle schools in the U.S, Japan, Thailand, and Hong Kong...banned the needy, distracting electronic toys from classrooms,” perversely, “the burden of virtual pet care...landed in the laps of unsuspecting parents.” In this regard, she chronicles some of the ways in which such parents either coped or failed to measure up to the dictates of their children’s relationship with the demanding virtual prompters. The articles thematize two contrasting accounts of the imposition. In the first exploration, stay-at-home mother Madeleine Sayer Umans, after “realiz[ing] she has forgotten to feed her daughter’s beloved pet” and has thus mistakenly killed it, either “brac[es] herself for the wrath of her 5-year-old,” or has “to reset it quickly because if she comes home and sees it’s dead, she’s very upset. Not so much because it died, but because I didn’t take care of it.” Such apparent absurdity finds even worse expression when Deardorff notes how “working parents can be seen toting the toys to the office and secretly keeping them alive between phone calls and sales meetings.” Meanwhile, in Deardorff’s second exploration, “fed-up mothers, like Ramonita Lovada-Valencia...are revolting against the responsibility and are deliberately killing the electronic creatures.” Lovada-Valencia, who “tried to drown her daughter’s toy,” bitterly describes it as “worse than a pager.” Yet in both parents responses, whether

accommodating or rebellious, what is clear is that, driven by a group of users who clearly did not distinguish between the time of a machine and the real time required to maintain it, a highly restrictive, and burdensome exchange between digital device and human had been ushered in. Of course, as is most often the case, rather than pausing for reflection on this troublesome new dynamic, the capitalist societies in which the Tamagotchis operated found a way to both accommodate – and make money from – the problems associated with the entry of this digital device into the parent-child relationship. In this regard, Deardorff recalls the proliferation of baby-sitting services for the devices, offering the example of the “Cape Cod Potato Chip Co. in Hyannis, Massachusetts...which opened a...day-care centre for virtual pets,” and which – at the time of writing – had 10 enrolled. Beyond this, she notes that “Internet sites have [also] sprung up to help.” Here, “experienced virtual pet parents offer advice and pointers about the best way to keep the critters alive,” which further contributed to the discursive momentum that accommodated and ultimately normalized this system of relations. And Deardorff ends by offering a solution beyond such disturbing normalizations – “the pause button.” That is, she quotes a mother who discovered the trick online, and who tells her: “You just pause it and then reset it to whatever time you like...it’s a lifesaver” (Deardorff, 1997). But what happens when the pause button becomes ever more difficult to locate? Or, indeed, when the pause button is no longer included as an option?

Certainly, then, in the cultural phenomena that was the Tamagotchi, one can easily find some of the worst excesses of digital technology; excesses that tend to validate Deleuze’s pessimism concerning its societal effects. After all, in his “Postscript on Control Societies,” as discussed earlier, Deleuze advances concern over precisely such a state of affairs – human beings reduced ever more from individuals to dividuals, through being trapped by a network of continuous prompts, where there is increasingly less time in-between for the pursuit of something critically self-reflexive, agency-promoting, and affirmative. In this regard, the timing of the device’s entry into the world should also be noted, because this seemingly innocuous digital mechanism effectively stepped in to fill a vacuum created, ironically, by the very same technology. As demonstrated earlier through reference to the work of Castells, the proliferation of digital technology in the 1990s was a highly disorienting experience for many, insofar as it created an “age rife with dislocatedness, flux and alienation” (Allison 2006: 183). And it was the digital Tamagotchi that stepped in to restore *calm* to the frenzy brought about by the augmenting capacity of digital/information technology. As new media theorists Bloch and Lemish write in “Disposable love: the rise and

fall of a virtual pet,” in many respects, the “Tamagotchi is a metaphor of our times, representing the blurring of boundaries between real reciprocal relationships and surrogate, one-way imaginary ones.” This is because of the way in which “it highlights the dominant role of technology in our lives; no longer simply a tool for use in science and industry, but now a substitute for human relationships” (1999: 295). And if one considers the digital-human hybrid durationality discussed above – so neatly encapsulated by Bloch and Lemish – through a Deleuzoguattarian lens on the issue of becoming-animal, then the relationship emerges as deeply troubling insofar as it affirms Deleuze’s position on digital technology posing a threat to the generation of difference.

As discussed in Chapter Five via the debate between the Deleuzian scholars Rodowick, Massumi, and Bogue – digital technology has the capacity to affect people on a durational level, and thus has the capacity to promote related difference. Yet in the case of the Tamagotchi, while the device certainly did impact on many of its users’ time, this was often a profoundly negative experience. Whether the user of the device was a child, or an adult tasked with caring for it on behalf of an expectant child, the relationship forged between human and digital machine was one of anxiety-laden imposition. Prompted constantly by the code responsible for the progression of the central character housed by the device, users would forsake their own time for that of a virtual entity. Accordingly, instead of facilitating creative, affirmative moments that recapture time and correlatively augment the differential parameters of the present, the relationship described above falls under the limited and limiting signs which Deleuze identified in his work on Proust. That is, the Tamagotchi and its impact on the time of those caring for it involves both the Worldly Signs and the deceptive Signs of Love. With regard to the former, it should be remembered that the Tamagotchi was very rudimentary in terms of the code it employed. Indeed, the virtual pet had only two progress bars, one for health and one for happiness, and tied to these two bars, the programme permitted only a handful of inputs across a few categories – feeding, cleanliness, play, and so forth. Thus, in relation to this, the user had very little room for creativity. In fact, it could be argued that the only differential was life-span – how long one could keep one’s creature alive. But in this endeavour, no experimentation or differentiation was possible, as the user could only ever simply and repetitively hammer in the various inputs required to sate the needs of the device. As such, the exercise epitomises the Worldly Sign, where one simply responds to stimulus without ever pausing for reflection on it. Yet, in addition, the relationship can also be seen through the prism of deceptive Signs of Love. While the adults

tasked with caring for the digital pets might have been unable to forge a relationship with the device, as thematized in the above articles, children habitually failed to erect any such boundary. To be sure, this relation has been partly elaborated on above, in Bell's discussion on children's easy acceptance of computational objects, and through Cheok's idea that the Tamagotchi fulfilled a desire that has always been expressed by the young – namely that their toys could come to life. But one also cannot help but see parallels between children's relationships with their Tamagotchis, and the relationship between Swann and Odette in Proust's work; a relationship characterized by obsession and a reduction of horizons of possibility to the parochial. That is, exploiting a pervasive social need for companionship, or pursuing the fulfilment of a childish desire, or offering calm in a world operating at hyper-speed (enabled by information technology), the makers of the Tamagotchi created in the young users of the device an obsessive desire to keep track of the time of their pets. Accordingly, much like Swann, who painstakingly traced and analysed – and whenever possible responded to – the utterances, behaviours, and movements of Odette, so too, young users of the Tamagotchi keenly observed each and every clue they could glean about the status of their pet's health and happiness. But just as Swann's world used to be immense before his obsession with his beloved Odette, so too, through the Tamagotchi, the potentially infinite world of children's imagination was hijacked into a repetitive and obsessive series of inputs, by a device that preyed on their best qualities – their innocent empathy. Similarly, and in relation to Deleuze's appropriation of Bergson's work, while the interplay between the actual and the virtual has the capacity to open up a kaleidoscope of memory, which can precipitate affirmative engagement with both the past and present, a device such as the Tamagotchi, with its limited range of abilities, in contrast only ever functions at the level of habitual memory, and moreover infuses children's duration with these limited and limiting dynamics. It is in this sense, then, that in addition to explicating a Fascist/Cancerous Body without Organs, the Tamagotchi also entails explication of a Suicidal/Catatonic Body without Organs, insofar as it creates a smooth space of habitual repetitions where nothing new can grow; ironically, at the very moment in a child's life when their capacity for imagination and the generation of difference are otherwise at their most unrestrained.

Yet, while the relations engendered in terms of time by the Tamagotchi certainly seem to validate Deleuze's doom-laden claims against the digital in his "Postscript on Control Societies," it must also be remembered that the virtual character employed by the device – and so beloved by its many users – was a representation of an animal. That is, the cultural

device appropriated the characteristics of a domesticated animal, and through its various pre-programmed prompts asked humans to engage with it, which they accordingly did – often obsessively. In relation to this, it is important to recall how, in Chapter Three, Deleuze’s philosophy of generating difference against ossified thought was explored in terms of his work (both individual and in collaboration with Guattari) on desire and desubjectivation, and specifically in terms of becoming-animal. And it was demonstrated that Deleuze and Guattari’s conception of becoming-animal was built, firstly, on the understanding that desire was productive, and secondly, on the idea that transformative exchanges in relation to such desire were possible to achieve through an engagement with cultural artefacts that stimulated a becoming-animal. Examples here included the literary works of Franz Kafka and Herman Melville, in association with Deleuze and Guattari’s engagement with the works of the Estonian biosemiotician, Jakob von Uexküll. Of course, whereas a reader’s experience of Gregor Samsa’s bizarre isolation in his becoming-cockroach, or of Captain Ahab’s strange and haunting battle to become-whale, or of the *umwelt* of the tick highlighted by Uexküll, entailed an encounter with a vast, mysterious, oblique and atypical exchange between human being and animal, the encounter with the representation of the animal via the Tamagotchi remains a far more closed and repetitive affair. This is because, in the case of the Tamagotchi, desire is continuously marshalled by a code that activates at the virtual animal’s birth, and moves forward rapidly through a series of prompts, toward a pre-determined end point. Accordingly, while through reading Kafka, Melville, or Uexküll, one cannot help but be pulled into considering the duration – the unique movement within time – of the human/animal creatures represented, with the Tamagotchi, one assumes (however fallaciously) the position of asserting control over the animal represented. And this control entails the Oedipilization of desire that Deleuze and Guattari sought to move beyond. That is, with the Tamagotchi, on the premise of control, one approaches the signified animal from a perspective that discounts that animal, because instead of thoughtful reflection over what it is in itself, or what it might be, and how its difference might change the one who approaches it, the user is simply manipulated into keeping it alive, as it were, in order to satisfy their own objectives – be they competitiveness with their friends, or a sense of duty, or a sense of care, and so forth. In effect, the user attempts to humanize and domesticate a virtual pet that ironically has the user firmly trapped in a Pavlovian nightmare, which smacks of *ressentiment* against those strong and brave enough to explore the difference of becoming-animal, in a manner akin to Kafka, Melville, and Uexküll.

Second-order hybrid durationality: Botanicula

While the Tamagotchi does, in many ways, amount to a realization of Deleuze's deep concerns over the capacity of the digital to canalize and control every aspect of our desires, it must also be remembered that a rapid sophistication of digital technologies occurred after 1996, which brought with it the potential for more affirmative and creative digital-human hybrid durationality in relation to the environment.

While a number of nature-based digital artefacts exist,¹⁷¹ the point-and-click adventure game *Botanicula*, released in 2012, and conceptualized and coded by Czech developers Amanita Design and Jaromir Plachy stands out in this regard. This is because the game is explicitly concerned with addressing the environmental crisis through its association with the World Land Trust, an organization “which protects the world's most biologically important and threatened habitats acre by acre” (WLT, 2016).¹⁷² In terms of this partnership, as per the 25 April 2015 press release from the World Land Trust (*Emma Beckett PR*, 2012), ten percent of the cost of legally downloading the game is dedicated to the various initiatives embarked upon by the organization. Secondly, the game has received global recognition from the gaming industry, garnering excellent reviews from major gaming publications,¹⁷³ and receiving multiple awards, including the IndieCade (International Festival of Independent Games) award for Best Story/World Design, The European Games Award for Best European Adventure Game, the Mac App Stores award for inclusion in the Best Games of 2012, and Best Czech Game of 2012.¹⁷⁴ Such recognition accordingly ensured that *Botanicula* achieved a sizeable user-base; for example, the website *softonic.com* – which makes the game available for download, and which offers detailed statistics on both the number of downloads and the geographical location of those downloading it – indicated that as of 5 May 2016, the game had (only through this particular website) been downloaded a total of 53, 808 times since its original release date in 2012. Moreover, it has seemingly not lost its ability to attract new users, and the website counts that the game had been downloaded 196 times in the

¹⁷¹ In addition to those already mentioned in the first footnote of this chapter, another example would be the PC-based adventure game *Discovering Nature*.

¹⁷² The World Land Trust was founded in 1989, and is based in the UK. It is a non-profit environmental organization which helps NGO's in various countries buy land for the purposes of protecting it from industrial interests and other potentially destructive uses of it (*World Land Trust*, 2016).

¹⁷³ As per the review aggregator Metacritic, these publications include Spain's *Eurogamer*, Germany's *GameOver*, France's *GameBlog*, *Vandal Online*, and *Adventure Gamers*, among others.

¹⁷⁴ In total, *Botanicula* won twelve awards, with recognition coming across several categories, and continuously focusing on its use of immersive audio, its construction of oblique adventure, and its ability to create evocative and entrancing settings. Besides the awarding organizations mentioned in the main text, these awards were handed out by, respectively, Boom, JayisGames, IGM (Reader's Choice), and Adventure Games.

month previous. The geographical spread of those accessing it includes a diverse range of countries, including the Czech Republic, Slovakia, the Islamic Republic of Iran, Taiwan, India, China, Vietnam and Indonesia (Thornton, 2016). Thirdly, and on a related note, the game is available across a variety of platforms, namely Apple's iOS and OSX, Linux and Microsoft Windows, and it is additionally available for purchase on the popular iStore and Steam websites. As such, both on a mobile device and stationary PC front, it is very well represented and well circulated.

Briefly, *Botanicula* sees the user take control of five tiny bug-like creatures who must save their habitat – their home tree – from the threat of an all-consuming black mass, represented in the game as a parasitical black spider. The game is purposefully vague and the habitat represented has an ethereal feel to it, made even more enchanting through the music chosen to provide the audioscape to the gameplay. Moreover, progression is made by solving a number of puzzles that allow one to expand the multiple protagonists' movements within their world. Richard Cobbett, reviewing *Botanicula* for *PC Gamer*, explains it as follows: "You control a small gang of misfits trying to make it through the madness to save the day;" however, "the real star of the game is your mouse pointer – guiding them past danger, poking and prodding at bits of the screen to get reactions out of things...and acting almost like a character in its own right." Importantly, Cobbett points out that *Botanicula* is "not so much an adventure game" but more "a gorgeous-looking mix of point-and-clicking surrealism, whipped together out of nature, discovery, and adorable humour" (Cobbett, 2012). And this is the crucial aspect of the game that should be noted. That is, unlike the Tamagotchi craze with its relentless drive toward keeping one's creature alive as it races toward its inevitable death, *Botanicula* is a slow, circumspect and curious progression within a baffling and "staggeringly vague" environment. And within the world, the user also encounters the even smaller worlds and creatures that exist within the main represented environment of the tree, and correlatively moves in between these inter-connected *Umwelts*. As such, one is precluded from ever becoming lost in any one of the digitally-represented durations on offer. Moreover, although ultimately determined by code that leads toward an end point, the user is allowed to linger for as long as they desire in the many spaces afforded by the designers of the game. This is because there is no pressure, by way of imposed time-limits for example, to move forward. As Cobbett writes, "treated as a raw game, you can complain about the lack of logic and control," but "as a more general experience, it's a beautiful and memorable journey" (Cobbett, 2012). Related to the above, crucially, as noted by a number of media houses – as

will be documented below – beyond its appeal to adults, *Botanicula* has also proved particularly appealing to children. Again, one is immediately reminded of Deleuze and Guattari’s assertion of *a people yet to come*, and while it was demonstrated earlier in relation to the Tamagotchi that such a line of flight is not always necessarily an affirmative development, *Botanicula* – on account of the above features – does entail a far more open and creative catalyst. Admittedly, while over two decades have passed since the birth of the Tamagotchi, allowing for a fair appraisal of its negative effects on the monopolization of people’s time, *Botanicula* has only been in circulation for four years. Yet, it is good to remember the assertion of Thomas Hylland Eriksen, who in “Speed is Contagious,” notes that when cell phones first emerged they were intended for facilitating business, and no one would have considered then that they would become synonymous with obsessive teenage (and adult) social interaction” (2006: 276). Accordingly, it remains an open question whether or not *Botanicula* will succeed where the Tamagotchi failed. But there is growing evidence that the game is indeed succeeding if the several articles and reviews of *Botanicula* are anything to go by. In this regard, firstly, one can briefly return to Cobbett’s review, in which he writes that: “nature can be cruel, nature can be beautiful, but if nature was more like *Botanicula*, I guarantee kids would be poking and prodding at trees from dawn until dusk to savour the weirdness” (Cobbett, 2012). Leaving aside the problematic notion that nature should be more like a digital representation of it, when in fact, the digital representation of it in this instance captures to a large extent the “weirdness” of nature, the reviewer nevertheless touches upon an idea that is often articulated by others when discussing the game. In an annotated interview on *Radio Praha*, Jan Velinger discusses *Botanicula* with the founder of Amanita Design, Jakub Dvorsky. And besides commenting on how the surprise success of *Botanicula* and the preceding *Machinarium* (a similar game but one telling the tale of a broken little robot operating in a decaying Prague-like yet futuristic world) had allowed the studio to remain independent, Dvorsky is taken down a line of questioning by Velinger that centres on who the target audience of the game was intended to be. Velinger, explaining that he had played both games with his young son, asks: “What age group did you have in mind originally for these games? Who were these games designed for? Children or adults?” to which Dvorsky responds that the game was made “for us. That is our only criteria,” before qualifying his statement by adding that: “We make and design games for us. So we can like them and be proud of them.” However, after a pause, he also reflects:

Surprisingly children...well when we started we didn't have much experience with children but now we have our own and surprisingly even little kids like the games a lot. It works for them as well as adults who never played games. And even hard-core 'gamers' who might normally enjoy First-person shooters. They play with their girlfriend and so on. (Velinger, 2015)

The broad appeal of the game, which ranges from the 'hard-core' players of games made more exclusive because of their difficulty and competitiveness, to casual gamers and young players, as well as the geographical distribution of these players – as evinced above in softonic's statistics – along with the ease of access across multiple popular formats, both mobile and stationary, suggests that gaming is no longer a very specific segment of the informational technology landscape, but rather a standard feature of it and accessible to heterogeneous audiences. However, while relative ease of gameplay, and ease of access on multiple formats worldwide, might explain the appeal of *Botanicula* – and *Machinarium* – to multiple groups usually seen as non-gamers, it does not adequately explain *Botanicula*'s particular appeal to children. In this regard, though, John Walker, reviewing the game for the gaming website *Rock Paper Shotgun*, provides some interesting points. Firstly, Walker writes that the game “is more reliant on your delight in clicking all over the screen than by flagging the path,” and he argues that the joy of the game is in its “wilful vagueness.” Indeed,

you don't know if you're clicking to encourage the world to provide you a new clue or item to collect, or just to make something pretty happen, and it never matters. A tiny green insect comes to life after a click, and then with another gobbles up a nearby leaf, which causes him to become too fat to maintain his grip on the branch and he tumbles from view. Nearby twigs grow with each click until they bud into flowers, which attracts bee-likes, who musically “do do do” as they collect pollen, harmonising with each other. A group of frog-likes, when clicked upon, might burst into wonderfully animated song. And this is all enhanced by the reactions of your gang of five, who scuttle nervously, leaping in fear at any surprise. (Walker, 2011)¹⁷⁵

While the *Tamagotchi* demonstrated that in a digital-human relation, the young in particular could be trained into willingly subordinating themselves to the demanding and repetitive operations of a digital artefact, the interactions thematized above by Walker indicate

¹⁷⁵ While the game was released in 2012, Walker bases his review on a preview version of the game. These are often released by developers to speciality websites and publications in order to generate and gauge interest around a game.

something else altogether. Without any imposed time pressures, users are able to immerse themselves in a world of textures, colours, interactions, worlds-within-worlds, and music, and it is not difficult to understand how such stimulus would appeal to a curious young mind, and how such appeal is the consequence of the game explicating a Full Body without Organs, insofar as it engenders creative and open-ended exploration of nature. In effect, much like in the films of Jean Renoir discussed earlier, the curve balls that *Botanicula* throws at the player never allow them to either become submerged and lost within the virtual mirror of one repetitive aspect of the game, or to adopt a subordinate and passive demeanour because of the requirements to practise agency through exploration, a requirement that runs counter to the *ressentiment* that underpins the Tamagotchi. In a certain sense, parallels also exist between *Botanicula* and the films of Luchino Visconti, but here it is the virtual hegemony of an anthropocentric worldview which has become alienated from nature, that is being eroded by the developments of history (the environmental crisis) and technology (advances in digitality), and *Botanicula* is working toward unseating it, much like the usurpers who worked toward dethroning Ludwig.

In “Monsters and Microbiology: The Czech Studio turning nature into amazing games,” Christ Priestman, writing for the *Guardian*, provides further support for this when he endeavours to unearth the motivation behind the independent studio’s “award-winning” output. He notes, “Venture beyond the city [Brno], into the surrounding forests, and you’ll often find Jakub Dvorsky, founder of game development studio Amanita Design, exploring and foraging with his young family.” Observing that this is where many of “the city’s folk tales originated,” Priestman writes that Dvorsky, who was “born in the region and [who remains] a nature lover,” employs both sensibilities in his “investigating [of] nature at every level, from microbes to landscapes.” As a result, the games “play out like fairy-tales of microbiology, following tiny creatures into subterranean cities populated by woodlice and lazy beetles, operating plant-like machinery to solve wordless puzzles.” And for Priestman, it is the intersection between Czech mythologies and a deep regard for nature that marks out *Botanicula* (and the other games produced by the studio), as a unique digital artefact. One which, we might add, in its blurring of the boundaries between botanical science and folklore, exhibits the features of a Deleuzoguattarian nomadic war machine. This emerges as even more the case, when the studio’s alternative approach to design is considered. That is, “other Czech game companies (Bohemia Interactive, Keen Software, and Madfinger Games)” have followed along the channels of desire established by the State Apparatus and underpinned by

the axiomatic of capitalism, insofar as they “have developed westernised approaches to design” in their respective quests for recognition and income (Priestman, 2016). However, in contrast, as pointed out in the *Radio Praha* interview, the nature backgrounds incorporated by Botanicula – and the other games produced by the studio – are instead “beautifully hand-drawn” (Velinger, 2015). In relation to this, and thinking back to Chapter Five, in which the analog-digital debate was considered, it is interesting to note that one of the most striking and evocative aspects of the game comes from a non-digital method of design. And that transmitted through digital processes, none of the effect is lost. On the contrary, in the game, both analog and digital function in a complimentary sense, allowing for the creation of a highly affective artefact. In sum then, through accessing a highly specific, non-Western tradition of story-telling, coupled with both a deeply reflective orientation toward nature, and reliance on the older craft of drawing by hand, Botanicula emerges as a very different kind of digital artefact. An artefact which confronts the user with a constellation of highly evocative encounters that adults and children alike experience as delightfully atypical.¹⁷⁶

Erik Missio’s “Why Indie Video Games can be great for Kids,” written for the Canadian news source CBC’s parenting section, specifically lists Botanicula as an example within a wave of other “indie/alternative” games that can have a positive effect on their young users.¹⁷⁷ Missio begins his argument by advancing that “digital devices, kid-specific apps and games and broader tech tools can teach or reinforce reading, math, coordination and critical thinking skills.” And while this is broadly accepted, Missio notes that “there’s a world of apps and games out there that [go] beyond strictly educational.” In this regard, he asks rhetorically, “What about beautiful games that are intended just for fun? Or apps that

¹⁷⁶ It should be pointed out, too, that the intention here is not to portray Amanita Design as some kind of outsider studio, operating against the current, as it were. The studio, although able to retain a great measure of independence due to the unexpected success of the games discussed, has done commercial work for the BBC and Nike (Jong, 2010). Indeed, and recalling how in Chapter Two it was argued that change with regard to the environment could be affected only by operating within the technological dimension of the Dominant Social Paradigm, and not outside of it, Amanita Design emerges as a case in point. They generate income through their commercial work, and this then allows for a range of non-commissioned projects, such as Botanicula – undoubtedly also commercially orientated – to be developed.

¹⁷⁷ For example, he explains his young daughter’s fascination with an interactive alphabet game named *Metamorphabet*. He writes, “It begins with a letter ‘A’ that starts ambling and arching itself upwards, then grows antlers before bluebirds land and we move on to the letter ‘B.’ It doesn’t teach specific lessons and there are no points to be won – it’s just a matter of your child (or you, when they’re not around) working through the letters by exploring and interacting with the animation.” And he notes further that his “five-year-old especially loves some of the more sinister aspects of *Metamorphabet*. She giggled when her garden burst into ghosts and her eyes lit up when she vacuumed up a whole village, citizens and all.” And Missio reinforces this point when he interviews Jim Munroe, the “executive director of the Hand Eye Society, [a] Toronto group...dedicated to games that are...created from the same impulses as writing books or songs,” or indeed, simply “a desire to create something beautiful and personal, primarily as a form of creative expression” (Missio, 2015).

combine stunning visuals and music to create exciting experiences for players young and old?” These games he terms indie or alternative, and he argues that they have the capacity to “wow users with cool, innovative designs,” and in doing so, “promote new ways of thinking and experiencing the world” (Missio, 2015). The importance of this should not be understated, especially when it is recalled that – as discussed in Chapter Three – for Deleuze and Guattari desire is productive, and not characterized by lack. Accordingly, seen through such a lens, games like *Botanicula* have the capacity to participate in the user’s generation of a multiplicity of desires. That is, rather than marshalling desire and time in a manner akin to early digital artefacts, such as the Tamagotchi, the indie/alternative game scene, in many instances, encourages users to open up to change, transformation, and thus at least partly to the time of creative engagement. Correlatively, Deleuze’s aversion to digital technology emerges as over-cautionary, not least because *Botanicula* emerges as a *popular* form of counter-information, which moreover evinces many of the features of Guattari’s post-media.

That is, if one were to apply Guattari’s conception of post-media to the game, it would clearly comport with the more open use of information technology advocated by this thinker. As discussed in Chapter Four, Guattari’s conception of post-media involved seeing information technology as a conduit through which subjectivity can be contested and experimented with, subsequently liberating, as it were, the machine from its typical technological connotations by insisting that it can fulfil an aesthetic function, through the generation of creativity, difference and *new* thought. Indeed, Guattari contended that “computer-aided design leads to the production of images opening on to unprecedented plastic Universes,” and he argued that when technological development is tied with “social experimentation,” it became possible for “these new domains” to “lead...us out of the current period of oppression and into a post-media era characterised by the reappropriation and resingularisation of the use of media.” In many respects, *Botanicula* meets these requirements. As also noted in the discussion on Guattari, his vision was not a utopian ramble, but rather a very careful approach to the capacities of the digital. As Guattari himself stated, “we should be on guard against progressivist illusions or visions which are systematically pessimistic. The machinic production of subjectivity can work for the better or for the worse” (1995: 5-6), *Botanicula* is arguably a case of the former rather than the latter.

Indeed, with regard to this, the new assemblages created do not just remain within the human sphere, because congruency exists between *Botanicula* and the work of Uexküll. As discussed in Chapter Three, Uexküll’s 1934 “picture book” publication, *A Stroll Through the*

Environments of Animals and Humans, constituted an invitation to move away from an anthropocentric view of nature. And this text, along with his other subsequent writings, demonstrated Uexküll's abiding interest in "how we can glimpse natural environments as meaningful to the animals themselves" (Buchanan 2008: 40). Similarly, in the immersive gameplay of *Botanicula*, which is exclusively centred on the various worlds-within-worlds encountered by the five insect-like protagonists, this is certainly paralleled. To be sure, some caution is required here; as discussed in Chapter Three, Deleuze and Guattari borrowed quite heavily from Uexküll in their conception of becoming-animal, because of how he required a move away from an anthropocentric encounter with animals and the natural world. In contrast, *Botanicula* – while charming and whimsical – ultimately still presents the various characters and their respective settings in a humanized way. That is, their sadness at losing their habitat, and their subsequent quest to prevent this, is not in any way representative of animal perception, cognition and action, but rather a sympathetic human exploration of what such loss might mean. In effect, the game reflects a deep human sadness over the loss of something intuitively felt as being special and other-worldly – and it does so through the conduit of a beautifully designed setting housing a charming set of animal characters. But caution here does not mean discounting the game's ability to affect those playing it; after all, while the characters are partly human, they are also always partly animal, and it must be recognized that in this instance at least, the digital clearly endeavours to consider an experience outside of an anthropocentric schema.

Indeed, despite its anthropocentric filter, the game is able to communicate in a relatively open manner the times and trials of animal 'others,' especially when contrasted with the *Tamagotchi*, which forced its users into a matrix of Worldly Signs and deceptive Signs of Love, restricting and wasting their time to be different through its constant parochial demands. Accordingly, *Botanicula*, through its open-ended gameplay, which offers the user the ability to linger, amble and simply enjoy the world created, does not operate on the same side of the Proustian taxonomy of signs. Rather, at the very least, *Botanicula* entails Sensual Material Signs in that it draws the user into a world of oblique and undetermined *moving* images revolving around nature. Images that do not allow for passivity or repetitive input, but rather encourage engagement, concentration and indeed the formation of both discrete new memories, and subsequently, their kaleidoscopic recollection. As stated before, the game is incredibly vague – at times even described by reviewers as infuriatingly so – with the consequence that relying on the habitual memory typically required for certain goal-

orientated games does not serve a player well. Perhaps this is why, as noted by its developers, it often appeals to people who do not consider themselves gamers, and more importantly, to children.

That being said, ultimately, while allowing for the leisurely enjoyment of a world not operating strictly according to stereotypical game representations, it cannot be ignored that there does exist a propulsion forward – after all, this is a game that has an end and the user, even if they choose to move slowly, is still propelled toward completion of the game. But this has more in common with “the stroll, the voyage and the continual return journey” (Deleuze 1989: 212) which Deleuze thematized as a key feature of the crisis of the action-image; a crisis which, it should be remembered, precipitated the birth of time-images in film. Similarly, as will be discussed next, such time-images have their counterpart in third-order hybrid durations.

Third-order hybrid durationality: Shark Net and Oearch

While a game like *Botanicula* may be an enclosed system that prompts the user forward, albeit at a tempo that comports with the individual user’s pace, there also exist digital artefacts that are, firstly, more dynamic insofar as they operate virtually in relation to the open variable of a non-human ‘other,’ and secondly, more durationally-orientated insofar as the actual life of this other – rather than a nomadic representation of elements of nature and imagined animal lives – is the focus of the virtual interaction. In this regard, the mobile applications Shark Net and Oearch comprise intriguing examples of the potential of digital technology to allow for human beings to enter a liminal space, in which their *Umwelt* meshes with the *Umwelt* of an extremely ‘other’ animal, perhaps the otherest ‘other,’ as it were, namely the shark.

Although a number of shark tracking applications exist,¹⁷⁸ in what follows the focus will fall on two of these, namely Shark Net and Oearch. This is because both applications, firstly, have a relatively wide reach due to their availability on iPhone/iPad and Android devices, secondly, are the most documented of the digital shark trackers in terms of media attention, and thirdly, explicitly attempt to involve the general public in their tracking activities in order to create environmental awareness. Most interesting and applicable to the

¹⁷⁸ For instance, Expedition White Shark, launched in 2013, claims to allow its app users to “receive live tracking data for the tagged Great White sharks, at the same time as the research scientists” (EWS, 2016). Others listed by the website, trackingsharks.com, include the Hawaii Tiger Shark Tracker, Guy Harvey Research Institute Tracking, and the Western Australia Shark Tracker, to name but a few.

current argument, however, is the technical dispute over which application provides more accurate *temporal* tracking of the animals it follows, because this suggests that, specifically, it is the durational aspect of the exchange between human beings, nature and digital technology, which is being reified by the ordinary people accessing such applications.

Of the two applications, Shark Net is the younger creation, having being launched in 2012 by a marine research team from Stanford University, and led by Professor of Marine Sciences Dr. Barbara Block (McKelvey, 2014; The Global Tagging of Pelagic Predators, 2014).¹⁷⁹ In short, the Shark Net application, available for iPhone and iPad devices, “allows users to detect the comings and goings of white sharks along the Northern California coast,” and through such means “brings users face to face with a variety of individual white sharks, and provides notifications when their electronic tags are detected by underwater listening stations.” It is further explained that through the application, “users will be able to interact with a detailed 3-D model of several...sharks, to see photos and videos of them from the research team, and to receive real-time notifications when one of them is detected by an acoustic receiver” (GTOPP, 2014). Cynthia McKelvey, writing for the *Monterey Herald* describes the application and its goals further. She writes that in Shark Net, “each shark has a biography and calling-card photo of its dorsal fin. Some sharks also have interactive 3-D models and videos that allow users to see how they swim and get acquainted with the curious creatures.” Furthermore, she explains that the application “lets users get to know the sharks by their names.” And this tactic of naming the tracked creatures is tied to the aim of the application. McKelvey, after interviewing Block, proposes that the goal is to reverse negative perceptions of an animal bizarrely construed as a threat to human beings – especially if one thinks about the likelihood of a shark attack in statistical terms.¹⁸⁰ For her part, McKelvey attributes such perception to popular culture, writing that “movies featuring the animals run the cinematic gamut from the acclaimed ‘Jaws’ to the campy ‘Sharknado,’” and in “most movies, the giants are portrayed as ruthless, razor-toothed killing machines.” In contrast,

¹⁷⁹ The Global Tagging of Pelagic Predators, or GTOPP, describes itself as “an international, multidisciplinary collaboration among biologists, engineers, computer scientists and educators,” whose work “will allow users to view and interact with animal tracking data, as well as oceanographic datasets,” with a view to “build[ing] the tools required for protecting” ocean ecosystems in the “future.” Especially if one considers the argument of Chapter Two, that is, that one cannot operate outside of the DSP in one’s attempts to engage more ethically with nature, it is interesting to note that GTOPP states, in terms of its quest to protect the future of oceanic life, that “it will also utilize the newly-developed ocean tools in Google Earth.” On a further note, one should also note the language employed by GTOPP when it advances that the use of such technology could potentially provide “a powerful, intuitive system for accessing and exploring global datasets” (GTOPP, 2016).

¹⁸⁰ *Surfer Mag* discusses this issue and cites research which states that “1 in 3,748,067 are the lifetime odds given for a shark fatality” (Hart, 2015).

“Block hopes the app will help people connect with white sharks in a personal way and inspire the public to push for greater protection of the sharks and their habitats.” And the way in which to “bring the [above more personal] shark story home to the public” is through the technological provision of “real-time data” (McKelvey, 2014), enabled by satellite buoys in conjunction with digital devices capable of receiving and representing such data. Admittedly, at first glance, it appears that the application aims simply to counter the widespread negative and inaccurate information on these predators with its own sets of information. Yet, while it is true that downloading the application gives a user access to information-dense interactive 3-D models and so forth, it is also worth considering that beyond the level of information, the major appeal of the application is its stated ability to accurately reflect any individual shark’s movement in time. And this suggests that the matter is more than simply a battle of information to change perceptions, because implicit in it is the idea that allowing people to experience the time of a shark – the user’s device pings the moment a shark swims past an observation point – will change their understanding of how they relate to nature; and of how their time and the shark’s time are playing out together within the durational Whole.

The older shark tracker available to the public, Oearch, was founded in March of 2011 (Oearch, 2016), but appears to have, in recent years, outstripped its fellow tracking application in terms of both geographical reach and media attention. While Block’s team conducted their operations primarily along the Northern coast of California, Oearch now has a far more global reach, tracking sharks travelling down the various coastlines of the Atlantic, Pacific and Indian Oceans. And this includes the waters of Southern Africa, where the animals are tracked from Gansbaai and Struisbaai, through to the channel of Mozambique. Within this immense zone of observation, the Eastern Cape coastline and the waters of Port Elizabeth also feature.¹⁸¹ Due to this extensive geographical reach, Oearch has generated a fair amount of interest from the media, and many news and special interest magazines have thematized how it works. In this regard, Aaron Souppouris, writing for the technology website, *The Verge*, opens his piece by immediately drawing readers’ attention to the ability of the “ambitious [Oearch] project” to “track the movement of almost 50 sharks in real-

¹⁸¹ The local surfing website, millerslocal.co.za., explains that the Algoa Bay, Port Elizabeth tagging venture came about as a collaboration between Oearch, local researchers led by Dr. Matt Dicken, and a host of governmental and corporate sponsors. Furthermore, the venture is underpinned and partially funded by the South African Environmental Observation Network (SAEON). According to Dicken, some 20 listening stations have been set up, and a budget exists for 20 sharks to be tagged. Interestingly, “individuals and corporates” are invited to “sponsor tags,” which comports with the assertions made previously, in Chapter Two, that environmental action does not have to disassociate itself from the confines of the DSP, and that this is not necessarily a death-knell for any such action (Millers Local, 2016).

time.” He subsequently explains that “an array of sensors...allow scientists to accurately plot their position,” and that the data is then “fed into the OCEARCH Global Tracker, which updates the sharks’ location as a dot on a map.” The user of the attached mobile application (available on both Android and the iTunes Apple Store) “can click on any of the dots to find a picture of the shark along with its size and ‘name,’ and look through where it’s been since being tagged.” Moreover, Souppouris notes the impressive reach of the tracking programme, maintaining that it collects “around 100 data points every second,” or “8.5 million per day” (Souppouris, 2013). Marnie Hunter, writing for CNN on the application, also immediately draws attention to the fact that it is a “real-time shark tracker,” and indeed notes that as she is constructing her article, “five great whites are actively pinging their locations off the East Coast,” adding that the “movements are logged erratically” because they are only “activated when the sharks surface” (Hunter, 2014). Importantly, the emphasis on the time-accuracy of the Oearch tracker is an oft-repeated trope in the many articles dedicated to explaining its operation (Gutowksi, 2015; *WiresNews Corp Australia Network*, 2015), and much like with Shark Net, this suggests that the central issue in the exchange – enabled by technology – between human and nature is *time*. This idea also finds support in the ensuing arguments over which application offers the more temporally accurate ping. That is, consideration of this technical dispute reveals the extent to which it is time that is central to the fascination generated by these two environmentally-orientated mobile applications.

Liat Clark, writing for the technology-focused magazine *Wired*, explains that Shark Net makes use of (as noted above) “acoustic tags” in order to pick up on the location of the animals. This means that “when the tagged animal comes within 300 metres of [one of the]... receiver[s],” which are strategically placed throughout the ocean, the receiver “picks up the acoustic signal and uses it to calculate a location.” In turn, “this data, along with the signal and a timestamp are then sent to the team’s station.” The iOS Shark Net application itself is linked in to this monitoring system, and “receives a live feed from the network and pushes an alert every time a shark tag is picked up” (Clark, 2012). However, the website White Shark Café has a slightly different explanation, noting that “the latest generation of acoustic receiver buoys are now able to transmit their data via satellite,” making the information exchange far more rapid. Indeed, “the buoys dangle an underwater hydrophone that listens for the acoustic tags. When the hydrophone ‘hears’ a shark nearby, it transmits the data to the buoy, which then sends the data via satellites to Block in real time.” But, while the scientists involved receive the ping from the shark in real time, as it were, “Block’s team puts the data

into the Shark Net app within an hour” (WSC, 2014). Thus, the real time experience, which has served as a major point of interest to the media houses writing on the application, as well as to the users accessing it, may not be as precise as it is often presumed to be.

In terms of Ocearch’s system of shark movement tracking, and their feeding of this information to the attached mobile application, similar issues concerning accuracy of the time signature exist. In this regard, White Shark Café notes that “in early 2014...Ocearch was criticized for claiming real-time tracking of their sharks, which turned out not to be the case.” In turn, “in the wake of this scrutiny the company then changed their advertising to state ‘near real-time.’” In conjunction with this, the “highly controversial SPOT tags” used by Ocearch came under scrutiny (WSC, 2014). That is, the Hawaii Institute of Marine Biology explains SPOT (or Smart Position or Temperature Transmitting Tagging) as “satellite tags” that are “detectable over broad geographical areas,” and which “remotely relay information to satellite arrays.” But because the tags “utilize radio transmissions,” they require “air to send data [and] hence satellite tags must be externally attached” to the shark under observation (HIMB, 2016). And this is where the first criticism comes in, with conservationists expressing concern over the potential physical effects on the tagged animal. Accordingly, unlike the “acoustic tags applied...with minimal interaction with the sharks,” SPOT tagging is a relatively traumatic process, with the animal only recovering and starting to swim strongly again within 2-4 hours after release (Hastings Deering, 2014). And the reliance on air to send data also has a secondary implication, namely that accuracy is compromised. As noted, “SPOT tags transmit a signal to the Argos satellite array whenever the [tagged] dorsal fin breaks the surface of the water.” But, “these transmissions result in geo-location estimates with location accuracies that range from a few hundred meters to ‘somewhere on planet Earth’” (HIMB, 2016) – which is not very helpful at all with regard to the promise of real-time pings from the sharks involved. Indeed, both White Shark Café and Andrea Mustaine, writing for *Live Science*, remain critical of the Ocearch-affiliated marine biologist and creator of the previously mentioned tracker Expedition White Shark, Michael Domeier, because he nevertheless continues to advocate “SPOT tagging despite his own evidence that it is unnecessary” (Mustaine, 2012; WSC 2015).

Thus, it would be fair to say that both of the above two trackers are off the mark in terms of dead-on accuracy. Interestingly, though, the issue of spatial accuracy has emerged as secondary to the combined concern for the well-being of the animals, and to the desire to approximate as far as possible a *true* real-time ping. And these two key concerns – the careful

treatment of the creatures themselves forced into the venture, and the durational quality of the tracking technology (represented to the public via its attached Android or Apple operated mobile device) – reflect a particular axiology, namely that of *care in time*. But, as always, this fledgling axiology must be considered circumspectly, because of how accompanying features of the app have the potential to undermine it before it can take flight.

That is, in their ability to approximate reflection of the duration of the ultimate animal other – the shark – both Shark Net and Oearch exhibit a potentially very powerful use of digital technology in the service of becoming-animal. A service which could extend to the natural environment as a whole, insofar as the latter could benefit from the related human transformative re-orientations. However, certain facets of their operation may also comprise potential inhibitors of any such transformation. This is because, whereas the above discussion of both applications focused on the core functions of the actual tracking systems themselves, it is often the secondary associated features of these systems that entail more problematic dynamics. That is, to begin with, the user initially only operates on the side of the receiver, via a simplified platform that distils all the information collected into something representative that they can encounter, via a notification on their mobile devices. And in this regard, from the above articles written on both Shark Net and Oearch, as well as a host of lesser annotated similar applications, the key idea that keeps emerging is that of the importance and appeal of building a different type of connection with nature through time; a connection different to its representation within the ambit of the DSP. This is clearly evinced by the consistent reference on the part of the above authors to ideas such as real-time, near real-time, and so forth. And while the articles might somewhat clumsily use the generic term ‘connection,’ while talking about time, without necessarily making the link between the two explicit, there is sufficient reason to warrant exploration of the connections in temporal terms. In effect, what such developments offer us is access to a liminal durational space, an indeterminate temporal area between two worlds, involving an interface between two unique times – ours and that of the sharks being tracked. The digital platform through which the user accesses time stamps from the particular shark they have chosen to track is enabled by the coding that allows for identification on the other side of the oceanic mirror, as it were. The world of the animal beneath the sea that is still a mysterious one, despite all the information we have aggregated on it over time. And correlatively, a ping from the other side entails a reminder of its duration, rather than the provision of more information on the *Umwelt* of the animal. In effect, all that we can hope for is that at some point our durations will cross

through the ping, which allows us to momentarily link up in this liminal space, in a dynamic that is far more intuitive than intellectual. That is, we don't experience the shark in this instance in a purely informational sense, or in a way that is distilled through the sensibilities of popular culture; rather, we receive a message from the netherworld, through which it reminds us of its continued life alongside our own time world.

But if the ping sent to the user's mobile phone is the first *encounter*, then their potential logging onto the various social media sites connected to either Shark Net or Ocearch entails a secondary, embellished *encounter* – and it is here where due care must be taken, because the latter could quickly undermine the experiences engendered by the former. In certain respects, Shark Net-affiliated Stanford marine biologist Randy Kochevar gives the game away when he enthuses that “the idea behind the app...is to allow everyone to explore the places where these sharks live, and to get to know them just like their friends on Facebook and Google+” (GTOPP, 2014). At this point, one must carefully consider whether the connection sought – through a recognition of an encounter with the duration of the shark – is undermined by an anthropomorphism which unwittingly negates the possibility of such connection. In the first encounter, or when one is pinged by a shark, as it were, one's time is impinged upon by the movements of the animal, insofar as our respective durations intersect via the conduit of the various technologies – acoustic and radio to digital or satellite to digital – that enable this ‘meeting’ between us. In the second encounter, or the one in which we interact with the sharks via their social media pages, the open variable that is the shark ping disappears, and is replaced instead by a will to power that seeks to overcome human beholdenness to the shark's time and movement, by establishing its permanent virtual presence. This issue, in effect, parallels the debate thematized in the previous chapter, over the different ontologies between analog and digital technology, because while the initial ping – insofar as it is produced by the open variable of the shark's time and movement – remains beholden to duration in a manner akin to analog film (even with the above-mentioned time lag), the embellished encounter via social media sites bears all the features of the digital ontology that seeks to overcome time, and through manipulation to force everything into a permanently accessible present. And it is in relation to this pursuit of accessibility that a form of *ressentiment* against the profound otherness of the shark also manifests, insofar as this otherness is domesticated, reduced from radical difference to the sameness of human parameters, through the anthropomorphization of the shark.

Examples of the social media aspect of both Shark Net and Oearch are abundant. Katie Dupere, writing for the popular mashable.com, begins her article by focusing on the many myths surrounding sharks which have contributed significantly to their diminishing numbers, but advances that “tracking allows researchers to learn about their behaviour and migratory patterns, all of which help in aiding crucial conservation efforts.” However, beyond this, best of all for Dupere is that now the “average person” can become involved in these environmental endeavours. This is because they “can track the same sharks researchers are observing from their very own computers and mobile devices,” and can furthermore join in on social media, where “individual sharks have their own loyal followings, with entire social media accounts dedicated to their every tracked move – and fictional personalities” (Dupere, 2015). And it is these fictionalized personalities, operating through channels such as Facebook and Twitter, which have received the most attention, with an Oearch-tagged shark named Mary Lee the most discussed. Laura Geggel, writing for *Live Science*, briefly accounts for this particular leviathan. She explains that “researchers tagged Mary Lee in 2012 in Cape Cod, Massachusetts,” and that “the battery in her tracker is still going strong.” Of the shark’s movements, she describes “Mary Lee [as] constantly on the go, travelling up and down the Eastern seaboard of the United States, from Florida to Massachusetts,” even visiting “Bermuda in 2013.” Accordingly, since the time of Mary Lee’s tagging and the commission of the article, she has swum “31, 823 kilometres” or “a distance equal to driving back and forth across the continental United States almost six times.” And Geggel, considerably impressed, notes that “over the past 24 hours, the shark has travelled about 156 km” (Geggel, 2015). Similarly, Charles Poladian, writing for *IB Times*, also notes the great distances travelled by the shark, but tends to focus more on Mary Lee’s impact on the Twittersphere. As a first point, he sees developments such as Oearch as already remarkable, and is impressed by the use of “new technology to advance our understanding of these wondrous sea creatures.” But related to this, and as a second point, while he concedes that such a “goal is worthy enough to get Oearch lots of attention,” he also asks: “What happens when you add the Internet and a touch of personality to the project?” And in answer to his rhetorical question, Poladian writes that “you get a viral Twitter account and thousands of followers...following Mary Lee the great white shark, as well as her marine pals Lydia and Katherine.” Interestingly, too, the article begins with a joke whereby the picture used to accompany the article is a stock image of a shark and the sub-editor responsible for the picture description quips underneath: “Mary Lee (not pictured) the great white shark has been a hit on Twitter.” While obviously in jest, it is certainly worth considering that the various

trackers employed (in this case Ocearch) have allowed for a differentiation of this shark from others, an individualization of it through the creation of a personality, and the normalization of this process to the point where witty remarks are both possible and widely intelligible. A host of developments not conceivable a few decades ago. CNN's Marnie Hunter, referenced earlier, also explores the social media angle, with particular focus on the fact that the sharks have Twitter accounts. She writes, "Mary Lee tweets occasionally, while Katharine, who's in her late teens, is a 'chatterbox' with more than 16,000 followers." It is furthermore uncertain as to who runs these accounts, with "the real identity of the tweeters a mystery." Hunter asks Chris Fischer, one of the founders of Ocearch if he knows, and he replies that he is also not certain, stating that "people were inspired to give these sharks voices, and we don't know who they are." He furthermore "credits the publicly shared shark tracker and the power of social media with helping to change the tone of the conversation around sharks" (Hunter, 2014).¹⁸²

While among the users accessing the applications, the perceptions of sharks have no doubt in many cases been altered from negative and fearful to positive and appreciative, one must nevertheless ask if 'voicing' the animals through human sensibilities does not cheapen a potentially profound technology-enabled encounter. After all, the anthropomorphic sensibility of the applications, and in particular their associated social media presences, do indeed humanize the ultimate animal 'other,' by not allowing it to be what it is through characterizing it in terms of a domesticating human lens. And in doing so, the opportunity is missed for a deeper reflection on nature that could facilitate a degree of becoming-animal, in favour of a retreat into an ossified mode of (human) understanding.

But is laying the charge of anthropomorphism not too easy? Is it fair to those users quite obviously deeply affected by this new-found ability to interact with the ultimate animal 'other' – so much so that they would go to the effort of establishing social media accounts and dedicating some of their time to typing out personalised messages on social media sites, in relation to pings from the sharks tracked? Indeed, such human behaviour in relation to a ping from a shark passing a beacon, or surfacing above the water briefly, does conceivably

¹⁸² While Mary Lee, and Katherine may be Ocearch-tagged sharks, SharkNet also follows the route of anthropomorphizing the sharks it has tagged. For example, Sonia van Gilder Cooke, writing for *Time*, explains that Shark Net hopes "people will personally connect with these animals and what's going on off-shore," and that the app "allows people to monitor and learn about [the] great whites researchers have been studying for years, including Bite Head, Mr. Burns, and Chomp" (van Gilder Cooke, 2012).

indicate that something altogether different may be in its germinal stage, and to reject it out of hand because it has not achieved the radical parameters of what it may yet become, would be to ensure that such parameters are never reached, through denying the intuitive time to mature. To pursue this point, one could look at two very different types of reactions to the ping of a shark, captured by acoustic or satellite means, and beamed through to a user in digitized form on their mobile devices.

The first type of reaction, which entails the explication of a Fascist/Cancerous Body without Organs, is evident in the developments tracked by a series of articles across 2015 and 2016, pertaining to the authorities of New South Wales, Australia, responding to shark sightings close to popular beaches and surf spots. The Australian Associated Press reported that “New South Wales swimmers could soon use technology to monitor sharks in a bid to halt a wave of recent attacks at the state’s beaches,” and that there was a substantial push by government to “develop real-time tracking of tagged sharks which surfers and swimmers could potentially access on a smartphone app or website.” In this regard, Minister for Primary Industries, Niall Blair, is quoted in the article as stating that: “Making our beaches safer is a top priority for the NSW government...that’s why we are leaving no stone unturned to make sure we look at new and innovative ways to protect our beaches” (in *The Guardian*, 2015).¹⁸³ While Blair’s comments are those that we would expect from a public official in relation to a surge in shark sightings and attacks in the area, and in response to a potentially jittery public, it is revealing that he twice repeats the claim that the beaches are “ours.” And it is here that an ossified anthropocentric approach presents itself clearly, insofar as it is intimated that technology should be employed to guard human enclaves of activity and leisure against the intrusions of nature. That is, according to such logic, technology should be employed in order to carve out a strict delineation between the human realm and that of the animal ‘other.’ And one can imagine that when someone accessing a tracking application with such a mind-set experiences the pings presented by the sharks, these remain simply informational, with no durational significance attached to the time stamp of an animal perceived only as the most fearsome of predators. Beyond this, a further issue must be taken into consideration; when

¹⁸³ Jonathan Pearlman, writing for *The Telegraph*, provides further detail on the spate of incidents that have prompted a reaction from the NSW authorities, when he indicates that, “at least 13 attacks...occurred in the state [in 2015], compared with three in 2014.” Indeed, “the attacks included the death in February of Tadashi Nakahara, a 41-year-old surfer who was believed to have been mauled just 30 feet from shore by a great white shark” (Pearlman, 2015).

Jonathan Pearlman, writing on the aforementioned measures employed by the NSW government, interviewed the local mayor of the northern region of Ballina, he was told that, strangely, “sharks were continuing to congregate close to shore ‘like no one can remember.’” And in searching for a reason for this surge in the shark population in the area, Pearlman refers to “experts [who] have proposed various explanations for the recent increase in shark attacks, including changing ocean temperatures and greater numbers of humans entering the water, particularly surfers who can spend longer in the water in winter due to high-quality wetsuits.” Additionally, “increasing numbers of whales migrating along the east coast are also believed to have attracted growing numbers of deadly great white sharks” (Pearlman, 2015). As such, the manner in which tracking technologies and their related digital mobile applications are construed is in a purely reactive way, which is furthermore myopic in that it treats the symptom, but disregards the cause – if Blair’s statements are anything to go by. That is, human dominion over nature, whether on a macro scale such as humans’ contribution to both rising ocean temperatures, and correlatively to changes in the movements of sea creatures affected by such variance, or on a more micro level, such as enabling surfers to stay in the cold water, is endorsed unequivocally. That is, even though humans have caused the problem of increasing attacks, the solution to this is to protect that which is ‘ours,’ instead of reflecting on the human contribution to the problem. Protection that, furthermore, takes the form of extending digital surveillance under the auspices of control society to the natural environment, and to any potential threat therein to the individualized, coded economic matter that are the financial life blood of sea side resorts.

The second type of reaction, which entails the explication of a Suicidal/Catatonic Body without Organs, is evinced by those people who – as already discussed – feel compelled to send out messages (to strong followings) via Twitter and other such social media networks, *as* the sharks themselves. Accordingly, rather than operating at the level of fear, information processing, and subsequent reaction, with a view to extending human control over the ocean and its diversity, these individuals – and those who interact with them online – present an altogether different sensibility, but one which in its current form is not particularly affirmative. Claudia Geib in “Could social media save sharks, or is it just scaring swimmers?” makes some interesting observations in this regard. Noting first that Ocearch’s most famous predator, Mary Lee, had amassed 90 000 Twitter followers at the time of writing (22 April, 2016), she advances that while

under normal circumstances, people would keep their distance from this female great white shark – a sharp-toothed, seal-eating, terror-inspiring fish[,]...through the magic of social media (and the help of a human typist), Mary Lee can crack jokes, talk to her followers, and share stories of ocean conservation. (Geib, 2016)

And Geib further notes that these messages tend to be very well received by the shark's 90 000 or so followers. Indeed, "her fans eagerly monitor her real-world movements using a shark-tracking map and a mobile app [run by Ocearch]." But, related to this sizeable interest, Geib gets to what is at stake when she observes that it is "estimated that over 100 million of these ancient fish are killed every year, and many shark advocates see the Internet as a valuable tool" to curtail this slaughter. However, the "fear of sharks, after all, is a primal instinct, and conservationists are up against deep-rooted aspects of human nature." And it is to such fear that the anthropomorphism of the shark is a response, one that is not without commercial implications. In short, to anthropomorphize sharks is to domesticate them so that they can be identified with by ordinary people for whom the sharks' radical alterity would otherwise be too unpalatable. And the more people identify with them, the more exposure is afforded to the commercial ventures that have funded the development of the related technology. With regard to Shark Net, Ella Davies, writing for *BBC Nature*, notes that the Stanford researchers were tasked with developing "a way to deliver the [scientific] data [on the sharks] in an appealing way to those without a scientific background," and for this they received "funding from a Rolex Award for Enterprise" (Davies, 2012). Further information on the monies accessed by Shark Net in pursuit of their project is also provided by the White Shark Café website, who note that Shark Net's development of "the tools and technologies required to monitor the California Current Large Marine Ecosystem," and related exploration of "ways of ensuring that it remains intact for future generations," is funded not only by Rolex, but also by "an International Cosmos Prize from the Expo '90 Foundation, and a research grant from Discovery Communications" (WSC, 2014). With regard to Ocearch and the companies putting money into it, Ocearch's website, Gutowski, and Hastings Deering all provide some clarity as to who these funders are. The Ocearch website states that their "expeditions and digital outreach platforms are enabled through the support of Caterpillar, Costa, Yamaha, Contender, SAFE boats, Mustad, Xavient, oneQube, and DYT Yacht Transport" (Ocearch, 2016), while Gutowski provides further information on the effect of these sponsorships, writing that they have enabled 22 expeditions in 2015 alone (Gutowski, 2015). In their contribution to the topic, Hastings Deering – themselves a funder as they are a

Caterpillar Inc. affiliate – focus their discussion on this sub-topic with high praise for Caterpillar, advancing that “Ocearch expeditions are sponsored in large part by Caterpillar Inc. as part of a socially innovative multi-year partnership,” and that “additional partnership support is provided by Costa Sunglasses and Shell, along with DYT Yacht Transport, Contender, Yamaha, SAFE Boats, MUSTAD and Landry’s Inc.” (Hastings Deering, 2014). Not content to end the statement there, a paragraph on Caterpillar and its contribution to society in general follows. It reads:

For nearly 90 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. Customers turn to Caterpillar to help them develop infrastructure, energy and natural resource assets. With 2013 sales and revenues of \$55.656 billion, Caterpillar is the world’s leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. (Hastings Deering, 2014)

It is thus clearly evident that both Shark Net, and to a larger extent, Ocearch, cannot be separated from the commercial groups that sustain them. But the implication of this, in turn, is that the anthropomorphizing dynamic of both applications will continue to flood the material generated in relation to the sharks, and accordingly, in keeping with an explication of a Suicidal/Catatonic Body without Organs, a comfortably smooth *human* space will continue to be maintained, in which the radical difference of the sharks is displaced, and nothing new is allowed to grow – because the encounter with alterity that might precipitate such growth is not allowed to exist.

But this is not to say that everyone who encounters the sharks through these applications will remain – or even fall prey to – the virtual hegemony of the above explication of a Suicidal/Catatonic Body without Organs. After all, Shark Net and Ocearch are unlike the Tamagotchi, the virtual hegemony of which was likened to that of a Max Ophüls film, and even more open ended than *Botanicula*, whose cracked crystal was likened to the films of Jean Renoir, and for that matter, to the usurping crystal of Luchino Visconti. Indeed, in terms of the openness of their virtual-actual interface, the applications are more akin to the dynamic interplay found in Federico Fellini’s films. And this takes us back to the crux of the matter, namely whether or not digital technology has the potential to explicate a Full Body without Organs, by altering deep-rooted patterns of thought and operation and ushering in difference. Arguably, based on the popularity of Mary Lee and other sharks, and

more so on the extent to which certain people appear willing to go in order to establish some sort of connection with the leviathans, it is plausible to suggest that, indeed, within the spaces created by such digital technology, typical ways of thinking when it comes to the animals can splinter into different orientations. In this regard, the mobile apps do reflect aspects of the transformative works of Kafka and Melville, insofar as, once engaged with them, a person can find themselves potentially within a nebulous and uncertain liminal space – a space between human and animal. But in arguing the above, care should be exercised before one exalts the power of technology in itself. As Guattari reminds us, in terms of his conception of post-media discussed in Chapter Four, the capacity of information technology is just that – potential – as it is up to human beings to bring to that new-found tool an ethical and affirmative way of thinking. And this requires a rigorous and self-reflexive engagement with the tool in question. With regard to the shark tracking applications, Geib’s sentiments comport with Guattari’s argument, when she notes that, “without carefully developed educational programmes, some researchers suggest, shark-tracking apps can often backfire.” To support this, Geib quotes the University of Sydney social scientist, Christopher Neff, who points out that “without targeted education on sharks as part of a healthy ecosystem, tracking maps could simply incite fear over what’s lurking offshore.”¹⁸⁴ Lending further support to this argument, another researcher cited by Geib, namely Marianne Long, the education director at the Atlantic White Shark Conservancy, emphasizes the “importance of fact-based education to supplement research efforts.” And Long moreover advances that “working with kids” remains at the core of any initiative to develop an alternative viewpoint on sharks (Geib, 2016).

Of the two applications focused upon, it is Oearch that explicitly goes down this path. Stephen Gutowski, writing for *Free Beacon*, explains that “Oearch is a leader in open source research, sharing data in near real-time for free through the Global Shark Tracker,” which enables “students and the public to learn alongside PhD’s” (Gutowski, 2015). And the Hastings Deering website provides further detail on the educational component tied in with the tracker,¹⁸⁵ explaining that besides “regular updates” being posted “on the @Oearch Twitter handle as well as the Oearch Facebook page” – which demonstrates the

¹⁸⁴ For his part, Neff argues that “not enough effort is being placed on communicating how little danger sharks actually pose to humans.” And he puts the blame for this on the sensationalist tendencies of the mainstream media, pointing out that, for instance, a “leading story still reports a ‘shark attack’ when there are no injuries, [like for instance] a shark bumping a kayak” (Geib, 2016).

¹⁸⁵ It must be noted that Hastings Deering (which is a Caterpillar affiliate) sponsors certain aspects of the Oearch programme, and as such, their publication on the matter is not journalistic in nature.

“collaborative approach to science” that is a “core to Ocearch’s principle of inclusion” – the team behind the tracking technologies is also scheduled to present at “school and community events.” In a more formal sense, the application is also being incorporated to some extent into the Australian schooling system. As the aforementioned website explains in this regard, “students will be able to leverage the real time tracking data the sharks create to learn math, physics, and other STEM (Science, Technology, Engineering, Math) skills,” thus hopefully “making science cool and relevant in their lives through Ocearch’s free STEM curriculum for 3-8th grade” (Hastings Deering, 2014).¹⁸⁶ It is interesting to note that, again, much like with the Tamagotchi, and with non-typical games like *Botanicula*, it is the young who often become the principle audience. And one wonders what such digital encounters with animal ‘others,’ either within a formal education system or via personal mobile apps, can potentially generate in terms of *new* and positively different orientations toward nature – synonymous at least in part with a people yet to come.

Admittedly though, as argued in Chapter Two, it is idealistic to claim that one can or should operate outside of the Dominant Social Paradigm, when working toward a more ethical stance toward nature. Rather, it was suggested that of the dimensions constituting the DSP, the technological dimension was the most amenable to pro-environmental inflection. To be sure, any such technological advance would be conjoined with the economic aspect of the paradigm, which funds advances within the technological dimension, but it was also argued that these advances often remain indeterminate in terms of their effects. Indeed, at the time of their arrival, no one can ever be completely sure what desires and effects these creations will produce, with the example already cited in this regard being the cell phone. And mobile applications such as Shark Net and Ocearch similarly have the potential to produce new sets of relations between humans and animals. But to advance their capacity to explicate Full Bodies without Organs in this regard is, of course, not to suggest that they can accomplish this in a manner akin to, for example, Francis Bacon, whose art was discussed in Chapter Three. After all, the applications are the product of a diverse range of players and stakeholders and not the result of one man’s artistic inspiration, and this renders their explication of Full Bodies without Organs complex.

¹⁸⁶ The Ocearch website provides updates on its ambitious collaboration with the formal education system, stating that the curriculum has been extended for grades k to 8, and that by 2016, “the Ocearch STEM Curriculum will be available for grades k-12” (Ocearch, 2016).

Jessica Waters, writing for the *Tribune and Georgian*, interviewed Oearch founder Chris Fischer, and in doing so, allowed for a further reflection on the related exchange between conservationists, scientists, corporate funders, and the public on his application. She writes that although Fischer “has his detractors,” he “also has – literally and figuratively – a boatload of prominent scientists and conservationists who say his methods are breaking ground...in bringing the issue of ocean conservation to the forefront of public attention.” And these experts specifically commend his “approach of open-source science, networked data, leveraged publicity and corporate-sponsored expeditions,” all of which have been furthermore “driven by social media saturation.” Accordingly, this approach has led to a move away from “the perception of jealously guarded intellectual property and competitive scientific research,” while, as already discussed, Oearch’s “science-based explorations are funded largely by corporate sponsorships,” which similarly “provide a bridge between the academics and the practical.” Thus, while “major sponsors such as Caterpillar Inc.” get to “leverage the high-profile publicity inherent in Oearch’s social media-savvy work,” the fact remains that these corporate sponsors “have allowed the work of tracking and capturing sharks, identifying breeding and feeding areas, and mapping migratory corridors and birthing sites,” which collectively have provided invaluable information for both conservation efforts and public education. As stated before, while the corporate sponsorship of such initiatives is no doubt self-serving, in a pragmatic sense, without it, Oearch could not have developed the sophisticated networks of research and public interaction, nor facilitated all the personal durational experiences potentially generated by their mobile application – however tentative these may be. The final word goes to Fischer, who although idiosyncratic in his explanation, nevertheless offers an explanation of how working ‘within the system,’ as it were, is better than attempting to operate outside of it. In terms of this, he argues that, “An ‘Us versus Them’ attitude between environmentalists and the general public is counter-productive, and finding the middle ground is the key to coming up with solutions that work in the real world.” And in relation to this, he notes that because the M/V OSEARCH “was the only ship in the world where scientists could have access to the big animals,” he explains that he “leveraged [this reality] to disrupt the institutional approach to research and [instead] forced collaboration.” A collaboration he defines as one “that’s ocean-first, that’s planet-first, that’s great-grandchildren-first.” Such a collaborative approach – even if forced by necessity, in that Fischer’s corporate-funded research ship is the only one sophisticated enough to allow scientists and conservationists proper access to the creatures tracked – is also for him a far

better option than the alternative approach to environmental protection, which he dubs “the polarizing fringe” (Waters, 2016). And on this issue, his argument is encapsulated as follows:

We (Ocearch) are data-driven centrists; [and] one of the reasons I’m trying to build a booming brand in the middle that is rooted in science and common senses is to drown out the polarizing fringe, because when the whole tone and trajectory of a conversation is dominated by the polarizing fringe, nothing happens...They – the polarizers – are not negotiating from a position to find practical progress, they’re holding on to a position. If you’re a polarizer, you’re as bad as a poacher, and they may think they are trying to save the ocean, but when nothing happens, the ocean gets whacked. (in Waters, 2016)

It is beyond the scope of this chapter – and indeed this thesis – to enter into a debate with Fischer on who precisely the “polarizers” are,¹⁸⁷ as all pro-environmental perspectives are worth consideration, and in the spirit of dialogue aspects of their contributions will always remain valid, whether or not their overall perspectives are legitimated by the dominant discourse of our era. However, if one considers how exceedingly difficult, if not impossible, it is to effect change outside the parameters of a DSP with which we are all complicit, then there is sense to Fischer’s denunciation of those who wish to operate outside of such collaboration. And through such collaboration – which can even entail recourse to aspects of the State Apparatus – Fischer facilitates the partial explication of a Full Body without Organs not only through his tracker, but also through the oblique and hitherto unchartered approach this involves, which amounts to the creation of a nomadic war machine, the dynamics of which far exceed those of, for example, *Botanicula*, discussed earlier.

To be sure, advancing either Shark Net or Ocearch as nomadic war machines seems to run counter to the argument offered by Deleuze in his “Postscript on Control Societies,” in which he expressed concern over the growing capacity of digital technology to monitor and infiltrate all human interaction. Indeed, Deleuze, in his more pessimistic mode, would possibly have seen the development of Shark Net and Ocearch as the extension of control society over even the natural environment. Admittedly, it is remarkable that we have developed the capacity, through advances in acoustic, satellite and digital technologies, to

¹⁸⁷ Fischer does hint at who he means when using the term, when he mocks those not close to the ocean, along with their abstract efforts to effect positive change by distantly countering its degradation. He states: “How can we expect anybody other than the recreational fisherman to save the ocean? It’s not going to be some environmentalist in a building in New York or D.C., it’s going to be the people that love it the most; those are the families that are fishing together, diving together, [and] surfing together” (in Waters, 2016).

follow with a high degree of accuracy the movements of one of the earth's most enigmatic predators in places that previously seemed beyond the human gaze. And it does raise the question of whether or not we have thereby extended the Foucauldian panoptical nightmare to the 'other'-world that is the depths of the ocean. But while one could argue this point, context also needs to be taken into account. With oceanic ecosystems under dire threat because of human activity, and with sharks a vital part of that inter-connected system, the ability to monitor accurately the movements and behaviours of sharks should take precedence over the aforementioned concern.¹⁸⁸ It must also be taken into account who precisely is doing the monitoring. As a first point, it would be overly cynical to assume anything other than good intention on the part of the scientists and conservationists who have dedicated their careers, and indeed lives, to trying to understand the behaviours of various types of marine life in the interests of preserving them. On a related second note, and as discussed in Chapter Two, Dave Toke's advancement of the distinction between scientists operating in the field for decades who rely on intuition, and those whose technophilia has distanced them from such practices, should also be recalled, because the vessel *Ocearch*, by default due to its unique outfitting, attracts a variety of researchers extremely heterogeneous in their histories, experiences, and practices. And it is accordingly often operated by those with an intimate, non-scientific knowledge of the ocean. As Fischer claims: "What we're trying to do is get great fishermen together with great scientists so we have great data sets so we can manage our oceans toward abundance as soon as possible" (Waters, 2016). Admittedly, Fischer's use of the word 'manage' could be pounced on, and held up as glaring evidence of his unwitting assimilation of the imperatives of control society, insofar as the monitoring of nature enabled by technological advance is construed as an extension of Deleuze's envisioned society of continuous digital surveillance. But if one considers the context – both in terms of dire environmental circumstance, and in terms of the aspirations of those doing the monitoring – then such criticism should be reconsidered. Instead, one could turn to the still guarded but more optimistic thought of Guattari in this regard; in particular, his claim – discussed in Chapter Four – that "machinic mutations...deterritorialize subjectivity" and that "the junction of informatics, telematics and the audio-visual will perhaps allow a decisive step to be made in the direction of interactivity, [or] towards a post-media era" (1995: 97). This is because, in

¹⁸⁸ Waters notes that, according to the International Action Plan for Sharks, a programme "initiated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), more than 100 out of 400 shark species are being commercially exploited," and furthermore, "many of those species are so overexploited that even their long-term survival can no longer be guaranteed." Shockingly, "an estimated 100 million sharks are killed each year" (Waters, 2016).

addition to this schizophrenic mix, as it were, “the Universes of techno-science, biology, computer technology, telematics and the media [can] further destabilise our mental coordinates on a daily basis” (1995: 119), and this is a good thing. Indeed, if one considers that both Shark Net and Oearch employ a wide range of technologies to facilitate the capture and distribution of time signals from sharks, in order to create a system of relations between sharks and human beings, then certainly we could see them as machinic mutations that can deterritorialize the subjectivities – albeit only incrementally – of some of those who encounter these programmes on the receiver’s end of the exchange. Of course, we must be cautious, because for Guattari the possibility of the deterritorialization of subjectivity – or becoming different – can only be achieved “provided that new social, political, aesthetic and analytical practices allow us to escape from the shackles of [the] empty speech which crush[es] us” (1995: 97). But in relation to this, it has been argued that the creators of both Shark Net and Oearch certainly do approach their craft through new methods, enabled by utilizing digitized open sourcing, which promote collaboration and public access, and that most importantly exhibit a deep passion (or desire) for the environment. For the most part, the receiver’s end of the digital interface has captured more of the popular imagination, not least because of the interest in accounting for the power of the new configuration which entices certain people to devote their time to sending out messages on behalf of sharks, based on time stamps received from those sharks. And it is possible that via a durational connection enabled by the range of new digital technologies, those deeply affected by the related applications have in some way become different, even if this means only the slight approximation of becoming-animal. In sum, if we take on a more Guattarian sensibility when thinking of these two mobile applications – without forgetting the immense contribution of Deleuze in terms of his work on durational difference – then we can begin to employ a wider range of thoughts on the issue of becoming different in time.

Conclusion

In sum, we can look to the concepts generated in the highly productive collaboration between Deleuze and Guattari, examined in Chapter Three, on difference, desire, and becoming, as a theoretical lens through which to engage with Shark Net and Oearch.

With regard to the generation of difference, Ansell Pearson’s suggestion that Deleuze had an aversion to dogma, and that in this sense, he “was a monster,” is relevant here. That is, his work was characterized as “a subversive, perilous attempt to map out a new becoming of

thought” that is “beyond good sense and common sense,” insofar as, through it, “thought becomes monstrous because it forsakes the desire for an image of thought” (2002: 3). Similarly, the evocative connections generated by the likes of Shark Net and Oearch are an embodiment of this kind of radical thought on both sides of the spectrum – whether one encounters them as a researcher, conservationist or scientist on the one hand, or on the other hand, as a user who downloads the mobile application. For the former, technological advance allows for the academic/practitioner grouping to generate new knowledge on an animal whose movements and behaviours are still not fully understood, while furthermore, through the collaborative open-sourced nature of the research, the monopolization of new understanding by one party is negated. For the latter, namely the end user, they have the option of not simply encountering a shark in a purely informational sense, or through the memorial ambit of popular culture, but also in a new way – enabled by the capacity of new technology. And on this point, it is again important to note that children surface as a thematic concern; for instance, Grades K to 8 in Australia now participate through the Oearch application, and it is being built into an extended school programme. This is because the way in which one acquires knowledge at such a formative stage potentially alters one’s world – or more precisely, one’s understanding of time – and in this instance one’s orientation toward nature. Indeed, we may even speculate that, as demonstrated in the language used by the various journalists writing on the applications, while many adults who encounter it still tend to see it in informational and generic environmental terms, the children who access it might be engaging with it on a different, far more intuitive level. After all, there is significant evidence that succeeding generations relate differently to the constantly proliferating and augmenting developments of information technology.

In relation to desire, it must be remembered that in *Anti-Oedipus*, Deleuze and Guattari were critical of the tendency to characterize desire in terms of lack, and instead advanced it as a productive constellation of forces in interaction. Extended to the human-animal relationship, on the one hand, such desire can result in animals being Oedipalized, insofar as they are construed as substitutes for human companionship, or have human aspects projected onto them, and so forth. And both Shark Net and Oearch reflect such desire via the anthropomorphization of the sharks, through granting them names and projecting human personalities onto them via their imagined statements on Twitter, etc. On the other hand, in terms of Deleuze and Guattari’s taxonomy of animals, both Shark Net and Oearch can also be utilized to channel desire for State animals, as it were, insofar as they are used as

mechanisms to protect against shark attacks on people, with the sharks being construed through the lens of popular mythology as dangerously powerful denizens of the deep, whose sole purpose is to swallow up unsuspecting swimmers. But while the above Oedipalization of sharks entails the explication of a Suicidal/Catatonic Body without Organs, and their characterization as State animals entails the explication of a Fascist/Cancerous Body without Organs, both Shark Net and Oearch also make possible an encounter with sharks as demonic animals. That is, as animals whose difference is allowed to remain unmitigated, so that the human encounter with them can be transformative, insofar as it facilitates the emergence of a strange new human-shark hybrid durationality through digital means. Moreover, on account of their complex and multi-layered collaborative structures, both Shark Net and Oearch comprise explications of a Full Body without Organs that are so large, that they can contain within them the explications of Suicidal/Catatonic and Fascist/Cancerous Bodies without Organs, indicated above, without overly jeopardizing their capacity to usher in difference.

This issue of transformative becoming thus remains primary. As users, we can be deeply affected by the untimely messages sent to us from the netherworld by the most ‘other’ of animals, not least because we can never exercise dominion over it. As stated before, much like the work of Kafka and Melville, or indeed the picture book of Uexküll, Shark Net and Oearch facilitate a contemporary amorphous and destabilizing encounter with the animal ‘other,’ and correlatively with nature in general. A productive encounter enabled by the meshing of new technological developments and capacities, a different approach to research at both the levels of collection and distribution, and the emergence of a different kind of subject constantly in interaction with the digital and desirous of encountering the time of an ‘other.’ As discussed in Chapter Five, for Deleuze, any potentially transformative practice occurs within time, and indeed creates new time, and the durational aspects of difference were examined through his various theoretical encounters with Nietzsche, Proust and Bergson. Yet at this point, Deleuze’s reservations over digitality notwithstanding, we should also consider how Shark Net and Oearch can be understood through Deleuzo-Proustian, Deleuzo-Bergsonian and Deleuzo-Nietzschean terms.

For Deleuze, it was the Signs of Art in Proust’s work which were the ultimate form of signs. For him, “these signs, as though dematerialized, find their meaning in an ideal essence,” and in turn have an effect on all the other signs, “most notably on the sensuous signs,” insofar as “the world revealed by art...integrates them, colours them with an aesthetic meaning, and imbues what was still opaque about them” (Deleuze 2000: 13-14).

Accordingly, if Sensuous Material Signs such as those in *Botanicula* encourage a move away from unthinking or self-defeating interactions with others – through Worldly Signs and deceptive Signs of Love, respectively – toward durational intuition and an accordingly affirmative regaining of time, Signs of Art would have to amplify this exponentially. And it can be argued that *Shark Net* and *Ocearch* constitute such signs, because they can lead us to an encounter with nature that prompts deep introspection and self-reflexivity on the part of the user in relation to duration. That is, what the mobile applications generate is neither a repetitive series of inputs in an enclosed system – as with the Tamagotchi – nor a series of encounters that break the virtual hegemony of the human subjective position, which occurs through *Botanicula*. Rather, they generate a sporadic series of temporal encounters with an open variable that can never be entirely determined. And the very fact that these apps can lead people to consider the movements within time of an animal that shares existence with them, arguably comprises a new development within popular discourse and public perceptions of the environment.

With regard to a Bergsonian reading of *Shark Net* and *Ocearch*, we can return to John Normark, who succinctly expressed this thinker's philosophical project, when he pointed out that “both instinct and intelligence are “two solutions to the same problem of confronting and manipulating matter” (2009: 2). That is, as discussed, Bergson positioned instinct – or the compulsion to organize, put into structure, and establish orthodoxy – against intelligence, which by definition exceeds the boundaries of the past through memorial creativity, or through the recollection of a past that has never been present, with a view to embarking into the future in accordance with a related new trajectory. And in many ways, this is what applications such as *Shark Net* and *Ocearch* offer us; they do not exclusively classify and categorize, but rather generate the conditions through which a user of their mobile applications can imaginatively encounter a shark, and thereby reflect on both its existence in time as well as their own duration in relation to it, in a way that can give birth to a new hybrid form of time.

And this, in turn, has a bearing on Deleuze's argument in *Difference and Repetition* concerning Nietzsche's third order of time, namely that time only *passes* through the creation of difference, which thus amounts to the creation of new time. An idea indissociable from the valorization of a creative and affirmative generation of difference as the only means of proceeding into the future, and correlatively, away from a past which has lost its momentum (1994: 94-95). Indeed, instead of repeating tired old environmental tropes we need to find

new ways with which to tackle an environmental crisis that is both immense, and which we all contribute to. And applications like Shark Net and Ocearch, with their ability to communicate the duration of an animal 'other' via digital means to a user, in a way that can precipitate the emergence of a new human-animal hybrid durational experience on the part of such a user, is a step in the right direction.

This is not to say that such applications are a solution to the environmental problem which is of overwhelming proportions. Rather, it is to say that they reflect a potential to inflect sensibilities in the direction of a more thoughtful orientation toward nature. Much like there is a fair chance that someone who spends much of their time in nature will develop a keener sense of its presence, and thus a different sense of self in relation to it, so too, via digital means, a similar sensibility may well be engendered through apps such as Shark Net and Ocearch. And that stands to be an affirmative development, even if at first the change thereby precipitated is only incremental. After all, an altered conception can become a very powerful thing in time.

Conclusion

Inspired by my own digital exchange with a shark just over four years ago, this thesis has focussed on how certain digital artefacts have the potential to more powerfully inflect attitudes toward environmental care, not simply through providing more information on nature, but also, more importantly, through connecting human and animal time. And it was argued that through such a connection being forged, certain digital artefacts can make us aware, on an intuitive level, of how our lives are inextricably intertwined within the same great durational Whole.

In this regard, the first task was to determine what discursive dynamics are responsible for those current attitudes that are so powerfully, and so pervasively, inflected against nature. And this required as a starting point an exploration of the environmental crisis itself. Accordingly, it was determined that while human disregard for the natural environment is in no way exclusively the modus operandi of the contemporary era, the idea of an environmental crisis in itself began to gain traction with the popular success of Rachel Carson's evocative 1962 book *Silent Spring*. And, as discussed, this was partly because its publication was coterminous with a number of catastrophic environmental events that were moreover coupled with unique cultural moments, which collectively altered long-held perceptions of our 'dominant' place in relation to the planet we inhabit. Indeed, one of the world's great superpowers, the United States, was around this time beset by a series of terrifying environmental disasters – the Cuyahoga River on fire in the centre of populous Cleveland, the eutrophication of Lake Erie and the wretched accompanying smells, and masses of dead birds washing up on the shores of Santa Barbara. All of which were captured in visceral detail by the mass media of the time. And correlatively, when the famous *Earthrise* photo taken by the crew of Apollo 8 in 1968 began to be circulated in the press and via exposure through broadcast, our understanding of our place in the universe underwent transformation, insofar as the state of the environment gained legitimacy as a primary issue that could no longer be ignored. It seemed imperative to act, and global institutional players duly responded, holding the first global-level conference on the environment, namely the United Nations Conference on the Human Environment, in Stockholm in 1972. However, as was demonstrated, this conference, and all the conferences that followed in subsequent decades, were beset by era-specific geopolitical squabbles, which rendered them ineffective. Beyond such era-specific deadlocks, great geopolitical developments and shifts – such as the

OPEC Oil Crisis of the 1970s and the collapse of the Soviet Union in the early 1990s – saw the economic discourse of neoliberalism rise to dominance and achieve hegemony, respectively. And it was argued that neoliberalism, with its constant call for growth, remains incompatible with responsible earth stewardship.

To be sure, criticism from the mass media, members of the public, theoreticians, and activist groups that seek to hold global institutions to account for their criminally negligent lack of environmental responsibility, remains a feature of our society. Indeed, even today, there is no shortage of critique that advances neoliberalism as an exploitative system, one that both disenfranchises people and destroys the environment. But at the same time, in many respects, such critique has neither profoundly altered this exploitative system of relations, nor halted its continued large-scale destruction of the planet. In fact, in many cases, it has not had much of an impact on many people, who simply continue to go about their lives as if the environmental crisis is an abstract idea, and not an actual crisis with real consequences for them.

To account for the failure of oppositional voices in the media, public and academy to alter either the lacklustre response by those in power, or the lackadaisical attitude of the majority of people to the degradation of the natural environment, the focus turned to Kilbourne, Beckmann and Thelen's conception of the Dominant Social Paradigm (or DSP) in operation today. As was argued, while its economic, political, technological, and cosmological dimensions all serve to relegate the natural world that sustains us to a secondary issue, its technological dimension continues to provide us with assurance against impending environmental catastrophe. Accordingly, the belief exists that if critical mass were ever to be reached, technological advance – or what Kilbourne et al. term the 'technofix' – can always be relied upon to save us from nature's fury, or more accurately, from ourselves. And it was further demonstrated that the DSP, although not exclusively tied to a neoliberal framework of thought and operation, remains very well reflected in, and propagated by, neoliberal discourse, to the point where the two emerge as inextricably linked.

As such, the argument that we should look to the digital artefacts of information technology as tools through which to inflect attitudes more positively toward the natural world, encountered two immediate and substantial problems. Firstly, information technology is inextricably linked with the spread of neoliberal economic discourse and practice, and secondly, it is intertwined with both environmental and social degradation on account of the

resources and infrastructure required to keep it operating. And not only were these two realities explored at length, but it was also advanced that such exploration is very important because too often, in both popular discourse and even academic theory, it is easily forgotten that the possibilities of the virtual world are only facilitated through a vast, and immensely polluting actual material infrastructure that sustains the cyber world. However, while the above two issues remain problematic, it is also highly unlikely that contemporary society will abandon its reliance on information technology in the near future. Furthermore, as environmentally destructive as neoliberalism is, it is also immensely productive – indeed, it has produced the very digital tools that I accessed to study the environmental crisis. That is, a large part of my research for this environmentally-orientated thesis entailed scouring the internet, particularly Google Scholar, via my Lenovo laptop and through my Samsung phone – all of which are generated by and/or produced through environmentally destructive practices. Moreover, all of these aforementioned virtual points and actual tools of access have, to a great extent, become accessible to me at an affordable price through the worst excesses of neoliberalism – the hyper-competition that demands, among other things, the extraction of materials such as coltan from the poorest regions on earth, without regard for safe and fair labour practice, and so forth.

As such, because of the irony of the adoption of a thoroughly oppositional stance toward neoliberalism and technology for the sake of preserving the environment, and the communication of such a stance through the means made available by neoliberalism and technological advance, an alternative stance was chosen. That is, it was advanced that within the highly productive and amorphous technological dimension of the DSP, one should search instead for tools that may facilitate the positive inflection of sensibilities toward the natural environment. However, as was argued, in pursuing this trajectory, great care had to be taken to avoid falling into the trap of the technofix. And in this regard, a serious philosophical meditation on the capacity of information technology was crucial. As a first step, the works of a number of contemporary theorists who place into critical question some of the more entrenched ideas concerning information technology, were thematized. Following this, the focus shifted to those theorists who problematize the standard Western conception of technology as being separate from, and in opposition to, both culture and nature. And then, informed by such consideration, a related circumspect approach was adopted, which acknowledged the complexities involved in any exchange between agency, culture,

technology and nature, and which simultaneously avoided being either too pessimistic, or conversely, too optimistic, over technological development.

However, if technology can be considered as an indeterminate tool that could be employed either to endorse the status quo or to transform it, then the next question that emerged concerned the direction in which to inflect the technological dimension of the DSP, so that it might precipitate a more positive orientation toward nature. To respond to this, a philosophical framework was required, both to guide any new interventions and to recognize resonant existing interventions. And in this regard, the writings of the post-structural philosopher Gilles Deleuze and his collaborative work with the radical psychoanalyst, Félix Guattari, were turned to because of how they promote difference, and the idea of desire outside of the ambit of that cornerstone of the DSP, namely capitalism. Beyond this, the work of Deleuze and Guattari was also chosen because of how, through their concept of desubjectivation via ‘becoming-animal,’ they provide an alternative perspective to the anthropocentrism propagated by the cosmological dimension of the DSP. And accordingly, these features of their work were explored and elaborated upon. However, employing the work of Deleuze in the above regard entailed a number of theoretical challenges that had to be engaged with and thought through.

That is, while the immensely productive concepts mentioned above were forged in the 1960s, 1970s and 1980s, and were imbued with an optimism that different, more affirmative modes of being – or rather becoming – in the world were possible, by the early 1990s, information technology had begun to emerge as the means through which the future of communication, trade and other exchange would occur. This development was viewed very dimly by Deleuze. As discussed, in his 1990 text “Postscript on Control Societies,” Deleuze expressed significant concern over the emergence of information technologies, because of their correlative negative impact on the generation of difference. Moreover, many of the charges laid against the emerging digital societies by Deleuze have been reflected in the works of a number of contemporary theorists, who are least partially correct in their identification of the many problematic dynamics associated with developments relating to information technology. At the same time, the counterweight to such concern, namely Deleuze’s concept of counter-information, was thematized. That is, although Deleuze never developed the idea significantly, when asked about how the hegemony of a digital society of control could be resisted, he responded by advancing the idea of counter-information. And he furthermore suggested that viral contamination and piracy constituted two forms of such

counter-information. With regard to the idea of virus, certain contemporary theorists have been quick to seize on related possibilities, equating Deleuze's suggestion with their elaboration on the counter-information of error within digital code and in institutional response to new digital practices. But in addition to this, at this point the focus also shifted to the individual contribution of Guattari, and specifically his idea of post-media. This was, firstly, because it provided elaboration on Deleuze's suggestion of piracy as a form of counter-information, and secondly, because it evinced optimism on Guattari's part that if accessed thoughtfully, information technology could act as a potential conduit for the generation of difference. This position was then explored, both in terms of Guattari's articulation of it, and in its reflection in contemporary theoretical consideration of information technology. What accordingly emerged was that, ironically, the many contemporary theorists who use Deleuzoguattarian concepts in their analysis of the potential of information technology to precipitate desubjectivation, actually access these concepts through a Guattarian sensibility. But beyond this, in their assertions that information technology has the capacity to engender affirmative change, they also tend to overlook a key aspect of Deleuze's conceptions of difference, desire and becoming, namely his insistence that the generation of difference includes a durational component.

With a view to engaging with the latter issue, the durational aspect of difference was then focused upon, which required specific consideration of Deleuze's individual work on three thinkers who deeply informed his conception of durational difference, namely Nietzsche, Proust, and Bergson. What emerged from an overview of Deleuze's work on these three thinkers was that the generation of affirmative, transformative experiences consistently included a deep awareness of, and engagement with, time. Next, the focus turned to Deleuze's two mammoth works on analog cinema, because this constituted the first time in which he applied his conception of durational difference to a technological phylum. For Deleuze, such cinema could be deeply transformative because of its ability to reflect and reflect upon duration, and to precipitate analogous reflection on the part of the viewer. However, while this may have been applicable to analog cinema, the prominent Deleuzian scholar, David Rodowick, argued that because the digital involves a different informational ontology, digital cinema – and by extension, other digital artefacts from games to mobile applications – could not communicate duration. After thematizing his ideas in this regard, the counter-weight position of two equally prominent Deleuzian thinkers, Brian Massumi and Ronald Bogue, was explored. That is, while Massumi argued that the digital cannot be

extricated from its analog context, Bogue pointed out that the production of non-dogmatic thought and *new* connections is dependent on aesthetic dynamics, before any dependency on technological means through which the aesthetic is produced.

Against the backdrop of the above, in the final chapter, three digital artefacts were examined in terms of the durational exchange they facilitate. Accordingly, while the iconic 1990s Tamagotchi served as a testament to Deleuze's deep concerns over the continuous control exerted by digitality, and was correlatively categorized as involving first-order hybrid durationality, the free-to-play multi-platform adventure game *Botanicula* proved to be far less nefarious in this regard. And for the creative possibility it entailed, it was deemed to be an example of second-order hybrid durationality. Yet, although it constituted a thoughtful engagement with nature – akin to the work of Uexküll – it nevertheless ultimately entailed the user being propelled forward in time within an enclosed digital system. This contrasted with the third-order hybrid durationality of the shark tracking applications, *Shark Net* and *Ocearch*. In this regard, it was argued that, *Shark Net*, in conjunction with the more recently launched *Ocearch*, through their utilization of a wide range of technologies, on account of their employment of an open unpredictable variable – namely the living shark – and in their related facilitation of a connection in time between shark and human via a digital platform, comprise something altogether different than either of the two above digital artefacts. Something which approximates a digital becoming-animal and which – on account of the scale of the project, its 'nomadic' dynamics, and its increasing imbrication with the formal education sector – stands to be immensely transformative.

The *newness* of such an experience must be underscored. Who could have possibly imagined – even ten years ago – that one could receive a ping from a shark, unwittingly informing one of its continued duration, its continued movement-in-time, on a cell phone that would have the capacity to perform any number of additional functions, from producing digitized video clips that one can embed into a messaging service, to storing and searching through entire philosophical tomes. That is, information technology has produced – and continues to produce – new kinds of exchanges, and the effects of these exchanges, along with the exchanges that will become possible in the future, remain indeterminate.

However, against the backdrop of the above exploration of both *Shark Net* and *Ocearch* through a Deleuzoguattarian lens, and the connections to the environment they

facilitate, there are some recommendations that can be made in order to improve the potential efficacy of such nomadic war machines.

Firstly, the charge of anthropomorphism was only hesitantly levelled against the apps in the final chapter. This was because of how the tendency on the part of the two trackers to name *their* sharks – although comprising an explication of a Suicidal/Catatonic Body without Organs – could also constitute reflection of immaturity, which requires space and time to mature, not condemnation that might prevent such maturation from taking place. Yet one cannot help shake the thought that this domestication does indeed detract from the otherworldly element of the encounter. And even if one concedes that it is not the naming of the sharks that is the crux of the problem, the extension of that now-named entity into the realm of social media – a secondary feature of both applications – remains a troubling aspect. This is because via the Facebook pages and Twitter accounts, the domestication – or Oedipalization – of what could have been a mysterious and personally transformative encounter with an animal ‘other,’ occurs. In effect, some person monopolizes the pings of one of the tagged animals through being the first to open up a Twitter account, or a Facebook page, for it, so that subsequently, instead of encountering the time of a shark, one encounters the appropriation of its time by one person. And through such means, what was a silent, unsettling, and potentially reflective exchange in time – via a digital platform – becomes replaced by the reflections of one person’s Oedipal desires, and the babble of, for instance, the Twittersphere, through which collectively any unsettling possibilities are settled in the most parochial terms.

Secondly, the technological limitations of the applications particularly as they relate to time, remain an issue. While the popular debate over the accuracy of time-signatures, and the implications of this, were thematized for what they communicated about the importance for people of the durational features of the digital connection, it must be noted that the applications even now do not provide a seamless exchange between animal and human, on account of an interface that is sluggish, and often plagued by error. In itself this is an interesting point. As advanced by the recent theorists who wrote on the breakdown of digital exchange in support of Deleuze’s assertion concerning counter-information, the breakdowns in both the Shark Net and Oearch interfaces demonstrate adequately that there is as yet no such thing as an all-encompassing digital society of control. That is, while information technology has undoubtedly altered all sorts of relations profoundly, and while it does both enhance and impinge on our lives in a plethora of ways, to view it as a system of relations,

seamless and perfectly efficient in integration and operation, would be an error. But in terms of the tracker applications, ironically, only the efficient extension of control society dynamics to the ocean will be able to facilitate the durational counter-information currently desired by devotees of Shark Net and Ocearch.

Yet, if this is pursued, other related possibilities will conceivably emerge. As discussed, Stale Stenslie in *Virtual Touch: A study of the use and experience of touch in artistic, multimodal and computer-based environments*, details the possibilities of developing haptic (or kinaesthetic) technologies associated with the digital. And one should consider that the additional dynamic of simulating touch within a digital exchange in time between animal and human, stands to open up an entire new field of possibilities, the philosophical implications of which cannot even be imagined at present. After all, while haptic technology is something many of us are already used to – the feedback received from one's hand movement on a smartphone operates via this technology of touch, vibration, motion, and force – to apply it to an application such as Shark Net or Ocearch in a far more sophisticated manner could facilitate a move beyond a mere signal from the other side of the oceanic mirror, as it were, toward an approximation of an actual brief, fleeting *contact* with the animal 'other.'

One should also consider that the virtual reality headset moved very recently from popular imagination to tangible reality with the launch of the *Oculus Rift* earlier this year. And it is worth noting, before looking at the potential of such a three-dimensional device being employed in the service of enhancing connections between animal and human, that the device was initially developed around 2012 by an independent company through the crowd-funding website, Kickstarter. Admittedly, this independent company was subsequently bought out by Facebook in 2014, but the monopolizing tendencies of tech-giants notwithstanding, it is important to note that the initial desire for such a product was from the public, who collaboratively funded the aforementioned independent company in their endeavour to develop the device. Thus, while Facebook capitalized on the monetary potential of the device, its point of genesis was not this social media monolith. The device is, as its tag 'virtual reality headset' suggests, a contraption that one places over one's head, which closes off one's sight, and to a lesser extent, one's hearing, from outside distraction, to facilitate a far more immersive experience, insofar as one enters into the virtual environment presented. Applied to something like Shark Net or Ocearch, again, the generation of *new*

connecting experiences in terms of the relation between animal and human, is certain, and the philosophical implications of this stand to be manifold.

On a closing note, any such coming-together of information technologies and the environment will yield *new* connections, but whether or not they will be affirmative remains to be seen. Yet in going forward, it is important to remember the idea generated by a Deleuzoguattarian theoretical approach to any development, namely that in time everything has the capacity for change. Similarly, to dismiss the idea that information technology has the potential to participate positively in addressing the environmental crisis – despite being compromised by its current material cost – is not only to disregard an immense domain of possibility, but also to construe the people who develop and access it as static beings devoid of the capacity for an affirmative engagement with the life around them. This is controverted every day by creative inventions on the part of creative people who seek connections not only with each other, but also more recently with the animal ‘other,’ in ways that poignantly evince their status as a people yet to come.

Bibliography

- ABC North Coast. 2016, "NSW Government offers real-time shark tracking on upgraded Shark Smart phone app," viewed 10 May 2016, from: <http://www.abc.net.au/news/2016-03-18/nsw-government-offers-real-time-shark-tracking-on-app/7257528>
- Ackermann, R. 1990, *Nietzsche: A Frenzied Look*. The University of Massachusetts Press: Amherst.
- AFP. 2015, "Paris Attacks: What We Know So Far," in France 24, viewed 12 December 2015, from: <http://www.france24.com/en/20151115-paris-attacks-bataclan-what-we-know-attacker-victims-arrests-belgium>
- Akkad, M. 1981, *Lion of the Desert*, Anchor Bay Entertainment: Libya.
- Aksoy, P. & DeNardis, L. 2008, *Information Technology in Theory*, Course Technology, Thomson Learning: Boston
- Alba-Juez, L. 2009, *Perspectives on Discourse Analysis: Theory and Practice*. Cambridge Scholars Publishing: Cambridge
- Alex, A. 2008, "1962-1973: Worker and student struggles in Italy," in Libcom, viewed on 12 April 2014, from: <http://libcom.org/history/1962-1973-worker-student-struggles-italy>
- Alliez, E. & Goffey, A. (eds.) 2011, *The Guattari Effect*. Continuum: London.
- Allison, A. 2006, *Millennial Monsters: Japanese Toys and the Global Imagination*. University of California Press: London.
- Anderson, N. 2003, "The Ethical Possibilities of the Subject as Play: In Nietzsche and Derrida," *The Journal of Nietzsche Studies* 26 (Autumn 2003), pp. 79-90.
- Andrejevic, M. 2007, *iSpy: Surveillance and Power in the Interactive Era*. University of Kansas: Lawrence
- Ansell-Pearson, J. 2004, "Time, Space, Forced Movement and the Death-Drive: Reading Proust with Deleuze." In Khandker, W. (ed.) 2004, *Lives of the Real: Bergsonian Perspectives*, Department of Philosophy, University of Warwick: Coventry.
- Ansell-Pearson, K. (ed.) 2002, *Deleuze and Philosophy: The Difference Engineer (Warwick Studies in European Philosophy)*. Routledge: London and New York.
- Arnheim, R. 1957, *Film as Art*. University of California Press: Berkeley.
- Ashby, L. 2006, *With Amusement for All: A History of American Popular Culture since 1830*. University of Kentucky Press: Lexington

- Australian Associated Press. 2015, "Real-time Shark Tracking Apps to be Trialled at Australian Beaches," in *The Guardian*, viewed 10 May 2016, from: <http://www.theguardian.com/environment/2015/sep/27/real-time-shark-tracking-apps-to-be-trialled-at-nsw-beaches>
- Bacon, F. 2004, "The Painting before Painting..." In Deleuze, G. (trans. Smith, D.) *Francis Bacon: The Logic of Sensation*. Continuum: London and New York.
- Bandai, D.B. 1997, *Tamagotchi: The Official Care Guide and Record Book*. Andrews McMeel Publishing: Kansas City
- Baradat, L. 1994, *Political Ideologies: Their Origins and Impact*, Fifth Edition. Prentice-Hall International: London.
- Barthes, R. (trans. Lavers, A. & Smith, C.) 1975, *Elements of Semiology*. Hill & Wang: New York.
- Barthes, R. 1977, *Roland Barthes*, Noonday Press: New York.
- Baugh, B. 1993, "Prolegomena to Any Aesthetics of Rock Music," *Journal of Aesthetics and Art Criticism* 51(1), pp. 23-29.
- Bay, J. 2004, "(In)Formation: Bodies and Writing in Network Culture," *JAC*, Vol. 24, No. 4, Special Issue: Complexity Theory, pp. 929-946.
- Bay, J. 2004, "Screening (In)Formation: Bodies and Writing in Network Culture," *JAC*, 24(4), pp. 929-946.
- Beaulieu, A. 2011, "The Status of Animality in Deleuze's Thought," *Journal for Critical Animal Studies* 9(1/2), pp. 72-80.
- Beckett, E. (World Land Trust). 2012, "Computer Game Set to Save Thousands of Acres for Conservation in Just Two Weeks," media release April 25th, 2012, Emma Beckett PR, viewed on 12 April 2015 from: <http://www.worldlandtrust.org/news/2012/04/computer-game-set-save-thousands-acres-conservation>
- Beistegui, M. 2007, *Proust as Philosopher: The Art as Metaphor*, Routledge: New York.
- Bekoff, M. & Meaney, C.A. 1998, *Encyclopedia of Animal Rights and Animal Welfare* Routledge: London and New York.
- Bell, D. 2001, *An Introduction to Cybercultures*, Routledge: New York and London.
- Bell, D. 2009, "On the Net: Navigating the World Wide Web." In Creeber G. & Martin, R. *Digital Cultures: Understanding New Media*. Open University Press (McGraw-Hill Education): Maidenhead.
- Bell, J. 2001, *Deleuze's Hume: Philosophy, Culture and the Scottish Enlightenment*. Edinburgh University Press: Edinburgh.

- Ben-Zvi. 2005, "Kant on Space," in *Philosophy Now*, viewed 23 November 2015, from: https://philosophynow.org/issues/49/Kant_on_Space
- Bensmaïa, R. (trans. Cochran, T.) 1986, "Foreword: The Kafka Effect." In Deleuze, G. & Guattari, F. (trans. Polan, D) *Kafka, Toward a Minor Literature, Theory and History of Literature, Vol. 30*, University of Minnesota Press: Minneapolis and London.
- Berberoglu, B. 1992, *The Political Economy of Development: Development Theory and the Prospects for Change in the Third World State*. University of New York Press: Albany.
- Bergson, H. (trans. Audra, A.R. & Brereton, C.) 1977, *The Two Sources of Morality and Religion*. University of Notre Dame Press: Notre Dame.
- Bergson, H. (trans. Mitchell, A.) 1944, *Creative Evolution*. The Modern Library: New York.
- Bergson, H. (trans. Mitchell, A.) 1983, *Creative Evolution*. University Press of America: Lanham.
- Bergson, H. 1949, "The Two Sources of Morality and Religion." In Larrabee, H.A. (ed.) *Selections from Bergson*. Appleton-Century-Crofts: Norwalk.
- Bergson, H. 1991, *Matter and Memory*. Cosimo Classics: New York.
- Biagi, S. 2012, *Media Impact: An Introduction to Mass Media*, Tenth Edition. Cengage Learning: Boston.
- Bischof, G., Karner, S. & Ruggenthaler, P. (eds.) 2010, *The Prague Spring and the Warsaw Pact Invasion of Czechoslovakia in 1968*. Lexington Books: Lanham.
- Bloch, L.R. & Lemish, D. 1999, *Disposable Love: The Rise and Fall of a Virtual Pet in New Media and Society*. Sage: London.
- Bogue, R. 1988, *Deleuze and Guattari*. Routledge: London.
- Bogue, R. 1989, *Deleuze and Guattari*. Routledge: London and New York.
- Bogue, R. 2008, *Deleuze and Guattari*. Routledge: London and New York.
- Bogue, R. 2012, *Deleuze's Way: Essays in Transverse Ethics and Aesthetics*. Ashgate: Hampshire.
- Bogue, R. 2012, *Deleuze's Way: Essays in Transverse Ethics and Aesthetics*. Routledge: London and New York.
- Boljkovac, N. 2013, *Untimely Affects: Gilles Deleuze and an Ethics of Cinema*. Edinburgh University Press: Edinburgh.
- Bondanella, P. 1993, *The Films of Roberto Rossellini*. Cambridge University Press: Cambridge.
- Bondanella, P. 2002, *The Films of Federico Fellini*. Cambridge University Press: Cambridge.

- Borgman, C.L. 2007, *Scholarship in the Digital Age, Information, Infrastructure, and the Internet*. MIT Press: Cambridge
- Bowker, M. & Brown, R. (eds.) 1993, *From Cold War to Collapse: Theory and World Politics in the 1980s*. Cambridge University Press: Cambridge.
- Bradley, T. 2010, "Operation Payback: WikiLeaks Avenged by Hacktivists," in PC World, viewed 7 December 2010, from: http://www.pcworld.com/article/212701/operation_payback_wikileaks_avenged_by_hactivists.html
- Braidotti, R. 2006, "Affirming the Affirmative: On Nomadic Affectivity," in *Rhizomes* 11(12), viewed 23 November 2015, from: <http://www.rhizomes.net/issue11/braidotti.html>
- Breazeale, D. 1997, *Nietzsche: Untimely Meditations*. Cambridge University Press: Cambridge.
- Brenez, N. 2011, "Recycling, Visual Study, Expanded Theory – Ken Jacobs, Theorist, or the Long Song of the Sons." In Pierson, M., James, D. & Arthur, P. *Optic Antics: The Cinema of Ken Jacobs*. Oxford University Press: Oxford.
- Brosnan, M. 1998, *Technophobia: The Psychological Impact of Information Technology* Routledge: London and New York.
- Brown, G. & Yule, G. 1983. *Discourse Analysis*. Cambridge University Press: Cambridge.
- Brownell, R. 2011, *World History: American Counterculture of the 1960's*. Gale Cengage Learning: Detroit.
- Bruns, G.L. 2007, "Becoming-Animal (Some Simple Ways)," *New Literary History* 38(4), autumn, pp. 703-720.
- Bryce, R. 2014, *Smaller, Faster, Lighter, Denser, Cheaper: How Innovation Keeps Proving the Catastrophists Wrong*. Public Affairs: New York.
- Brzezinski, M. 2002, *Casino Moscow: A Tale of Greed and Adventure on Capitalism's Wildest Frontier*. Simon and Schuster: New York.
- Buchanan, B. 2008, *Onto-Ethologies: The Animal Environments of Uexküll, Heidegger, Merleau-Ponty, and Deleuze*. SUNY Press: Albany.
- Buchanan, I. & MacCormack, P. (eds.) 2008, *Deleuze and the Schizoanalysis of Cinema*. Continuum: London.
- Buchanan, I. 2007, "Deleuze and the Internet," *Australian Humanities Review* 43, pp. 1-19.
- Bucher, T. 2012, "Want to Be on the Top? Algorithmic Power and the Threat of Invisibility on Facebook," *New Media & Society* 7, pp. 1164-1180.

- Buell, F. 2003, *From Apocalypse to Way of Life: Environmental Crisis in the American Century*. Routledge: New York.
- Burnham, D. & Jesinghausen, M. 2010, *Nietzsche's 'The Birth of Tragedy': A Reader's Guide*. Continuum: London.
- Byg, B. 1995, *Landscapes of Resistance: The Films of Daniele Huillet and Jean-Marie Straub*. The University of California Press: Berkeley.
- Callinicos, A. 2003, *An Anti-Capitalist Manifesto*. Polity Press: Cambridge
- Campbell, J. & Pederson O. (eds.) 2001, *The Rise of Neoliberalism and Institutional Analysis*. Princeton University Press: Princeton.
- Carlson, N. 2010, "At Last - The Full Story of How Facebook Was Founded," in the Business Insider, viewed on 12 December 2015, from: <http://www.businessinsider.com/how-facebook-was-founded-2010-3>
- Carnie, T. 2015, "UN Warns on Volume of Hazardous Waste," in IOL News, viewed on 12 December 2015, from: <http://www.iol.co.za/capetimes/un-warns-on-volume-of-hazardous-waste-1860532>
- Carroll, J. (ed.) 1988, *International Environmental Diplomacy*. Cambridge, University Press: Cambridge.
- Cass, L. 2006, *The Failures of American and European Climate Policy: International Norms, Domestic Politics and Unachievable Commitments*. SUNY Press: Albany.
- Castellet, A. 2016, "A Reflection on Wearables and Innovation in the Mobile Ecosystem: Two Possible Scenarios." In Aguado, J.M. (ed.) *Emerging Perspectives on the Mobile Content Evolution*. Information Science Reference (IGI Global): Hershey.
- Castells, M. & Cardoso, G. (eds.), 2005, *The Network Society: From Knowledge to Policy*. Centre for Transatlantic Relations: Hershey.
- Castells, M. 2001, *Conversations with History: Manuel Castells*, on YouTube, viewed 16 December 2014, from: <https://www.youtube.com/watch?v=0GBB7U5mv0w>
- Castells, M. 2001, *La Galaxia Internet*. Madrid: Arete.
- Castells, M. 2010, *The Power of Identity*, Second Edition. Wiley-Blackwell: Hoboken.
- Castells, M. 2010, *The Rise of the Network Society, 2nd Ed.* Wiley-Blackwell: Hoboken.
- Castells, M. 2012, *Networks of Outrage and Hope: Social Movements in the Internet Age*. Polity Press: Cambridge.
- Cavanagh, A. 2007, *Sociology in the Age of the Internet*. Open University Press: Maidenhead.

- CEET (Centre for Energy-Efficient Telecommunications). 2015, "Bell Labs and University of Melbourne Research," viewed on 21 December 2015, from: <http://www.ceet.unimelb.edu.au/research/>
- Chalaby, J.K. 2007, *The de Gaulle Presidency and the Media: Statism and Public Communications*. Palgrave Macmillan: Basingstoke.
- Christiansen, S. & Scarlett, Z. (eds.) 2012, *The Third World in the Global 1960s*. Berghahn Books: New York and Oxford.
- Clapp, J. & Dauvergne, P. 2005, *Paths to a Green World: The Political Economy of the Global Environment*. MIT Press: Cambridge.
- Clark, L. 2012, "Shark Net Lets You Track Great Whites in Real-time," in Wired, viewed 4 May 2016, from: <http://www.wired.co.uk/news/archive/2012-08/21/shark-location-app>
- Clarke, S. 1988, *Keynesianism, Monetarism and the Crisis of the State*. Edward Elgar Publishing: Cheltenham.
- Cobbett, R. 2012, "Botanicula Review," in PC Gamer, viewed 10 April 2016, from: <http://www.pcgamer.com/botanicula-review/>
- Cole, D. 2013, "Lost in Data Space: Using Nomadic Analysis to Perform Social Science." In Coleman, R. & Ringrose, J. (eds.) *Deleuze and Research Methodologies*. Edinburgh University Press: Edinburgh.
- Coleman, F.J. 2005, "Art." In Parr, A. (ed.) *The Deleuze Dictionary, Revised Edition*. Edinburgh University Press: Edinburgh.
- Colman, F.J. 2005, "Affect." In Parr, A. (ed.) *The Deleuze Dictionary, Revised Edition*. Edinburgh University Press: Edinburgh.
- Cominos, M. 2008, "The Question of Nietzsche's Anti-Politics and Human Transfiguration." In Siemens, H. & Roodt, V. (eds.) *Nietzsche, Power and Politics: Rethinking Nietzsche's Legacy for Political Thought*. Walter de Gruyter: Berlin.
- Compaine, B. (ed.) 2001, *The Digital Divide: Facing a Crisis or Creating a Myth*. MIT Press: Cambridge and London.
- Conflict Minerals. 2015, "The Truth Underlying the Systemic Looting of Congo: Reports and Resources," viewed on 21 December 2015, from: <http://conflictminerals.org/reports-and-resources/>
- Conley, V.A. 2009, "Of Rhizomes, Smooth Space, War Machines, and New Media," In eds. Poster, M. and Savat, D. *Deleuze and New Technology* Edinburgh University Press: UK

- Cormode, G. & Krishnamurthy, B. 2008, "Key differences between Web 1.0 and Web 2.0," *Journal First Monday* 13(6), from: <http://firstmonday.org/ojs/index.php/fm/article/view/2125/1972>
- Costa, J.T. 2013, *On the Organic Law of Change: A Facsimile Edition and Annotated Transcription of Alfred Russel Wallace's Species Notebook of 1855-1859*. Harvard University Press: Cambridge.
- Crawford, C. 1999, "Nietzsche's Psychology and World Redemption: Dionysus Versus the Crucified." In Golomb, J., Santaniello, W. & Lehrer, R. (eds.) *Nietzsche and Depth Psychology*. SUNY Press: Albany.
- Creswell, J.W. 1998, *Qualitative Inquiry and Research Design: Choosing among Five Traditions*. Sage: Thousand Oaks.
- Crisp, C. 1987, *The Rediscovery of Editing in the French Cinema, 1930-1945*. Histoire et Mesure: Paris.
- Currier, D. 2003, "Feminist Technological Futures: Deleuze and Body/Technology Assemblages," *Feminist Theory* 4(3), pp. 321-338.
- Dallek, R. 2004, *An Unfinished Life: John F. Kennedy, 1917-1963*. Penguin: London.
- Daniels, P. 2013, *Nietzsche and "The Birth of Tragedy"*. Routledge: London and New York.
- Davies, A. & Elder, C. (eds.) 2008, *The Handbook of Applied Linguistics*, Blackwell Publishing: Hoboken.
- Davies, E. 2012, "Sharks Tracked by Surfing Robot and Free App," in BBC Nature, viewed 4 May 2016, from: <http://www.bbc.co.uk/nature/19287582>
- Dawkins, R. 2005, "Deleuze, Pierce, and the Cinematic Sign," *The Public Journal of Semiotics* 15(2), pp. 8-12.
- de Almeida, R. 2006, *Nietzsche and Paradox*. SUNY Press: New York.
- de Shalit, A. 2005, *Why Posterity Matters: Environmental Politics and Future Generations*. Routledge: London & New York.
- De Vries, P. 2007, "Don't Compromise Your Desire for Development! A Lacanian/Deleuzian Rethinking of the Anti-politics Machine," *Third World Quarterly* 28(1), pp. 25-43.
- Deacon, D.N., Pickering, M.J., Golding, P. & Murdock, G. 2008, *Researching Communications: A Practical Guide to Media and Cultural Analysis*, Second Edition. Bloomsbury: London.
- Deardoff, J. 1997, "Parents' Finding New Pet Peeve is Virtual Insanity," in the Chicago Tribune, viewed 12 December 2015, from: http://articles.chicagotribune.com/1997-09-17/news/9709170241_1_virtual-pets-tamagotchi-new-pet

- DeGarmo, D. 2005, *International Environmental Treaties and State Behaviour: Factors Influencing Co-operation*. Routledge: London and New York.
- Del Caro, A. & Pippin, R. (eds.) 2006, *Thus Spoke Zarathustra: A Book for All and None*. Cambridge University Press: New York.
- Delawala, I. 2015, "What is Coltan?" in ABC News, viewed on 21 December 2015, from: <http://abcnews.go.com/Nightline/story?id=128631>
- Deleuze, G. (trans. Patton, P.) 1994, *Difference and Repetition*. Columbia University Press: New York.
- Deleuze, G. (trans. Smith, D.W.) 2002, *Francis Bacon: The Logic of Sensation*, Continuum: London and New York.
- Deleuze, G. (trans. Tomlinson, H.) 2006, *Nietzsche and Philosophy*. Columbia University Press: New York.
- Deleuze, G. & Guattari, F. (trans. Hurley, R., Seem, M. & Lane, H.) 2004, *Anti-Oedipus: Capitalism and Schizophrenia*. Continuum: London and New York.
- Deleuze, G. & Guattari, F. 1987, *A Thousand Plateaus: Capitalism and Schizophrenia*. Continuum: London and New York.
- Deleuze, G. & Guattari, F. 2005, *A Thousand Plateaus: Capitalism and Schizophrenia*. Continuum: London and New York.
- Deleuze, G. & Parnet, C. 1977, *Dialogues*. Flammarion: Paris.
- Deleuze, G. 1989, *Cinema 1: The Movement-Image*. Continuum: London.
- Deleuze, G. 1989, *Cinema 2: The Time-Image*, Continuum: London.
- Deleuze, G. 1990, "Postscript on Control Societies." In Deleuze, G. (trans. Joughin, M.) 1995, *Negotiations*. Columbia University Press: New York.
- Deleuze, G. 1991, *Bergsonism*. Zone Books: New York.
- Deleuze, G. 1995, "Control and Becoming." In Deleuze, G. (trans. Martin Joughin). *Negotiations*. Columbia University Press: New York.
- Deleuze, G. 1998, "Having an Idea in Cinema. (on the Cinema of Straub-Huillet)" In Kaufman, E. & Heller, K.J. (eds.) *Deleuze & Guattari: New Mappings in Politics, Philosophy, and Culture*. University of Minnesota Press: Minneapolis.
- Deleuze, G. 2000, *Proust and Signs*. Continuum: London.
- Deleuze, G. 2001, *Difference and Repetition*. Continuum: London.
- Deleuze, G. 2006, (trans. & ed. Hand, S.) *Foucault*. Continuum: London.
- Deleuze, G. 2006, *Nietzsche and Philosophy*. Continuum: London.

- Des Jardins, J. 2006, *Environmental Ethics: An Introduction to Environmental Philosophy*. Thomson Wadsworth: Stamford
- Descombes, V. (trans. Scott-Fox, L. & Harding, J.M.) 1980, *Modern French Philosophy*. Cambridge University Press: Cambridge.
- Diamandis, P.H. & Kotler, S. 2012, *Abundance: The Future Is Better Than You Think*. Free Press: New York and London.
- Dixon, W. 1997, *The Films of Jean-Luc Godard*. SUNY Press: New York.
- Doorn, N. 2009, *Digital Spaces, Material Traces: Investigating the Performance of Gender, Sexuality, and Embodiment on Internet Platforms that feature User-Generated Content*. Ipskamp Drukkers B.V., Enschede: Amsterdam.
- Dosse, F. (trans. Glassman, D.) 1998, *History of Structuralism: The Rising Sign 1945-1966*. University of Minnesota Press: Minneapolis.
- Dosse, F. 2010, *Gilles Deleuze and Félix Guattari: Intersecting Lives*. Columbia University Press: New York.
- Douglass, P. 1997, "Bergson and Cinema: Friends or Foes." In Mullarkey, J. (ed.) *The New Bergson*. Manchester University Press: Manchester.
- Drake, R. 2008, "Catholics and the Italian Revolutionary Left of the 1960s," *The Catholic Historical Review*, Catholic University of America Press, pp. 450-475.
- Dreyfus, H. & Wrathall, M. 2010, *A Companion to Phenomenology and Existentialism*. Wiley-Blackwell: Hoboken.
- Drott, E. 2011, *Music and the Elusive Revolution: Cultural Politics and Political Culture in France, 1968-1981*. University of California Press: Berkeley.
- Drury, S. 1994, *Alexandre Kojève: The Roots of Postmodern Politics*. Palgrave Macmillan: London.
- Dumontier, P. (trans. Knabb, K.) 1969, "The Beginning of an Era," in Situationist International Online Internationale Situationniste #12 (September), viewed 13 March 2015, from: <http://www.cddc.vt.edu/sionline/si/beginning.html>
- Dupere, K. 2015, "5 Ways You Can Track Sharks Live from Your Computer," in Mashable, viewed 10 May 2016, from: <http://mashable.com/2015/07/10/shark-trackersonline/#d2O4ZAqigmq2>
- Dutka, A.F. 2014, *Cleveland Calamities: A History of Storm, Fire and Pestilence*. The History Press: Charlestown.
- Ebenstein, W. & Ebenstein, A.O. 1999, *Introduction to Political Thinkers (2nd Ed.)*. Harcourt Brace Jovanovich: Forth Worth.

- Ehrlich, P. 1975, *The Population Bomb*. Ballantine Books: New York.
- Eisenstein, S. (trans. Leyda, J.) 1977, *Film Form: Essays in Film Theory*. Harcourt Inc.: San Diego.
- Eisenstein, S. 1925, *Strike*. Criterion: Soviet Union.
- Epstein, J. 2014, *The Intelligence of a Machine*. Minnesota University Press: Minneapolis.
- Eriksen, T. 2001, "Speed is Contagious." In Eriksen, T. *Tyranny of the Moment: Fast and Slow Time in the Information Age*. Pluto Press: London.
- Espinoza, G. & Juvonen, J. 2011, "The Pervasiveness, Connectedness, and Intrusiveness of Social Network Site Use Among Young Adolescents," *Cyberpsychology: Behaviour and Social Networking* 00(00), pp. 1-5.
- Expedition White Shark, 2013, "Track Great Whites in Real Time," viewed 10 May 2016, from: <http://www.expeditionwhiteshark.com/>
- Farber, D. & Bailey, B. 2001, *The Columbia Guide to America in the 1960s*. Columbia University Press: New York.
- Farmer, B. 2006, *American Political Ideologies: An Introduction to the Major Systems of Thought in the 21st Century*. McFarland & Company: Jefferson and London.
- Ffrench, P. 2000, "Time in the Pure State': Deleuze, Proust and the Image of Time." In Gill, C.B. (ed.) *Time and the Image*. Manchester University Press: Manchester.
- Fickers, A. & Johnson, C. 2012, *Transnational Television History: A Comparative Approach*. Routledge: London and New York.
- Fink, E. 2003, *Nietzsche's Philosophy*. Bloomsbury Academic: London.
- Foucault, M. (trans. Hurley, R.) 1998, *The Will to Knowledge: The History of Sexuality: Volume 1*. Penguin: London.
- Foucault, M. 1991, (trans. Sheridan, A.), *Discipline and Punish: The Birth of the Prison*. Penguin: London.
- Friedberg, A. 2000, "Strategies and Decision-making: The United States and the Cold War Arms Race." In Westad, O.A. *Reviewing the Cold War: Approaches, Interpretations, Theory*. Frank Cass: London.
- Galloway, A. 2004, *Protocol: How Control Exists after Decentralization*. MIT Press: Cambridge.
- Gannes, L. 2013, "I'm So Over Oversharing: On Making Our Digital Lives More Real," in All Things D, viewed 2 January 2013, from: <http://allthingsd.com/20130802/im-so-over-oversharing-on-making-our-digital-lives-more-real/>
- Garrard, G. 2004, *Ecocriticism*, First Edition. Routledge: London and New York.

- Gartner, 2015, "Gartner Research," viewed on 21 December 2015, from: <http://www.gartner.com/technology/research.jsp>
- Gauntlett, D. 2004, *Web. Studies*, Second Edition. Bloomsbury Academic: London.
- Geggel, L. 2015, "Great White Shark 'Mary Lee' Spotted Near NYC," in Live Science, viewed 9 May 2016, from: <http://www.livescience.com/50814-mary-lee-great-white-shark.html>
- Geib, C. 2016, "Following Sharks through Tags and Twitter - Could Social Media Save Sharks, or is It Just Scaring Swimmers?" in Undark, viewed 10 May 2016, from: <http://undark.org/2016/04/22/following-sharks-tags-twitter/>
- Gemes, K & Sykes, C. 2015, "The Culture of Myth and the Myth of Culture." In Young, J. (ed.) *Individual and Community in Nietzsche's Philosophy*. Cambridge University Press: Melbourne.
- Genosko, G (ed). 1996, *The Guattari Reader: Pierre-Félix Guattari*. Oxford: Blackwell.
- Genosko, G. 1998, *Undisciplined Theory*. Sage Publications: Thousand Oaks.
- Genosko, G. 2002, *Félix Guattari: An Aberrant Introduction*. Continuum: New York.
- Geuss, R. & Speirs, R. (eds.) 1999, *Nietzsche: The Birth of Tragedy and Other Writings*. Cambridge University Press: Cambridge.
- Gibbs, S. 2014, "From Windows 1 to Windows 10: 29 Years of Windows Evolution," in the Guardian, viewed 22 March 2015, from: <https://www.theguardian.com/technology/2014/oct/02/from-windows-1-to-windows-10-29-years-of-windows-evolution>
- Giglio, J. & Rabe, S. 2005, *Debating the Kennedy Presidency (Debating Twentieth Century America)*. Rowman & Littlefield: Lanham.
- Global Tagging of Pelagic Predators (GTOPP). 2014, "Shark Net App Puts the Blue Serengeti in Your Pocket," viewed 4 May 2016, from: <http://gtopp.org/shark-net-app-puts-the-blue-serengeti-in-your-pocket.html>
- Global Tagging of Pelagic Predators (GTOPP). 2014, "TOPP Scientists Deploy Camera Tags on White Sharks," viewed 4 May 2016, from: <http://gtopp.org/about-gtopp/updates.html>
- Goddard, J., Gorin, J. & Mieville, A. 1976, *Here and Elsewhere*. Société des Etablissements L. Gaumont: Neuilly-sur-Seine.
- Godin, E. & Chafer, T. 2005, *The French Exception*. Berghahn Books: New York.
- Goldstein, P. 2014, "Global Smartphone Penetration to Jump 25% in 2014, Led by Asia-Pacific," in Fierce Wireless, viewed on 14 April 2014, from:

- <http://www.fiercewireless.com/story/report-global-smartphone-penetration-jump-25-2014-led-asia-pacific/2014-06-11>
- Goodley, D. 2007, "Towards Socially Just Pedagogies: Deleuzoguattarian Critical Disability Studies," *International Journal of Inclusive Education* 11(3), pp. 317-334.
- Goodwin, J. 1993, *Eisenstein, Cinema, and History*. University of Illinois Press: Champaign.
- Gosling, S., Augustine, A., Vazire, S., Holtzman, N., & Gaddis, S. 2011, "Manifestations of Personality in Online Social Networks: Self-reported Facebook-related Behaviors and Observable Profile Information," *Cyberpsychology: Behaviour and Social Networking* 14(9), pp. 483-488.
- GPF (The Global Policy Forum). 2015, "Climate Change," viewed 6 December 2015, from: <https://www.globalpolicy.org/social-and-economic-policy/the-environment/climate-change.html>
- Greenpeace. 2009, "Where Does E-waste End Up?" viewed on 12 December 2014, from: <http://www.greenpeace.org/international/en/campaigns/detox/electronics/the-e-waste-problem/where-does-e-waste-end-up/>
- Greenpeace. 2015, "Greenpeace Victories," viewed 6 December 2015, from: <http://www.greenpeace.org/international/Global/international/code/2016/victory-timeline/index.html>
- Grim, R. & Havard, S. 2014, "Julian Assange Fires Back at Eric Schmidt and Google's 'Digital Colonialism'," in the Huffington Post, viewed 21 December 2015, from: http://www.huffingtonpost.com/2014/09/30/julian-assange-eric-schmi_n_5905804.html
- Grosz, E. 1994, *Volatile Bodies: Towards a Corporeal Feminism*. Indiana University Press: Bloomington.
- Grosz, E. 2005, "Bergson, Deleuze, and the Becoming of Unbecoming," *Parallax*, 11(2), pp. 4-13.
- Grosz, E. 2008, *Chaos, Territory, Art: Deleuze and the Framing of the Earth*. Columbia University Press: New York.
- Gruen, L. 2001, "Technology." In Jamieson, D. (ed.) *A Companion to Environmental Philosophy*. Blackwell: Hoboken.
- Guattari, F. 1995. *Chaosmosis: An Ethico-aesthetic Paradigm*. Indiana University Press: Bloomington.
- Guattari, F. 1996. "On the Production of Subjectivity." In Guattari, F. *Chaosmosis: An Ethico-aesthetic Paradigm*. Indiana University Press: Bloomington.
- Guattari, F. 2012. *The Three Ecologies*. Bloomsburg Academic: Bloomsburg.

- Guerlac, S. 2006. *Thinking in Time: An Introduction to Henri Bergson*. Cornell University Press: Ithaca.
- Gutowksi, S. 2015, "Site Lets People Track Great White Sharks," in Free Beacon, viewed 9 May 2016, from: <http://freebeacon.com/issues/site-lets-people-track-great-white-sharks/>
- Gutting, G. 2001, *French Philosophy in the Twentieth Century*. Cambridge University Press: Cambridge.
- Haakonssen, K. (ed.) 2006, *The Cambridge Companion to Adam Smith*. Cambridge University Press: Cambridge.
- Hampton, J. 1986, *Hobbes and the Social Contract Tradition*. Cambridge University Press: Cambridge.
- Haq, G. & Paul, A. 2012, *Environmentalism since 1945*. Routledge: New York.
- Harding, B. 2011, *Augustine and Roman Virtue*. Bloomsbury: London.
- Harris, L. 2003, *Trading and Exchanges: Market Microstructure for Practitioners*. Oxford University Press: New York.
- Hart, B. 2015, "What Are The Odds? Testing The Claim That You're More Likely To Be Struck By Lightning Than Attacked By A Shark." In Surfer Magazine, Viewed on 14 December 2015 from: <http://www.surfermag.com/features/what-are-the-odds/#GOI31JHFeiZIRygw.97>
- Harvey, D. 2004, "Spaces of Neoliberalization: Towards a Theory of Uneven Geographical Development," Hettner-Lecture, Franz Steiner Verlag: Munich.
- Harvey, D. 2007, *A Brief History of Neoliberalism*. Oxford University Press: New York.
- Harvey, F. 2015, "François Hollande Calls For 'Miracle' Climate Agreement at Paris Talks," in The Guardian, viewed 11 December 2015, from: <http://www.theguardian.com/environment/2015/may/20/francois-hollande-calls-for-miracle-climate-agreement-at-paris-talks>
- Hassan, R. & Thomas, J. 2006, *The New Media Theory Reader*. Open University Press (McGraw-Hill Education): Berkshire.
- Hastings Deering, 2014, "Global Spotlight on Australia's Tiger Sharks," viewed 10 May 2016, from: http://www.hastingsdeering.com.au/home/news/Global_Spotlight_on_Australian_Tiger_Sharks
- Hatab, L. 2001, *Nietzsche's 'On the Genealogy of Morality': An Introduction*. Cambridge University Press: Cambridge.

- Hawaii Institute of Marine Biology. 2016, "Hawaii Institute of Marine Biology – Shark and Reef Fish Research, Electronic Tags Overview," viewed 10 May 2016, from: <http://www.hawaii.edu/HIMB/ReefPredator/Tools.htm>
- Hawk, B. 2012, "Curating Ecologies, Circulating Musics: From the Public Sphere to Sphere Publics." In Dobrin, S. (ed.) *Ecology, Writing Theory, and New Media: Writing Ecology*. Routledge: New York.
- Hawkins, S. 2007, "Saving the Past: Deleuze's Proust and Signs," in *Electronic Book Review*, viewed 23 January 2016, from: <http://www.electronicbookreview.com/thread/electropoetics/significant>
- Heath, R. & Salvekar, A. 2004, "Digital Communication." In Bidgoli, H. (ed.) *The Internet Encyclopedia, Volume 1, A-F*. John Wiley & Sons: Hoboken.
- Heggestuen, J. 2013, "One in Every 5 People in the World Own a Smartphone, One in Every 17 Own a Tablet," in the Business Insider, viewed 2 December 2013, from: <http://www.businessinsider.com/smartphone-and-tablet-penetration-2013-10>
- Hérubel, J.V.M. 2010, "Observations on an Emergent Specialization: Contemporary French Cultural History—Significance for Scholarship." *Journal of Scholarly Publishing*, Vol 41, (2) January pp. 216-240.
- Hicks, J. 2007, *Dziga Vertov: Defining Documentary Film*. I.B. Tauris: London.
- Higgins, K. & Solomon, R. (eds.) 1988, *Reading Nietzsche*. Oxford University Press: Oxford.
- Hildyard, N. 1993, "Foxes in Charge of the Chickens." In Sachs, W. (ed.) *Global Ecology: A New Arena of Political Conflict*. Zed Books: London.
- Hill, B. 2010, "Revealing Errors." In Nunes, M. (ed.) *Error: Glitch, Noise, and Jam in New Media Cultures*. Bloomsbury: New York.
- Hill, M. 2009, *Participatory Culture: Mobility, Interactivity, and Identity*. McGraw-Hill Open University Press: Maidenhead.
- Hixson, W. 2016, *American Foreign Relations: A New Diplomatic History*. Routledge: New York.
- Holland, E. 1999, *Deleuze and Guattari's Anti-Oedipus: Introduction to Schizoanalysis*. Routledge: London and New York.
- Hollingdale, R.J. 2001, *Nietzsche: The Man and his Philosophy*. Cambridge University Press: New York.
- Holmes, D. (ed.) 2009, *Encyclopaedia of Communication Theory, New Media Theory Edition*. Sage: Thousand Oaks.

- Holmes, D. 2012, "New Media Theory." In Holmes, D. (ed.) *Encyclopaedia of Communication Theory*, New Media Theory Edition. Sage: Thousand Oaks.
- Hunter, M. 2014, "Great White Sharks: You Can Track 'em," in CNN, viewed 9 May 2016, from: <http://edition.cnn.com/2014/09/05/travel/tracking-great-white-sharks/>
- Hurst, A. 2004, *The Sciences, The Humanities, Research and Hermeneutics*, Unpublished Book, Nelson Mandela Metropolitan University: Port Elizabeth.
- Hurst, M. 2014, "How Polluting is the Internet?" in CCCB Lab, viewed on 12 December 2015, from: http://blogs.cccb.org/lab/en/article_quant-contamina-internet/
- Hutton, W. 2010, "The Baby Boomers and the Price of Personal Freedom," in The Guardian, viewed 6 March 2015, from: <https://www.theguardian.com/society/2010/aug/22/baby-boomers-legacy-60-hutton>
- ICIJ (International Consortium of Investigative Journalists). 2012, "The Illicit Trade of Coltan: Five Things You Need to Know about Coltan," viewed on 21 December 2015, from: <https://www.icij.org/projects/coltan/five-things-you-need-know-about-coltan>
- IEDRO (International Environmental Data Rescue Organization). 2015, "IEDRO News," viewed 6 December 2015, from: <http://iedro.org/category/news/>
- Ignatow, G. 2007, *Transnational Identity Politics and the Environment*. Lexington Books: Lanham.
- IMDB. 2014, "Aimer, Boire et Chanter," viewed 20 June 2015, from: <http://www.imdb.com/title/tt2751390/>
- IMDB. 2014, "Silicon Valley," viewed on 21 December 2015, from: <http://www.imdb.com/title/tt2575988/>
- International Marine life Alliance & Ocean Voice International. 1991, *Sea Wind: Bulletin of the International Marine Life Alliance*, Volume 10. IMA & University of California: Berkeley.
- Internet Live Stats. 2014, "Facebook Active Users," viewed on 14 April 2014, from: <http://www.internetlivestats.com/watch/facebook-users/>
- Internet World Stats. 2014, "Usage and Population Statistics," viewed on 31 December 2014, from: <http://www.internetworldstats.com/stats.htm>
- IPCC (Intergovernmental Panel on Climate Change) – Run by UNEP and The World Meteorological Organization (WMO). 2015, "Organization," viewed 6 December 2015, from: <http://www.ipcc.ch/organization/organization.shtml>
- Islam, M.S. 2013, *Development, Power, and the Environment: Neoliberal Paradox in the Age of Vulnerability*. Routledge: New York.

- Jackson, B. 1990, *Poverty and the Planet: A Question of Survival*. University of California and Penguin: Berkeley.
- Jamieson, L. 2007, in *Antonin Artaud: From Theory to Practice*. Greenwich Exchange: University of Michigan: Ann Arbor.
- Jenkins, H. 2006, *Convergence Culture: Where Old and New Media Collide*. New York University Press: New York.
- Jericho, G. 2014, "Generation Y Have Every Right to be Angry at Baby Boomers' Share of Wealth," in *The Guardian*, viewed 6 March 2015, from: <https://www.theguardian.com/business/grogonomics/2014/dec/11/generation-y-have-every-right-to-be-angry-at-baby-boomers-share-of-wealth>
- Johnson, M. Wagner, K., Yu, K. & Vulpiani. 2014, *China's iGeneration: Cinema and Moving Image Culture for the Twenty First Century*. Bloomsbury: London.
- Jong, P. 2010, "Jakub Dvorský: Amanita Design," in *Adventure Classic Gaming*, viewed 12 December 2015, from: <http://www.adventureclassicgaming.com/index.php/site/interviews/468/>
- Kafka, F. 2015, (ed. Anderson, M. & trans. Bernofsky, S.) *The Metamorphosis (The Norton Critical Edition)*. W.W Norton & Company: New York.
- Kanouse, S. & Schultz, H. 2013, "Notes on Affective Practice: An Exchange," *Parallax* 19(2), pp. 7-20.
- Karatzogianni, A. & Robinson, A. 2010, *Power, Resistance and Conflict in the Contemporary World: Social Movements, Networks, and Hierarchies*. Routledge: New York.
- Keach, W. 2009, "What Do We Want? Everything! Italy's Hot Autumn 1969," *International Socialist Review* 67 (September), viewed 12 April 2014 from: <http://isreview.org/issue/67/what-do-we-want-everything>
- Keizer, G. 2008, "Google Bends to Chrome Privacy Criticism," in *Computerworld*, viewed 13 November 2015, from: <http://www.computerworld.com/article/2533050/data-privacy/google-bends-to-chrome-privacy-criticism.html>.
- Kennedy, G. 2007, *An Ontology of Trash: The Disposable and Its Problematic Nature*. SUNY Press: New York.
- Kinder, M. 2014, *Transmedia Frictions: The Digital, the Arts, and the Humanities* University of California Press: USA

- Kilbourne, W.E. & Polonsky M.J. 2005, "Environmental Attitudes and Their Relation to the Dominant Social Paradigm among University Students in New Zealand and Australia," *Australasian Marketing Journal (AMJ)* 13(2), pp. 37-48.
- Kilbourne, W.E., Beckman, S.C. & Thelen, E. 2002, "The Role of the Dominant Social Paradigm in Environmental Attitudes: A Multinational Examination," *Journal of Business Research* 55, pp. 193-204.
- Kilbourne, W.E., Beckmann, S.C., van Dam, Y. & Pardo, M. 1997, "Anthropocentrism, Value Systems and Environmental Attitudes: A Multi-National Comparison," Working paper 97-10, Research group 'consumption, environment, and culture.' Department of Marketing, Copenhagen Business School. Viewed 12 June 2014 from: http://e-archivo.uc3m.es/bitstream/handle/10016/8451/anthropocentrism_pardo_1997.pdf?sequence=1
- Kisseloff, J. 2006, *Generation on Fire: Voices of Protest from the 1960's, An Oral History*. The University Press of Kentucky: Lexington.
- Kittler, F. 1990, *Discourse Networks 1800/1990*. Stanford University Press: Redwood City.
- Klein, N. 2007, *The Shock Doctrine – The Rise of Disaster Capitalism*. Allen Lane (Penguin Group): London.
- Klein, N. 2014, *This Changes Everything: Capitalism vs The Climate* Allen Lane (Penguin Group): Great Britain
- Knapp, A. & Wright, V. 2006, *The Government and Politics of France*, Fifth Edition. Routledge: London.
- Kolodziejczyk, D. 2011, *The Crimean Khanate and Poland-Lithuania: International Diplomacy on the European Periphery (15th – 18th Century). A Study of Peace Treaties Followed by Annotated Documents*. Koninklijke Brill NV: Leiden.
- Konik, A. 2011, "Materiality and Time in Zack Snyder's Sucker Punch," *South African Journal of Art History* 28(2), pp. 102-132
- Kouppanou, A. 2015, "Bernard Stiegler's Philosophy of Technology: Invention, decision, and education in times of digitization," *Educational Philosophy And Theory* Vol. 47 , Iss. 10,
- Kurzwell, E. 1996, *The Age of Structuralism: From Levi-Strauss to Foucault*. Transaction Publishers: New Brunswick.
- Lawlor, L. & Moulard, V. 2013, "Henri Bergson." In Zalta, E. (ed.) *The Stanford Encyclopedia of Philosophy*, Summer 2013 Edition, viewed 12 April 2015 from: <http://plato.stanford.edu/archives/sum2013/entries/bergson/>.

- Lawlor, L. 2008, "Following the Rats: Becoming-Animal in Deleuze and Guattari," *SubStance* 117.37(3), pp. 169-187.
- Lawlor, L. 2012, *Early Twentieth-century Continental Philosophy*. Indiana University Press: Bloomington.
- Lechte, J. 2008, *Fifty Key Contemporary Thinkers: From Structuralism to Post-Humanism*, Second Edition. Routledge: London.
- Lenczowski, G. 1990, *American Presidents and the Middle East*. Duke University Press: Durham.
- Leopold, J. 2014, "Exclusive: Emails Reveal Close Google Relationship with NSA," in Aljazeera America, viewed 29 October 2015, from: <http://america.aljazeera.com/articles/2014/5/6/nsa-chief-google.html>
- Lewis, P. & Rushe, D. 2014, "Revealed: How Whisper App Tracks 'Anonymous' Users," in The Guardian, viewed 23 January 2016, from: <https://www.theguardian.com/world/2014/oct/16/-sp-revealed-whisper-app-tracking-users>
- Lichfield, J. 2008, "Egalité! Liberté! Sexualité: Paris, May 1968," in The Independent, viewed 11 March 2015, from: <http://www.independent.co.uk/news/world/europe/egalit-libert-sexualit-paris-may-1968-784703.html>
- Lister, M., Dovey, J., Giddings, S., Grant, L. & Kelly, K. 2009, *New Media: A Critical Introduction*, Second Edition. Routledge: London.
- Loomis, E. 2015, *Out of Sight: The Long and Disturbing Story of Corporations Outsourcing Catastrophe*. Bookbright Media: Atlanta.
- Looz, G. 2010, "Proust and Signs," in Proust Reader, viewed 12 April 2015, from: <https://proustreader.com/tag/gilles-nuthin-deleuze/>
- Lorraine, T. 1999, *Irigaray and Deleuze: Experiments in Visceral Philosophy*. Cornell University Press: New York.
- Lorraine, T. 2011, *Deleuze and Guattari's Immanent Ethics: Theory, Subjectivity, and Duration*. SUNY Press: Albany.
- Losh, E. 2010, "The Seven Million Dollar PowerPoint and Its Aftermath: What Happens When the House Intelligence Committee Sees 'Terrorist Use of the Internet' in a Battlefield 2 Fan Film." In Nunes, M. (ed). *Error: Glitch, Noise, and Jam in New Media Cultures*. Bloomsbury: New York.
- Lumet, S. 1973. *Serpico*. Paramount Pictures: United States.

- Lundy, C. 2012, *History and Becoming: Deleuze's Philosophy of Creativity*. Edinburgh University Press: Edinburgh.
- Lynch, G. 2009, *Decision for Disaster: Betrayal at the Bay of Pigs*. Potomac Books: Washington.
- Madrigal, A. 2013, "The Genius of Whisper, the Massively Popular App You Haven't Heard Of," in *The Atlantic*, viewed 24 November 2015, from: <http://www.theatlantic.com/technology/archive/2013/08/the-genius-of-whisper-the-massively-popular-app-you-havent-heard-of/278774/>
- Malkiewicz, K. & Mullen, M. 2005, *Cinematography*, Third Edition. Simon & Schuster: New York.
- Mansbach, R.W. & Rafferty, K.L. 2008, *Introduction to Global Politics*. Routledge: London
- Marks, J. 1998, *Gilles Deleuze: Vitalism and Multiplicity*. Pluto Press: London.
- Martin-Schramm, J., Spencer D. & Stivers, L. 2015, *Earth Ethics: A Case Method Approach*. Orbis Books: Maryknoll.
- Martin, J.G. 2013, *General De Gaulle's Cold War: Challenging American Hegemony, 1963-1968*. Berghahn Books: New York.
- Massumi, B. 2002, *Parables for the Virtual: Movement, Affect, Sensation*. Duke University Press: Durham.
- Massumi, B. 2004, "Pleasures of Philosophy." In Deleuze, G. & Guattari, F. *A Thousand Plateaus: Capitalism and Schizophrenia*. Continuum: London.
- Matthews, J. 2014, "An Introduction to the Situationists," on Libcom.org, viewed 13 March 2015, from <https://libcom.org/library/introduction-situationists-jan-d-matthews>
- Mauri, M., Cipresso, P., Balgera, A., Villamira, M. & Riva, G. 2011, "Why is Facebook So Successful? Psychophysiological Measures Describe a Core Flow State While Using Facebook," *Cyberpsychology: Behaviour and Social Networking* 14(12), pp. 723-731.
- May, T. 2005, *Gilles Deleuze: An Introduction*. Cambridge University Press: Cambridge.
- McBride, W. 1997. *Sartre's French Contemporaries and Enduring Influences*. Garland Publishing: New York.
- McElhanery, J. 2015. "3 Women: Floating Above the Awful Abyss." In Danks, A. (ed.) *A Companion to Robert Altman*. Wiley Blackwell: Oxford.
- McKelvey, C. 2014, "App Lets iPhone Users Track Great White Sharks in Real Time," in *Mercury News*, viewed 10 May 2016, from: http://www.mercurynews.com/science/ci_24892311/app-lets-iphone-users-track-great-white-sharks

- McKelvey, C. 2014, "Shark Net App Lets Users Track Great Whites off California," in Monterey Herald, viewed 4 May 2016, from: <http://www.montereyherald.com/article/ZZ/20140107/NEWS/140108546>
- Mehdizadeh, S. 2010. "Self-presentation 2.0: Narcissism and Self-esteem on Facebook," *Cyberpsychology: Behaviour and Social Networking* 13(4), pp. 357-364.
- Mendelson, A. & Papacharissi, Z. 2010, "Look At Us: Collective Narcissism in College Student Facebook Photo Galleries." In Papacharissi, Z. (ed.) *Identity, Community, and Culture on Social Network Sites*. Routledge: New York.
- Merchant, C. 2005, *Radical Ecology: The Search for a Liveable World*, Second Edition. Routledge: London and New York.
- Message, K. 2005, "Body Without Organs." In Parr, A. (ed.) *The Deleuze Dictionary*. Edinburgh University Press: Edinburgh.
- Mickelson, K. 2015, "The Stockholm Conference and the Creation of the North-South Divide in International Environmental Law and Policy." In Alam, S., Atapattu, S., Gonzalez, C.G. & Razzaque, J. (eds.) *International Environmental Law and the Global South*. Cambridge University Press: Cambridge.
- Middleton, C. (ed. & trans.) 1969, *Selected Letters of Friedrich Nietzsche*. Hackett Publishing: Indianapolis.
- Miller, C. 1993, "The Postidentitarian Predicament in the Footnotes of *A Thousand Plateaus*: Nomadology, Anthropology and Authority," *Diacritics* 23(3), pp. 6-35.
- Miller, C. 1998, *Nationalists and Nomads: Essays on Francophone African Literature and Culture*. University of Chicago Press: Chicago.
- Miller, E. 2005, "Nietzsche on Individuation and Purposiveness in Nature." In Ansell-Pearson, K. *A Companion to Nietzsche*. Blackwell: Hoboken.
- Miller, V. 2011, *Understanding Digital Culture*. Sage: Thousand Oaks.
- Millers Local. 2016, "Algoa Bay: Great White Shark Project," viewed 20 May 2016, from: <http://www.millerslocal.co.za/algoa-bay-great-white-shark-project.html>
- Mirchandani, V. 2012, *The New Technology Elite: How Great Companies Optimize Both Technology Consumption and Production*. John Wiley & Sons: New York.
- Missio, E. 2015, "Why Indie Video Games Can Be Great for Kids," in CBC, viewed 12 December 2015, from: <http://www.cbc.ca/parents/learning/view/why-indie-video-games-can-be-great-for-kids>

- Mocnik, R. 2013, "Ideological Interpellation: Identification and Subjectivation." In Diefenbach, K., Farris, S.R., Kim, G. & Thomas, P.D. (eds.) *Encountering Althusser: Politics and Materialism in Contemporary Radical Thought*. Bloomsbury: London.
- Moelbak, R. 2007, "A Deleuzian Reading of Bergson," *Janus Head* 10(1), pp. 353-355.
- Moliterno, G. 2000, *Encyclopedia of Contemporary Italian Culture*. Taylor & Francis: Milton Park.
- Moorstein, M. 2004, *Frameworks: Conflict in Balance* iUniverse: New York
- Monbiot, G. 2015, "Consume More, Conserve More: Sorry, But We Can't Just Do Both," in *The Guardian*, viewed 10 December 2015, from: <http://www.theguardian.com/commentisfree/2015/nov/24/consume-conserve-economic-growth-sustainability>
- Moran, A. 2009, *TV Formats Worldwide: Localizing Global Programs*. Intellect Books: Bristol.
- Morey, S. 2012, "Digital Ecology." in Dobrin, S. (ed.) *Ecology, Writing Theory, and New Media: Writing Ecology*. Routledge: New York.
- Mosco, V. 2004, *The Digital Sublime: Myth, Power, and Cyberspace*. MIT Press: Cambridge.
- Mosco, V. 2014, *To the Cloud: Big Data in a Turbulent World*. Paradigm Publishers: Boulder.
- Moskowitz, C. 2013, "Human-Robot Relations: Why We Should Worry," in LiveScience, viewed 23 November 2015, from: <http://www.livescience.com/27204-human-robot-relationships-turkle.html>
- Moulard-Leonard, V. 2008, *Bergson-Deleuze Encounters: Transcendental Experience and the Thought of the Virtual*. SUNY Press: New York.
- Mullarkey, J (ed.) 1999, *The New Bergson*. Manchester University Press: Manchester.
- Murrey, L. 2015, *Nietzsche: The Meaning of Earth*. Lehigh University Press: Bethlehem.
- Mustain, A. 2012, "New App Lets You Track Great White Sharks," in Live Science, viewed 10 May 2016, from: <http://www.livescience.com/31063-app-lets-track-great-white-sharks.html>
- Naess, A. 2005, "The Deep Ecological Movement: Some Philosophical Aspects." In Drengson, A. *The Selected Works of Arne Naess, Interpretation and Preciseness: A Contribution to the Theory of Communication*. Springer: Dordrecht.
- Naess, A. 2010, "The Shallow and the Deep, Long-range Ecology Movement: A Summary." In Drengson, A. *The Selected Works of Arne Naess, Interpretation and Preciseness: A Contribution to the Theory of Communication*. Springer: Dordrecht.

- Nehamas, A. 1988, "Who are the Philosophers of the Future? A Reading of *Beyond Good and Evil*." In Solomon, R. & Higgins, K. (eds). *Reading Nietzsche*. Oxford University Press: Oxford.
- Nelmes, J. 2012, *Introduction to Film Studies*. Routledge: London and New York.
- Nersesian, R. 2010, *Energy for the 21st Century: A Comprehensive Guide to Conventional and Alternative Sources*. M. E. Sharpe Incorporated: New York.
- Nietzsche, F. 1990, *The Birth of Tragedy*. Vintage: London.
- Nietzsche, F. 2000, *Basic Writings*. Modern Library: London.
- Nietzsche, F. 2005, *Twilight of the Idols and The Antichrist*. Dover: London.
- Norman, D. 2013, *The Design of Everyday Things*. Basic Books: New York.
- Normark, J. 2009, "Bergsonian Consciousness – Instinct, Intelligence and Intuition," in Archaeological Haecceities, viewed 23 January 2015, from: <https://haecceities.wordpress.com/2009/09/01/bergsonian-consciousness-%E2%80%93-instinct-intelligence-and-intuition/>
- Nuenlist, C. (ed.) 2010, *Globalizing de Gaulle: International Perspectives on French Foreign Policies, 1958-1969*. Lexington Books: Plymouth.
- Nunes, M. (ed). 2010, *Error: Glitch, Noise, and Jam in New Media Cultures*, Bloomsbury: New York.
- Nussbaum, M. 1998, *Cultivating Humanity: A Classical Defence of Reform in Liberal Education*. Harvard University Press: Cambridge.
- Oearch. 2016, "About Us," viewed 4 May 2016, from: <http://www.oearch.org/#about-us>
- Ong Suan Ee 2012, "After Rio + 20," in *The Diplomat*, viewed 9 June, 2016 from <http://thediplomat.com/2012/06/after-rio20/>
- Ogt, A. 2014, "Are Tamagotchis Coming Back? The Classic '90s Toy Gets a Nostalgic Update," in *Bustle*, viewed 12 December 2015, from: <http://www.bustle.com/articles/16857-are-tamagotchis-coming-back-the-classic-90s-toy-gets-a-nostalgic-update>
- Ophüls, M. 1952, *Le Plaisir*. Columbia: France.
- Orlowski, A. 2014. "Julian Assange Discovers Google's Given MONEY to EFF," in *The Register*, viewed 5 December 2015, from: http://www.theregister.co.uk/2014/10/14/assange_bollocks_google_eff/
- Papacharissi, Z. 2002, "The Virtual Sphere: The Internet as a Public Sphere," *New Media & Society* 4(1), pp. 9-27.

- Papacharissi, Z. 2002, *A Private Sphere: Democracy in a Digital Age*. Polity Books: Cambridge & Oxford.
- Parker, T. 2004, *Team America: World Police*. Paramount Pictures: USA.
- Parr, A. (ed.) 2005, *The Deleuze Dictionary*. Edinburgh University Press: Edinburgh.
- Parr, A. 2008, *Deleuze and Memorial Culture: Desire, Singular Memory, and the Politics of Trauma*. Edinburgh University Press: Edinburgh.
- Patton, P. 1968, "Translator's Preface." In Deleuze, G. (trans. Patton, P.) *Difference and Repetition*. Columbia University Press: New York.
- Payne, A. & Sutton, P. 1984, *Dependency under Challenge: The Political Economy of the Commonwealth Caribbean*. Manchester University Press: Manchester.
- Paz, C. & Cabral, J. 2008, "The Meaning of May 1968," *International Viewpoint IV Online Magazine*, IV 401 (June). Viewed 12 April 2014 from: <http://www.internationalviewpoint.org/spip.php?article1481>
- PBS. 2009, "Ghana: Digital Dumping Ground," viewed on 12 December 2014, from: http://www.pbs.org/frontlineworld/stories/ghana804/video/video_index.html
- Pearlman, J. 2015, "Australia Considers Real-time Shark-tracking App Following Spate of Deadly Attacks," in *The Telegraph*, viewed 10 May 2016, from: <http://www.telegraph.co.uk/news/worldnews/australiaandthepacific/australia/11894542/Australia-considers-real-time-shark-tracking-app-following-spate-of-deadly-attacks.html>
- Peters, M. 2001, *Post-structuralism, Marxism, and Neoliberalism: Between Theory and Politics*. Rowman & Littlefield: Lanham.
- Poitras, M. 2008, "Social Movements and Techno-Democracy: Reclaiming the Genetic Commons." In Otero, G. (ed.) *Food for the Few: Neoliberal Globalism and Biotechnology in Latin America*. University of Texas Press: Austin.
- Poladian, C. 2015, "Shark Tracking Goes Viral: Everyone is Following Mary Lee the Great White Shark and You Should Too," in *IB Times*, viewed 9 May 2016, from: <http://www.ibtimes.com/pulse/shark-tracking-goes-viral-everyone-following-mary-lee-great-white-shark-you-should-1929352>
- Poole, R. 2008, *Earthrise: How Man First Saw the Earth*. Yale University Press: New Haven.
- Poster, M. 2006, *Information Please: Culture and Politics in the Age of Digital Machines*. Duke University Press: Durham.
- Poster, M. 2009, "Afterword" In eds. Poster, M. and Savat, D. *Deleuze and New Technology*

Edinburgh University Press: UK

- Priestman, C. 2016, "Monsters and Microbiology: The Czech Studio Turning Nature into Amazing Games," in the Guardian, viewed 12 December 2015, from: <https://www.theguardian.com/technology/2016/mar/07/amanita-design-czech-studio-games-samorost-machinarium>
- Princen, T. 2005, *The Logic of Sufficiency*. MIT Press: Cambridge.
- Proust, M. (trans. Mancrieff, S. & Kilmartin, S.) 2001, *In Search of Lost Time*. Everyman's Library: London.
- Quattrocchi, A. & Nairn, T. 1998, *The Beginning of the End: France, May 1968*. Verso: London and New York.
- Quaranta, D. 2013, *Beyond New Media Art* Lulu Press Inc.: Raleigh, North Carolina: USA
- Radel, D. 2015, "Shark Researchers Puzzle over Mary Lee's Mysterious Ways," in USA Today, viewed 9 May 2016, from: <http://www.usatoday.com/story/news/nation-now/2015/10/16/shark-researchers-puzzle-mary-lees-mysterious-ways/74085490/>
- Rapp, D. 2015, *Bubbles, Booms, and Busts: The Rise and Fall of Financial Assets*. Springer: New York.
- Refiti, A.L. 2013, "A 'Psychedelic Method:' Spatial Exposition, Perspectivism and Bricklaying." In Engels-Schwarzpaul, A. & Peters, M. (eds.) *Of Other Thoughts: Non-Traditional Ways to the Doctorate: A Guidebook for Candidates and Supervisors*. Sense Publishers: Rotterdam.
- Reiners, W. & Lockwood, J. 2010, *Philosophical Foundations for the Practices of Ecology*. Cambridge University Press: Cambridge.
- Renoir, J. 1937, *La Grande Illusion*. Janus Films: France.
- Restivo, S. 2011, *Red, Black, and Objective: Science, Sociology and Anarchism* Ashgate Publishing Ltd.: Surrey, UK
- Rheingold, H. 2002, *Smart Mobs: The Next Social Revolution*. Perseus Publishing: New York.
- Richardson, K. 2015, *An Anthropology of Robots and AI: Annihilation, Anxiety and Machines*. Routledge: New York and London.
- Roberts, L. (ed.) 2009, *Germany and the Imagined East*. Cambridge Scholars Press: Newcastle.
- Roberts, P. (ed.) 2012, *Cuban Missile Crisis: The Essential Reference Guide*. ABC-CLIO: Santa Barbara.

- Rockmore, T. 2013, "Hegel in France." In de Laurentiis, A. & Edwards, J. (eds.) *The Bloomsbury Companion to Hegel*. Bloomsbury-Academic: London and New York.
- Rodowick, D. 1997. *Gilles Deleuze's Time Machine*. Duke University Press: Durham.
- Rodowick, D. 2007, *The Virtual Life of Film*. Harvard University Press: Cambridge.
- Rodowick, D. 2009, *Philosophy's Artful Conversation*. Harvard University Press: Cambridge.
- Roets, G. & Braidotti, R. 2012, "Nomadology and Subjectivity: Deleuze, Guattari and Critical Disability Studies." In Goodley, D., Hughes, B. & Davis, L. (eds.) *Disability and Social Theory: New Developments and Directions*, Palgrave Macmillan: London.
- Rohle, T. 2005, "Power, Reason, Closure: Critical Perspectives on New Media Theory," *New Media & Society* 7, pp. 403-422.
- Rosenkrantz, G. 1993, *Haecceity: An Ontological Essay*. Kluwer: Dordrecht.
- Rotman, M. 2016, "Lake Erie," in Cleveland Historical, viewed 5 March 2016, from: http://clevelandhistorical.org/items/show/58#.V1AS_fl97IU
- Sachs, W. 1993, "Global Ecology and the Shadow of Development," in Sachs, W. (ed.) *Global Ecology: A New Arena of Political Conflict*. Zed Books: London.
- Sagoff, M. 1990, *The Economy of the Earth: Philosophy, Law and the Environment*. Cambridge University Press: Cambridge.
- Salleh, A. 2014, "Ecosocialism, Gendered Imaginaries, and the Informatic-Securitization Complex," *Capitalism Nature Socialism* 25(1), pp. 24-39.
- Sarup, M. 1993, *An Introductory Guide to Post-Structuralism and Postmodernism*, Second Edition. Harvester Wheatsheaf: New York.
- Savat, D. 2009, "Introduction: Deleuze and New Technology," In eds. Poster, M. and Savat, D. *Deleuze and New Technology* Edinburgh University Press: UK
- Schlereth, T. 1977, *The Cosmopolitan Ideal in Enlightenment Thought: Its Form and Function in the Ideas of Franklin, Hume, and Voltaire, 1694-1790*. University of Notre Dame Press: Notre Dame.
- Schrift, A. 1995, *Nietzsche's French Legacy: A Genealogy of Poststructuralism*. Routledge: New York.
- Schuerkens, U. (ed.) 2010, *Globalization and Transformations of Social Inequality*. Routledge: London and New York.
- Scorsese, M. 1976, *Taxi Driver*. Columbia Pictures: USA.
- Scott, R. 2002, "Organizations and the Natural Environment: Evolving Models." In Hoffman, A. & Ventresca, M. (eds.) *Organizations, Policy, and the Natural Environment: Institutional and Strategic Perspectives*. Stanford University Press: Redwood City.

- Scruton, R. 2011, *Animal Rights and Wrongs*. Demos: London
- Scruton, R. 2012, *How to Think Seriously About the Planet, The Case for an Environmental Conservatism*. Oxford University Press: Oxford.
- Seigworth, J. & Tiessen, M. 2012, "Mobile Affects, Open Secrets, and Global Illiquidity: Pockets, Pools and Plasma," *Theory, Culture & Society* 29, pp. 47-77.
- Seyfang, G. 2005, "Shopping for Sustainability: Can Sustainable Consumption Promote Ecological Citizenship?" In Dobson, A. & Saiz, A. (eds.) *Citizenship, Environment, Economy*. Routledge: London and New York.
- Shafer, W.E. 2006, "Social Paradigms and Attitudes toward Environmental Accountability," *Journal of Business Ethics* 65(2), May, pp. 121-147.
- Shanken, E. 2009, *Art and Electronic Media*. Phaidon Press: London.
- Shapiro, M. 2004, *Methods and Nations: Cultural Governance and the Indigenous Subject*. Routledge: London.
- Shaw, E. 1988, *Discipline and Discord in the Labour Party*. Manchester University Press: Manchester.
- SimilarWeb. 2015, "Chatroulette.com," viewed 23 January 2015, from: <https://www.similarweb.com/website/chatroulette.com>
- Simmonds, R. & Hack, G. 2000, *Global City Regions: Their Emerging Forms*. Taylor & Francis: Milton Park.
- Simmons, J.A. 1992, *The Lockean Theory of Rights: Studies in Moral, Political and Legal Philosophy*. Princeton University Press: Princeton.
- Skeet, I. 1988, *OPEC: Twenty-Five Years of Prices and Politics*. Cambridge University Press: Cambridge.
- Sklar, U. 2011, "Generation W: WikiLeaks Ignites a New Generation of Hacktivists," in The Huffington Post, viewed 7 December 2015, from: http://www.huffingtonpost.com/urizenus-sklar/generation-h-wikileaks-ig_b_803149.html
- Smith D.W. (ed.) 2012, *Essays on Deleuze*. Edinburgh University Press: Edinburgh.
- Smith, D.W. 2012, "Deleuze on Bacon: Three Conceptual Trajectories in The Logic of Sensation." In Smith D.W. (ed.) *Essays on Deleuze*. Edinburgh University Press: Edinburgh.
- Sotirin, P. 2011, "Becoming Woman." In Stivale, C.J. (ed.) *Gilles Deleuze: Key Concepts*, Second Edition. Acumen Publishing: Durham.

- Souppouris, A. 2013, "You Can Now Track Sharks off the East Coast in Real Time," in the Verge, viewed 9 May 2016, from: <http://www.theverge.com/2013/8/29/4671128/shark-tracking-in-real-time-ocearch-global-tracker>
- Spinello, R.A. & Tavani, H.T. (eds.) 2005, *Intellectual Property Rights in a Networked World: Theory and Practice*. Information Science Publishing: Hershey and London.
- Stagoll, C. 2005, "Becoming." In Parr, A. (ed.) *The Deleuze Dictionary*. Edinburgh University Press: Edinburgh.
- Stanziani, A. 2014, *After Oriental Despotism: Eurasian Growth in a Global Perspective*. Bloomsbury: London.
- Statista.com, 2014, "Statistics and Studies from More Than 18,000 Sources," viewed on 31 December 2014, from: <https://www.statista.com/statistic-portal/>
- Steafal, E., Mulholland, R., Sabur, R., Malnick, E., Trotman, A. & Harley, N. 2015, "Paris Terror Attack: Everything We Know on Saturday Afternoon," in the Telegraph, viewed 12 December 2015, from: <http://www.telegraph.co.uk/news/worldnews/europe/france/11995246/Paris-shooting-What-we-know-so-far.html>
- Steinfelds, P. 2008, "Paris, May 1968: The Revolution That Never Was," in The New York Times, viewed 15 March 2015, from: http://www.nytimes.com/2008/05/11/world/europe/11iht-paris.4.12777919.html?_r=0
- Stenslie, S. 2010, "Virtual Touch: A Study of the Use and Experience of Touch in Artistic, Multimodal and Computer-based Environments." Unpublished Doctoral Thesis at Oslo School of Architecture and Design, Norway.
- Stewart, G. 2009, "Cinemonics and Digitime." In Rodowick, D. (ed.) *Afterimages of Gilles Deleuze's Film Philosophy*. University of Minnesota Press: Minneapolis.
- Stieger, S., Burger, C., Bohn, M. & Voracek, M. 2013, "Who Commits Virtual Identity Suicide? Differences in Privacy Concerns, Internet Addiction, and Personality between Facebook Users and Quitters," *Cyberpsychology: Behaviour and Social Networking* 16(9), pp. 629-634.
- Strong, T. 1988, *Friedrich Nietzsche and the Politics of Transfiguration*, Expanded Edition. University of California Press: London.
- Suan-Ee, O. 2012, "After Rio+20," in The Diplomat, viewed 5 October 2015, from: <http://thediplomat.com/2012/06/after-rio20/>
- Sundvall, S. 2012, "Post-Human, All Too Non-Human: Implications of the Cyber-Rhizome." In Breslow, H. & Mousoutzanis, A. (eds.) *Cybercultures: Mediations of Community, Culture, Politics*. Rodopi: New York.

- Taffe, P. 2008, "1968: Year of Revolution," *Socialism Today*, May, Issue 118.
- Tamboukou, M. 2016 "Ordinary/Extraordinary: Narratives, Politics, History." In Virmani, A. (ed.) *Political Aesthetics: Culture, Critique and the Everyday*. Routledge: London and New York.
- Tampio, N. 2009, "Assemblages and the Multitude: Deleuze, Hardt, Negri, and the Postmodern Left," *European Journal of Political Theory* 8(3), pp. 383-400.
- Tankersley, J. 2012, "Who Destroyed the Economy? The Case against Baby Boomers," in *The Atlantic*, viewed 6 March 2015, from: <http://www.theatlantic.com/business/archive/2012/10/who-destroyed-the-economy-the-case-against-the-baby-boomers/263291/>
- The Economist, 2014, "Now or Naver", in *The Economist*, viewed 18 November 2015, from: <http://www.economist.com/news/business/21597937-home-south-koreas-biggest-web-portal-has-thrashed-yahoo-and-kept-google-bay-now-its>
- The World Counts. 2015, "Our Environment," viewed 6 December 2015, from: http://www.theworldcounts.com/themes/our_environment
- Thing.net. 1997, "Rhizomatic," viewed 18 October 2015, from: <http://www.thing.net/~rdom/ecd/rhizomatic.html>
- Thorburn, N. 2003, *Deleuze, Marx and Politics*. Routledge: London and New York.
- Thornhill, T. 2013, "The Tamagotchi is BACK: Addictive 1990s Toy Gets a 21st-century Makeover (But Not in the Graphics Department)," in *Daily Mail*, viewed 12 December 2015, from: <http://www.dailymail.co.uk/sciencetech/article-2513237/The-Tamagotchi-BACK-Addictive-1990s-toy-gets-21st-century-makeover-graphics-department.html#>
- Thornton, J. 2016, "Enchanting Treetop Point-and-click Adventure," in *Softonic*, viewed 14 April 2016, from: <http://botanacula.en.softonic.com/>
- Tinnell, J. 2012, "Ecology, Writing Theory, and New Media: Writing Ecology." In Dobrin, S. (ed.) *Ecology, Writing Theory, and New Media: Writing Ecology*. Routledge: New York.
- Togati T. D. 2006, *The New Economy and Macroeconomic Stability: A Neo-modern Perspective Drawing on the Complexity Approach and Keynesian Economics*. Psychology Press (Taylor & Francis): Milton Park.
- Toke, D. 2000, *Green Politics and Neo-Liberalism*. Palgrave Macmillan: London.
- Trappes-Lomax, H. "Discourse Analysis." In Davies, A. & Elder, C. (eds.) *The Handbook of Applied Linguistics*. Blackwell: Hoboken.
- Tribe, M. & Jana, R. 2006. *New Media Art*. Taschen: Cologne.

- Tsivian, Y. 2004, *Lines of Resistance: Dziga Vertov and the Twenties*. Le Giornate del Cinema Muto: Pordenone.
- Turkle, S. 2011, *Alone Together: Why We Expect More From Technology and Less From Each Other*. Basic Books: New York.
- United Nations. 2011, "United Nations Conference on Sustainable Development, Rio+20," viewed 14 April 2015, from: <https://sustainabledevelopment.un.org/rio20>
- UNSD (The Environment Statistics Section of the United Nations Statistics Division). 2015, "Environment and Energy Statistics," viewed 6 December 2015, from: http://unstats.un.org/unsd/environment_main.htm
- UNSTATS. 2010, "Demographic and Social Statistics," viewed 6 December 2015, from: <http://unstats.un.org/unsd/demographic/>
- Van Gilder Cooke, S. 2012, "Shark Week: A New App That Lets You Track Great Whites," in Time, viewed 4 May 2016, from: <http://newsfeed.time.com/2012/08/16/shark-week-a-new-app-that-lets-you-track-great-whites/>
- van Zon, H. 2016, *Globalized Finance and Varieties of Capitalism*. Palgrave Macmillan: London.
- Varfis, C. 2009, "International Agreements." In Kutting, G.M. (ed.) *Conventions, Treaties and Other Responses to Global Issues*. Eolss Publishers/UNESCO: Oxford.
- Vegter, I. 2015, "Paris Climate Conference is a Waste of Time and Money," in the Daily Maverick, viewed 12 December 2015, from: <http://www.dailymaverick.co.za/opinionista/2015-12-01-paris-climate-conference-is-a-waste-of-time-and-money/#.V1Fj8PI97IU>
- Velasquez, M. 2010, *Philosophy: A Text with Readings*, Eleventh Edition. Cengage Learning: Boston.
- Velinger, J. 2015, "Amanita Design Founder Jakub Dvorský on Successful Artistic Point-and-click Games Machinarium and Botanicula," on Radio Praha, viewed 12 December 2015, from <http://www.radio.cz/en/section/arts/amanita-design-founder-jakub-dvorsky-on-successful-artistic-point-and-click-games-machinarium-and-botanicula--1>
- Vermaas, P.E. 2001, "A Philosopher's Understanding of Quantum Mechanics: Possibilities and Impossibilities of a Modal Interpretation," *The British Journal for the Philosophy of Science* 52(2), June, pp. 387-391.
- Vertov, D. 1929, *Man with a Movie Camera*. VFKU: Soviet Union.
- Vetlesen, A.J. 2015, *The Denial of Nature, Environmental Philosophy in the Era of Global Capitalism*. Routledge: New York.

- Vidal, J. 2013, "Climate Change Will Hit Poor Countries Hardest, Study Shows," in The Guardian, viewed on 12 December 2014, from: <http://www.theguardian.com/global-development/2013/sep/27/climate-change-poor-countries-ipcc>
- Visconti, L. 1972, *Ludwig*. Gloria Filmverleih AG: Italy.
- Vise, D. 2009, "Think Again: Google," in Foreign Policy, viewed 16 November 2015, from: <http://foreignpolicy.com/2009/10/16/think-again-google/>
- Von Uexküll, J. 1957, "A Stroll Through the Worlds of Animals and Men: A Picture Book of Invisible Worlds." In Schiller, C.H. (ed. & trans.) *Instinctive Behaviour: The Development of a Modern Concept*. International Universities Press: New York.
- W3Schools. 2015, "Browser Statistics and Trends," in W3Schools, viewed 3 March 2015, from: http://www.w3schools.com/browsers/browsers_stats.asp
- Walker, J. 2011, "Hands On: Botanicula," in Rock Paper Shotgun, viewed 12 December 2015, from: <https://www.rockpapershotgun.com/2011/12/06/hands-on-botanicula/>
- Walker, M. 1995, *The Cold War: A History*. Henry Holt & Company: New York.
- Ward, A. 2013, *Women and Tudor Tragedy: Feminizing Counsel and Representing Gender*. Fairleigh Dickinson University Press: Madison.
- Warf, B. 2000, *Cities in The Telecommunications Age: The Fracturing of Geographies*. Psychology Press: London.
- Warnke, M.B. 2015, "Why We Were Addicted to Our Tamagotchis," in VICE news, viewed 12 December 2015, from: <https://www.vice.com/read/in-praise-of-tamagotchi-683>
- Waters, J. 2016, "Tracking Sharks in the Atlantic," in Tribune & Georgian, viewed 10 May 2016, from: <http://www.tribune-georgian.com/news/tracking-sharks-atlantic>
- Watts, J. 2012, "Rio+20's Search for Green Solutions Laden by Divisions," in The Guardian, viewed 5 October 2015, from: <http://www.climatecentral.org/news/rio20s-search-for-green-solutions-hampered-by-deep-divisions>
- Webster, S. 2010, "MasterCard, Visa Shut Down Electronic Donations to WikiLeaks," in Raw Story, viewed 7 December 2015, from: <http://www.rawstory.com/2010/12/mastercard-shuts-donations-wikileaks-calling-site-illegal/>
- Weinstein, R. 1997, "We Gotta Have a Tamagotchi, Children Squeal," in the Sun Sentinel, viewed 12 December 2015, from: http://articles.sun-sentinel.com/1997-06-15/news/9706140249_1_kay-bee-tamagotchi-toy

- Wenninger, A. 2008, "Territory(ies) Internet: A Deleuzian Perspective on Ownership and Identity on the Web," in MIT University, viewed 25 November 2015, from: http://web.mit.edu/comm-forum/mit5/papers/mit5_wenninger.pdf.
- West Palm Beach TV. 2013, "Shark Tracker: OCEARCH Researchers Track Lydia, a 2,000 Pound Great White Shark near Jacksonville," viewed 9 May 2016, from: <http://www.wptv.com/news/state/shark-tracker-ocearch-researchers-track-lydia-a-2000-pound-great-white-shark-near-jacksonville>
- West, T. 1997, *Electronic Pet Care*. Scholastic Incorporated: New York.
- White Shark Café. 2014, "Mapping the Cafe...Again," viewed 4 May 2016, from: <http://www.whitesharkcafe.com/news/mapping-the-cafeagain>
- White Shark Café. 2014, "Step by Step Explanation of Shark Tracking," viewed 4 May 2016, from: <http://www.whitesharkcafe.com/news/step-by-step-explanation-of-shark-tracking>
- White Shark Café. 2014, "Tracking Apps," viewed 4 May 2016, from: <http://www.whitesharkcafe.com/tracking-apps.html>
- Whitehead, A.N. 1967, *Process and Reality*. The Free Press: New York.
- Whiteley, D. 2013, *An Introduction to Information Systems: Organisations, Applications, Technology, and Design*. Palgrave Macmillan: London.
- Wichler, G. 1961, *Charles Darwin: The Founder of the Theory of Evolution and Natural Selection*. Pergamon Press: Oxford.
- Wiedmann, O., Schandl, H., Lenzen, M., Moran, D., Suh, S., West, J. & Kanemoto, K. 2013, "The Material Footprints of Nations." In Alier, J. (ed.) *The Proceedings of the National Academy of Sciences*. Autonomous University of Barcelona: Spain.
- Wilcken, P. 2010, *Claude Levi-Strauss: The Poet in the Laboratory*. Bloomsbury: London.
- Williams, E. 2011, "Environmental Effects of Information and Communications Technologies," *Nature* 479(7373), pp. 354-358.
- Williams, J. 2001, *Gilles Deleuze's Difference and Repetition: A Critical Introduction and Guide*. Edinburgh University Press: Edinburgh.
- Williams, K. 1997, *The Prague Spring and its Aftermath: Czechoslovak Politics, 1968-1970*. Cambridge University Press: Cambridge.
- Williams, R. 2005, "Politics and Self in the Age of Digital Re(pro)ducibility," *Fast Capitalism* 1.1., viewed 25 March 2015, from: https://www.uta.edu/huma/agger/fastcapitalism/1_1/williams.html
- Williams, R. 2012, *Tragedy, Recognition, and the Death of God: Studies in Hegel and Nietzsche*. Oxford University Press: Oxford.

- Winnington-Ingram, R.P. 1980, *Sophocles: An Interpretation*. Cambridge University Press: Melbourne.
- WiresNews Corp Australia Network. 2015, "An App That Follows Sharks in Real-time Amazes Beachgoers and Scientists," in News.com, viewed 10 May 2016, from: <http://www.news.com.au/technology/an-app-that-follows-sharks-in-realtime-amazes-beachgoers-and-scientists/news-story/7d9b842396cae64008a7002c6f956358>
- World Land Trust. 2016, "About the World Land Trust," viewed 14 April 2016, from: <http://www.worldlandtrust.org/about/index>
- WRI (The World Resources Institute). 2015, "2015 Highlights," viewed 6 December 2015, from: <http://www.wri.org/annualreport/2015/2015-highlights/>
- WWF (World Wildlife Fund). 2015, "Global Initiatives," viewed 6 December 2015, from: http://wwf.panda.org/what_we_do/how_we_work/key_initiatives/
- Yergin, D. 2008, *The Prize: The Epic Quest for Oil, Money & Power*. The Free Press (Simon and Schuster): New York.
- Zepke, S. & Lee, L. 2005, *Art as Abstract Machine: Ontology and Aesthetics in Deleuze and Guattari*. Routledge: New York.
- Zhang, Y., Tang, LS. & Leung, L. 2011, "Gratifications, Collective Self-esteem, Online Emotional Openness, and Traitlike Communication Apprehension as Predictors of Facebook Uses," *Cyberpsychology: Behaviour and Social Networking* 14(12), pp. 733-739.
- Zwier, S., Araujo, T., Boukes, M. & Willwmsen. 2011, "Boundaries to the Articulation of Possible Selves through Social Networking Sites: The Case of Facebook Profilers' Social Connectedness," *Cyberpsychology: Behaviour and Social Networking* 14(9), pp. 483-488.